frontiers | Research Topics

Mental health equity

Edited by
April Joy Damian, Benjamin Miller and
Joseph Gallo

Published in
Frontiers in Public Health
Frontiers in Psychiatry

ISSN 1664-8714
ISBN 978-2-8325-3922-4
DOI 10.3389/978-2-8325-3922-4

About Frontiers

Frontiers is more than just an open access publisher of scholarly articles: it is a pioneering approach to the world of academia, radically improving the way scholarly research is managed. The grand vision of Frontiers is a world where all people have an equal opportunity to seek, share and generate knowledge. Frontiers provides immediate and permanent online open access to all its publications, but this alone is not enough to realize our grand goals.

Frontiers journal series

The Frontiers journal series is a multi-tier and interdisciplinary set of open-access, online journals, promising a paradigm shift from the current review, selection and dissemination processes in academic publishing. All Frontiers journals are driven by researchers for researchers; therefore, they constitute a service to the scholarly community. At the same time, the *Frontiers journal series* operates on a revolutionary invention, the tiered publishing system, initially addressing specific communities of scholars, and gradually climbing up to broader public understanding, thus serving the interests of the lay society, too.

Dedication to quality

Each Frontiers article is a landmark of the highest quality, thanks to genuinely collaborative interactions between authors and review editors, who include some of the world's best academicians. Research must be certified by peers before entering a stream of knowledge that may eventually reach the public - and shape society; therefore, Frontiers only applies the most rigorous and unbiased reviews. Frontiers revolutionizes research publishing by freely delivering the most outstanding research, evaluated with no bias from both the academic and social point of view. By applying the most advanced information technologies, Frontiers is catapulting scholarly publishing into a new generation.

What are Frontiers Research Topics?

Frontiers Research Topics are very popular trademarks of the *Frontiers journals series*: they are collections of at least ten articles, all centered on a particular subject. With their unique mix of varied contributions from Original Research to Review Articles, Frontiers Research Topics unify the most influential researchers, the latest key findings and historical advances in a hot research area.

Find out more on how to host your own Frontiers Research Topic or contribute to one as an author by contacting the Frontiers editorial office: frontiersin.org/about/contact

Mental health equity

Topic editors
April Joy Damian — Weitzman Institute, United States
Benjamin Miller — Stanford University, United States
Joseph Gallo — Johns Hopkins University, United States

Citation
Damian, A. J., Miller, B., Gallo, J., eds. (2023). *Mental health equity*.
Lausanne: Frontiers Media SA. doi: 10.3389/978-2-8325-3922-4

Table of contents

Frontiers in Psychiatry

TYPE Editorial
PUBLISHED 31 October 2023
DOI 10.3389/fpsyt.2023.1303277

Editorial: Mental health equity

April Joy Damian[1,2]*, Benjamin F. Miller[3] and Joseph J. Gallo[2]

[1]Weitzman Institute, Washington, DC, United States, [2]Department of Mental Health, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, United States, [3]Department of Psychiatry and Behavioral Sciences, School of Medicine, Stanford University, Stanford, CA, United States

OPEN ACCESS

EDITED AND REVIEWED BY
Wulf Rössler,
Charité University Medicine Berlin, Germany

*CORRESPONDENCE
April Joy Damian
✉ adamian2@jh.edu

RECEIVED 27 September 2023
ACCEPTED 18 October 2023
PUBLISHED 31 October 2023

CITATION
Damian AJ, Miller BF and Gallo JJ (2023) Editorial: Mental health equity. *Front. Psychiatry* 14:1303277. doi: 10.3389/fpsyt.2023.1303277

KEYWORDS

health equity (MeSH), mental health, healthcare delivery systems, workforce, health justice

Editorial on the Research Topic
Mental health equity

This Research Topic aims to move beyond a synthesis of what is already known about mental health in the context of health equity, and instead showcase transformative solutions, recommendations, and research applications that have real-world implications on policy, practice, and future scholarship. Furthermore, the papers included in this Research Topic elevate the importance of transdisciplinary research, draw from various methodologies that highlight lived experiences, and apply a more critical lens at how structures of power and privilege have contributed to present-day inequities, particularly those seen in mental healthcare access, utilization, and outcomes.

A foundational aspect of this work is our delivery system. The following articles tackled delivery reform in three very different ways:

McKune et al. performed a longitudinal study that examined risk factors associated with symptoms of anxiety, depression, and obsessive-compulsive disorder (OCD) among K-12 public school children in Florida during the first year of the COVID-19 pandemic. The authors found that the prevalence of anxiety, depression, or OCD fluctuated from 47.1% (April 2020) to 57.2% (October 2020) to 42.2% (April 2021). Those at highest risk for mental health issues were BIPOC (Black, Indigenous, People of Color) children, students who had lost a family member from COVID-19, and those who were identified as at-risk in previous assessments. The study underscores the need for targeted mental health interventions and screenings, particularly among BIPOC children, during situations like COVID-19.

Toro-Devia and Leyton performed a secondary analysis of data from public and private insurance sources to examine the implications of COVID-19 on the utilization of Chile's Guaranteed Explicit Health Benefits Plan (GES) for mental health. Surprisingly, during the pandemic, mental illness cases decreased by 10.5% in public insurance and 28.7% in private insurance. Conversely, psychiatric consultations outside of the GES plan doubled in 2020 in private insurance. These findings suggest that while the demand for mental healthcare rose during the pandemic, both public and private health insurance systems witnessed a decrease in admissions to the GES universal plan. The study underscores potential weaknesses in a universal guaranteed plan within an individual contribution system.

Mallonee et al. conducted semi-structured focus groups to understand the challenges faced by Hispanic adults in accessing professional mental health treatment in the Paso del Norte U.S.-Mexico border region. The qualitative analysis revealed several key themes, including participants' understanding of how to get help, and what they think mental health agencies, providers, and researchers should do to improve access. These findings also underscore the pressing need for innovative approaches to mental health engagement in the region and highlight the importance of tailoring mental health initiatives to the specific needs and cultural contexts of Hispanic communities in the border region.

This is followed by a set of articles highlighting *Mental health equity* as it relates to the workforce:

Chen and Wang used national data from the Health Survey for England to study the prevalence of common mental health problems according to industrial classification from 2014 to 2018. The highest rate of common mental health problems was found in the unemployed with a third scoring above the threshold on the General Health Questionnaire (GHQ-12). Comparing industries over time revealed wide variation in rates, but a common trend was an increasing disparity in the rate of distress within industries between men and women.

Fu et al. studied Chinese nurses to delineate the association between social support and depressive symptoms among nurses with formal vs. contract employment. Compared to population norms, Chinese nurses in the study had a significantly higher prevalence of depression symptoms and lower social support. Nurses with less social support had higher depressive symptoms, more so among nurses with contract employment. Findings from the study suggest nurses in contract jobs have more job insecurity for which objective and subjective social support may act as a buffer against depression.

Ghebrehiwet et al. described the development of a postgraduate psychiatry training program in Liberia to address the critical shortage of trained psychiatrists and other mental health workers. The publication outlines steps taken to inaugurate a new psychiatry training program built on the foundation of a longstanding cross-country academic affiliation and national policy encouraging local capacity building. Significant challenges had to be overcome: stakeholder engagement at the national level; recruiting residency candidates; and, balancing the clinical work of the only two in-country psychiatrists with curriculum development, teaching, and advocacy.

We close out this Research Topic with a set of insightful articles presenting innovative frameworks in *Mental health equity* research:

Alemu et al. present an overview of the history of how Western-derived psychiatry and the over-reliance on Western-derived taxonomies are linked to the ongoing present-day challenges with untreated mental health challenges in many African countries. Decolonizing mental healthcare through the network approach is proposed as a viable means for addressing global mental health inequity by alleviating stigma toward mental health problems, and encouraging local researchers to pioneer context-based knowledge production and treatment design.

Faber et al. critically examine the experiences of Black people living in the United States and Canada with early schizophrenia-spectrum disorders. Racial differences in the diagnosis of schizophrenia-spectrum disorders, including misdiagnoses and barriers to treatment for Black communities, compounded by implicit bias and institutional racism in both medicine and law enforcement, are also explored. Improving diagnostic accuracy and implementing anti-racism training for mental health clinicians are among the host of recommendations proposed.

Adams and Thorpe highlight existing knowledge gaps in understanding suicide prevention for Black men and boys and offer a set of key recommendations including (1) Prioritizing frameworks centered on Black male suicide prevention, (2) Addressing innovative solutions to maintain continuity of care for Black males, (3) Enhancing research approaches to better capture the heterogeneity of Black males in suicide research, (4) Leveraging advancements in crisis support hotlines and safety planning to better serve Black males, and (5) Placing community stakeholders at the forefront of solution-driven suicide prevention research.

The Guest Editors would like to thank all the authors and reviewers for their work and devotion to the Research Topic, and hope that it can inspire further research in *Mental health equity*.

Author contributions

AD: Writing – original draft, Writing – review & editing. BM: Writing – original draft. JG: Writing – original draft.

Funding

The author(s) declare that no financial support was received for the research, authorship, and/or publication of this article.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

Frontiers in Public Health

TYPE Original Research
PUBLISHED 04 January 2023
DOI 10.3389/fpubh.2022.1005033

OPEN ACCESS

EDITED BY
April Joy Damian,
Weitzman Institute, United States

REVIEWED BY
Krushna Chandra Sahoo,
Regional Medical Research Center
(ICMR), India
Sobur Setiaman,
Institute Health Science Strada
Indonesia, Indonesia

*CORRESPONDENCE
Gonzalo Leyton
gleyton@uchile.cl

SPECIALTY SECTION
This article was submitted to
Public Mental Health,
a section of the journal
Frontiers in Public Health

RECEIVED 27 July 2022
ACCEPTED 23 November 2022
PUBLISHED 04 January 2023

CITATION
Toro-Devia O and Leyton G (2023)
COVID-19 pandemic and mental
healthcare: Impact on health
insurance with guaranteed universal
access in Chile.
Front. Public Health 10:1005033.
doi: 10.3389/fpubh.2022.1005033

COVID-19 pandemic and mental healthcare: Impact on health insurance with guaranteed universal access in Chile

Olga Toro-Devia[1,2] and Gonzalo Leyton[1,3]*

[1]School of Public Health, Faculty of Medicine, Universidad de Chile, Santiago, Chile, [2]Doctoral Program in Public Health, University of Chile, Santiago, Chile, [3]Superintendence of Health, Studies Department, Santiago, Chile

Background: Universal health coverage (UHC) is a goal of the member states of the United Nations. The negative impact of the COVID-19 pandemic on mental health, inequalities in access to care, and financing gaps set a problematic scenario for universal mental health coverage. In Latin America, depression and anxiety disorders have increased by more than 30%. Chile implemented a reform for UHC in 2005 generating a mandatory guaranteed plan for health insurance (GES) that covers schizophrenia, depression, bipolar disorders, and Alzheimer's disease. We assume that the pandemic increased cases of mental illness in GES of public and private insurance.

Objectives: This study aimed to explore the effects of the pandemic on the use of the GES mental health plan of public and private insurance.

Methods: A descriptive analysis of secondary data from public and private insurance on the use and expenditure of the GES plan in mental illness between 2005 and 2020 was carried out. An aggregate analysis of the use of psychiatric consultations without a guaranteed plan and sick leave was performed.

Results: Between 2005 and 2020, 18.5% of GES cases corresponded to four mental health illnesses (1,682,021 cases). Public insurance covered 80% of cases. In the pandemic, cases of mental illness fell by 10.5% in public insurance and 28.7% in private ones, reducing spending by 33 and 6.2%, respectively. Psychiatric consultations without using the GES plan doubled in 2020 in private insurance, and medical discharges due to mental illness also increased. Leave due to mental illness increased by 20% in both types of insurance.

Conclusion: The results suggest that the demand for mental healthcare increased during the pandemic, but public and private health insurance reduced admissions to the GES universal plan for schizophrenia, depression, and bipolar disorder. A universal guaranteed plan in an individual contribution system can have essential weaknesses for people when the principles of social security are not complied with, especially concerning the solidarity of the health insurance system.

KEYWORDS

mental health, universal coverage, COVID-19 pandemic, health insurance, financing

1. Introduction

Before the COVID-19 pandemic in the Americas, mental, substance use, neurological disorders, and suicide accounted for one-third of all years lived with disability (YLD) and one-fifth of total disability-adjusted life years (DALYs) (1). Depression and anxiety disorders were among the 25 diseases with the highest DALYs, while deaths from drug use disorders have risen over the past decade (2, 3). The first cases of COVID-19 were identified in December 2019 in the Chinese city of Wuhan. The World Health Organization declared it a public health emergency of international concern on 30 January 2020 and recognized it as a pandemic on 11 March 2020. The first case of the COVID-19 pandemic in Chile was confirmed on 3 March 2020. The outbreak of the pandemic is exacerbating the mental health landscape. The Americas is the most affected by the pandemic, with 39% of infected cases and 46% of all deaths worldwide (September 2021) (4). It is estimated that in Latin America and the Caribbean, the prevalence of depression and anxiety disorders increased by more than 30% (5). The region of the Americas has profound inequalities in response to mental health services, and there is an imbalance between the burden of mental illness and the health budget allocated to mental health (6).

The Member States of the United Nations have committed to attempting to achieve universal health coverage by 2030 at the latest, within the framework of the achievement of the Sustainable Development Goals (3, 7). The 74th World Health Assembly (May 2021) recognized the importance of expanding access to mental health services; the World Health Organization called on all countries to make substantial investments in mental health as part of their journey toward universal health coverage. The negative impact of the pandemic on mental health, inequalities in access to mental healthcare, and financing gaps make up a problematic scenario for universal mental health coverage in the region.

Chile implemented a reform for universal health coverage in 2005, based on the profound inequities in the healthcare of its population. This reform generated a mandatory guaranteed plan for public (FONASA) and private (ISAPRES) health insurance called Universal Plan with Explicit Guarantees in Health (GES) (8). The GES plan establishes legal guarantees of access, opportunity, quality, and financial protection. It regulates the maximum price that a person can co-pay for each health problem in both types of insurance. A total of 78% of the population is affiliated with public insurance, while 18% with private insurance. The GES plan began with 25 health problems, which increased over the years. Currently, the GES plan covers 85 health problems, among those that are linked to mental disorders are as follows: schizophrenia, depression, bipolar disorders, and Alzheimer's disease, called "GES mental health plan" in this study. It has been argued that the principle of universal coverage of the GES plan has contributed to access to care for schizophrenia, especially for the most vulnerable population (9).

However, the pandemic had adverse effects on mental health services in Chile since they significantly reduced their capacity for care, especially in the first months. The country made a significant effort to develop strategies to address mental health needs during the pandemic (10). Examples of this effort are the "Saludablemente" plan to strengthen mental healthcare measures during a pandemic and the new law 21,331 to protect mental healthcare, which requires parity between mental health and other health problems (11). Despite public efforts, the effect on access to mental healthcare has not been evaluated, considering a universal guaranteed plan.

The objective of our study is to explore the effects of the pandemic on the use of the GES mental health plan of public and private insurance. In this context, the study is relevant as the effects of COVID-19 on mental health are compounded by the current global economic crisis, where the latest available evidence (12) shows that a change in income is followed by a subsequent change in wellbeing and mental health, suggesting a unidirectional causal effect of income on mental health and wellbeing. Our purpose is to provide evidence for decision-makers who will face the dilemma of how to continue advancing the commitments of universal coverage in mental health in an adverse scenario. Although the study is limited to only one Latin American country, Chile is interesting for other countries because it has a universal access plan for public and private health insurance, including mental health problems. The GES plan would mean progress toward universal health coverage.

2. Materials and methods

2.1. Data sources and study design

It is an observational study based on secondary data. Affiliates to public health insurance are around 15 million people and private health insurance is 3 million people.

2.2. Study variables and samples

We collected data on the use of the GES plan for schizophrenia, depression, bipolar disorder, and Alzheimer's disease reported by public insurance and private insurance between 2005 and 2020, which accumulates a total of 1,682,021 cases. Legal regulations oblige them to report to a government health entity called the Superintendence of Health. The data are anonymized. We included data on new case intakes and monetary insurance expenses using the plan. Based on the preliminary results, we consider it necessary to corroborate whether the demand for mental healthcare has increased since the pandemic, without the use of the GES plan. Because people

TABLE 1 Mental disorders in universal health guarantee plan GES.

Measure	**Cumulative cases Jul 2005–Dec 2020**		**New cases Jan–Dec 2019**		**New cases Jan–Dec 2020**	
	Public insurance	**Private insurance**	**Public insurance**	**Private insurance**	**Public insurance**	**Private insurance**
Total GES cases (*N*) mental disorders	1,347,726	334,295	60,790	24,498	54,405	17,466
Total GES cases (change %) mental disorders					−10.5%	−28.7%
Total GES cases (*N*)	40,112,042	2,212,441	3,396,714	194,535	1,980,456	132,694
Total GES cases (change %)					−41.7%	−31.8%
Total GES cases (*N*) mental disorders/Total GES cases (*N*)	3.4%	15.1%	1.8%	12.6%	2.7%	13.2%
Total GES expenditure (US$) mental disorders			36,636,174	35,084,002	24,441,205	32,922,125
Total GES expenditure (real change %) mental disorders					−33.3%	−6.2%
Total GES expenditure (US$)*, **			761,827,087	310,734,773	643,792,382	296,556,252
Total GES expenditure (change %)					−15.5%	−4.6%
Total GES expenditure (US$) mental disorders/Total GES expenditure (US$)			4.8%	11.3%	3.8%	11.1%

*Excluding co–payments; **Exchange rate: 1 US$ = 792.2 pesos chilenos.

can accept or reject care for their health problems with the GES plan, we collected data on a) consultations and teleconsultations with a psychiatrist for mental health problems without using the GES plan (it was possible for private insurance); and b) sick leave granted for any mental health diagnosis according to the ICD-11 classification (Mental, Behavioral and Neurodevelopmental Disorders Group) of 2019 and 2020.

2.3. Data analysis

We analyzed data descriptively. We calculated the frequencies and percentages of new cases according to the type of insurance, mental health problem, and year. We estimated the proportion of use due to mental health problems about the full use of the GES plan. The use ratio was standardized according to the population effectively affiliated with the insurance, and the public/private use rate ratio was estimated. We calculated the variation in use ratio over the years for schizophrenia, depression, and bipolar disorder. We detailed the comparison between 2019 and 2020. Data on Alzheimer's disease are limited because the law incorporated it into the GES plan in 2019.

The proportion of spending in the GES plan that went to mental health problems by the type of insurance was calculated. We estimated the variation in this expense before and after the start of the pandemic.

We reported that consultations and teleconsultations with a psychiatrist for mental health problems without using the GES plan in private insurance have increased. We checked whether the mental health sick leaves had increased. Only the doctor prescribes sick leave, and there was a greater demand for medical consultation, even if people did not use their guaranteed plan (GES). Chile guarantees paid sick leave to all its workers. We compared the total number of sick leave processed with the proportion of those that got rejected or reduced the prescribed rest days by insurance.

3. Results

Since the GES plan began in 2005, 18.5% of the cases correspond to mental health. Of the total GES cases of private insurance, 15.1% of the cases correspond to mental health. Of the total GES cases of public insurance, 3.4% of the cases correspond to mental health (Table 1). Although public insurance shows relatively fewer mental health cases than private insurance, it covered 80.1% of the total mental health cases when both insurances were added. This is because public insurance covers most of the population, with more than 40 million GES cases in the entire period vs. a little more than 2 million GES cases from private insurance.

In the first year of the pandemic, mental health cases in public insurance decreased by 10.5% compared to 2019. This number is relatively small compared to the total decrease in cases of the GES plan of 41.7% for that insurance. In contrast, in private insurance, mental health cases decreased between 2019 and 2020 by 28.7%, a figure close to the total reduction of their GES cases of 31.8%.

Although in 2019 the number of cases in public insurance were more than twice as high as those in private insurance, the expense spending on mental health differed by just 4.4%

TABLE 2 Mental disorders in the universal health guarantee plan GES according to the type of diagnosis.

Mental disorders	Measure	Cumulative cases Jul 2005–Dec 2020		New cases Jan–Dec 2019		New cases Jan–Dec 2020	
		Public insurance	Private insurance	Public insurance	Private insurance	Public insurance	Private insurance
Schizophrenia	Cases (*N*)	41,151	4,111	3,112	310	2,369	282
	Cases (%)	(3.1%)	(1.2%)	(5.1%)	(1.3%)	(4.4%)	(1.6%)
	Total annual use rate*			22.5	9.1	17.1	8.2
	Total annual use rate (change %)					−24.0%	−9.9%
	Public/Private use rate ratio			2.5		2.1	
	GES expenditure (US$)**, ***			3,848,431	3,388,499	2,929,605	3,548,167
	GES expenditure (%)			(10.5%)	(9.7%)	(12.0%)	(10.8%)
	GES expenditure (2020–2019)–change %					−23.9%	4.7%
Depression (aged 15 +)	Cases (*N*)	1,262,916	304,852	51,758	21,048	33,896	14,249
	Cases (%)	(93.7%)	(91.2%)	(85.1%)	(85.9%)	(62.3%)	(81.6%)
	Total annual use rate*			464.3	783.6	304.1	530.5
	Total annual use rate (change %)					−34.5%	−32.3%
	Public/Private use rate ratio			0.6		0.6	
	GES expenditure (US$)**, ***			31,056,659	22,763,871	20,338,818	20,937,896
	GES expenditure (%)			(84.8%)	(64.9%)	(83.2%)	(63.6%)
	GES expenditure (2020–2019)–change %					−34.5%	−8.0%
Bipolar disorders (aged 15 +)	Cases (*N*)	23,786	24,181	2,496	2,714	1,691	2,210
	Cases (%)	(1.8%)	(7.2%)	(4.1%)	(11.1%)	(3.1%)	(12.7%)
	Total annual use rate*			22.4	101	15.2	82.3
	Total annual use rate (change %)					−32.1%	−18.5%
	Public/Private use rate ratio			0.2		0.2	
	GES expenditure (US$)**, ***			1,731,084	8,931,632	1,172,782	8,436,062
	GES expenditure (%)			(4.7%)	(25.5%)	(4.8%)	(25.6%)
	GES expenditure (2020–2019)–change %					−32.3%	−5.5%
Alzheimer's disease and other dementias	Cases (*N*)	19,873	1,151	3,424	426	16,449	725
	Cases (%)	(1.5%)	(0.3%)	(5.6%)	(1.7%)	(30.2%)	(4.2%)
	Total annual use rate*			41.4	21.5	199	36.5
	Total annual use rate (change %)					380.7%	69.8%
	Public/Private use rate ratio			1.9		5.4	
	GES expenditure (US$)**, ***			1,202,908	20,355	5,778,806	251,113
	GES expenditure (%)			(3.3%)	(0.1%)	(23.6%)	(0.8%)
	GES expenditure (2020–2019)–change %					380.4%	1133.7%

[*] Ratio between GES cases (N) of the target population defined in the Access Guarantee of the Supreme Decree in force per 100,000 beneficiaries.

[**] Excluding co–payments.

[***] Exchange rate: 1 US$ = 792.2 pesos chilenos.

between both insurances. In 2019, mental health spending represented 4.8% of the total GES plan in public insurance and 11.3% in private insurance. In 2020, the mental health expense would be 33.3% in public insurance, proportionally double the total expense of your GES plan will owe (−15.5%). In private insurance, the decrease in spending on mental health was 6.2%, a relative figure higher than the 4.6% decrease in spending for the total of its GES plan. In the first year of the pandemic, the expenditure of the GES plan on the mental health of public insurance was 26% below that of private insurance, although its cases were three times higher.

TABLE 3 Psychiatric consultations reported by private insurance without using the GES universal access plan.

Fonasa MLE code	Detail	2020		2019		Insurer expenditure (change %)	Frequency–change %
		Insurer expenditure (US$)*	Frequency (*N*)	Insurer expenditure (US$)*	Frequency (*N*)		
0101212	Medical consultation specializing in adult psychiatry	4,031,504	169,713	1,926,297	82,732	109%	105%
0101213	Medical consultation specializing in pediatric and adolescent psychiatry	179,722	7,337	117,800	4,544	53%	61%
0108212	Telemedical consultation specializing in adult psychiatry (1st consultancy)	467,194	15,869				
0108213	Telemedical consultation specializing in pediatric and adolescent psychiatry (1st consultancy)	5,233	248				
0908101	Telerehabilitation: clinical psychologist (45' sessions)	248,743	10,138				

*Exchange rate: 1 US$ = 792.2 pesos chilenos. The grey shade color is the porcentual change between 2019 and 2020.

Compared between 2019 and 2020, schizophrenia had an annual rate of 22.5 cases vs. 17.1 per 100,000 members of public insurance and 9.1 vs. 8.2 in private insurance. The public/private ratio of cases x 100,000 affiliates is 2.5 in 2019 and dropped to 2.1 in 2020. Therefore, the rate of public use is more than double that of private insurance. Despite this difference, private spending for schizophrenia represented 0.9 times public spending in 2019, while private spending was 1.2 times higher than public spending in the first year of the pandemic. Public insurance decreased its GES expenditure for schizophrenia by 23.9% compared to both years. It should be noted that in public insurance, cases of schizophrenia represent 3.1% of the accumulated cases in the entire period, 5.1% in 2019, and 4.4% in 2020. While for private insurance, the accumulated is 1.2%, for 2019 is 1.3%, and for 2020 is 1.6%.

Of the four mental health problems included in the GES plan, cases of depression in 2019 represented more than 85% (Table 2). This proportion changed in the first year of the pandemic, particularly in public insurance, which fell to 62.3%, although they continue to be the most prevalent cases. Between 2019 and 2020, depression had an annual rate of 464.3 cases vs. 304.1 per 100,000 members of public insurance and 783.6 vs. 530.5 in private insurance. The public/private ratio of cases x 100,000 affiliates is 0.6 for both years. Therefore, the rate of private use is much higher than public use. Private spending for depression was 0.7 times public spending in 2019, while in 2020, they spent practically the same. However, of the total cases of GES depression, only 30% corresponded to private insurance. Public insurance decreased its GES expense for depression by 34.5% compared to both years.

For bipolar disorder, compared to 2019 and 2020, public insurance had a rate of 22.4 and 15.2 cases, respectively, per 100,000 affiliates. As for private insurance, it was 101 and 82.3, respectively. With regard to the cases accumulated throughout the period, cases of bipolar disorder represent 1.8% of public insurance and 7.2% of private insurance. This health problem was incorporated into the GES plan only in 2013. In 2019, they represented 4.1% of public insurance and 11.1% of private insurance. As for 2020, those figures are 3.1 and 12.7%, respectively. The public/private use ratio in both years is 0.2. Private insurers spent more than a quarter of their spending on cases of bipolar disorder.

In comparison, public insurance does not exceed 5% of spending. Overall, even though raw bipolar disorder numbers are slightly lower for public insurance, private insurance spent 5.2 times more in 2019 and 7.2 times more in 2020. Public insurance decreased its GES spending for bipolar disorder by 32.3% compared to both years.

Alzheimer's disease and other dementias were incorporated at the end of 2019 into the GES plan. Therefore, it is expected to observe exponential growth for the first effective year of the plan in 2020. During the first year of the pandemic, the ratio of public/private use was 5.4. Public insurance attended 96% of these GES cases.

TABLE 4 Leave due to mental illness 2019–2020.

Sick leave status	Diagnosis	Measures	2019		2020	
			Public insurance	Private insurance	Public insurance	Private insurance
Processed	Mental disorders	*N*	1,127,470	322,313	1,344,444	385,819
		%	24.7%	20.3%	28.6%	28.8%
		Sick leaves rate*	24	18	29	23
		Public/Private sick leaves rate ratio	1.32		1.29	
		Sick leaves rate (change %)			19.9%	22.9%
	Total processed sick leaves**		**4,560,459**	**1,588,311**	**4,695,591**	**1,338,494**
Authorized***	Mental disorders	*N*	1,006,447	294,794	1,121,980	313,392
		%	23.3%	14.6%	26.0%	19.6%
		Sick leaves rate*	22	17	24	18
		Public/Private sick leaves rate ratio	1.29		1.33	
		Sick leaves rate (change %)			12.1%	9.1%
	Total authorized sick leaves		**4.311,033**	**2.016,165**	**4.310,301**	**1.602,393**
Refused	Mental disorders	*N*	119,896	121,565	221,241	176,752
		%	48.8%	56.4%	58.4%	65.6%
		Sick leaves rate*	3	7	5	10
		Public/Private sick leaves rate ratio	0.37		0.46	
		Sick leaves rate (change %)			85.6%	49.3%
	Total refused sick leaves		**245,925**	**215,351**	**378,719**	**269,521**
Reduced	Mental disorders	*N*	N/I	65,697	N/I	67,848
		%		43.9%		46.8%
		Reduced sick leaves (N)/Processed sick leaves (*N*) by mental disorders		20.4%		17.6%
		Reduced days (%)		51.5%		53.5%
		Sick leaves rate*		3.75		3.98
		Sick leaves rate (change %)				6.0%
	Total reduced sick leaves	***N***		**149,786**		**144,821**
		Reduced sick leaves (*N*)/ Processed sick leaves (*N*)		**9.4%**		**10.8%**

*Rate per 100 contributors according to sick leave status.
**Excluding N/I.
***For private insurance, the N includes sick leaves claimed and partially or totally accepted in the appeal instances. Bold values indicates the total sick leaves by each sick leaves status.

Contrary to the study's assumption, the use of the GES plan decreased in the first year of the pandemic. This occurred for the GES plan globally for both public and private insurance. In the case of mental health, this decrease is noteworthy as evidence indicates that the context of the pandemic has had a negative impact on the mental health of the population, increasing the prevalence of mental illnesses, particularly depression. Therefore, it was feasible to assume that the demand for mental healthcare would increase using the plan with universally guaranteed rights. Given these results, we decided to explore the data on psychiatric and psychological care included in the complementary health plan; that is, the GES does not cover it. We were only able to access data from private insurance.

In addition, we review the data on medical leaves for mental illness, comparing 2019 and 2020 for contributors to both insurances. These two types of data allow us to corroborate whether there was an impact on the decrease in the demand for mental healthcare during the pandemic.

Adult psychiatric consultations in private insurance without using the guaranteed plan (GES) were more than twice as high as in 2020, as did the expenditure corresponding to this benefit (Table 3). Psychiatric consultations for children increased by 61 and 53% of spending. In addition, new telemedicine benefits were incorporated (adult and child psychiatric consultation, psychological consultation).

Sick leave issued for mental illnesses increased by around 20% in both types of insurance (Table 4). In 2019, these

TABLE 5 Sick leave refused or reduced depending on the type of mental illness diagnosis*.

Sick leave status	Mental disorder	Measure	2019	2020
Refused	Depression (including dysthymia)	*N*	62,401	79,943
		%	51.3%	43.5%
		% Women	65%	60%
	Anxiety disorders	*N*	49,601	85,046
		%	40.8%	46.3%
		% Women	56%	50%
	Bipolar disorders (including cyclothymia) and mania	*N*	3,526	4,732
		%	2.9%	2.6%
		% Women	65%	62%
	3 mental disorders (*N*)/Total mental disorders (*N*)		**95.0%**	**92.4%**
Reduced	Anxiety disorders	*N*	37,641	42,943
		%	57.3%	63.3%
		Reduced days (%)	51.2%	53.8%
		% Women	56.1%	48.8%
	Depression (including dysthymia)	*N*	23,838	21,048
		%	36.3%	31.0%
		Reduced days (%)	51.9%	53.1%
		% Women	65.2%	60.4%
	Bipolar disorders (including cyclothymia) and mania	*N*	893	866
		%	1.4%	1.3%
		Reduced days (%)	48.4%	50.8%
		% Women	64.7%	65.6%
	3 mental disorders (*N*)/Total mental disorders (*N*)		**94.9%**	**95.6%**

*Considers only private insurance. Bold values indicates the weight of the three main mental disorders between all mental disorders.

represented 24.7% of medical licenses in public insurance and 20.3% in private insurance. In 2020, this proportion increased to 28.6% in public insurance and 28.8% in private insurance. The ratio of public/private medical leave due to mental illness was 1.32 in 2019 and 1.29 in 2020. In other words, both the care data without GES and medical leave point to the fact that there was a significant increase in the demand for care in the case of mental health during a pandemic.

In the sick leave administration system of Chile, these leaves are reviewed by control bodies that implement each insurance. As a result of this supervision, medical leaves can be authorized, rejected, or reduced in the number of rest days. We observe that in public insurance, 89% of medical licenses were authorized in 2019 and 83% in 2020. In private insurance, it was 91% in 2019 and decreased to 81% in 2020. With regard to all medical licenses rejected, the high proportion corresponding to mental illnesses is striking. In 2019, 48.8% of medical licenses rejected by public insurance were due to mental illness; in 2020, it increased to 58.4%.

Meanwhile, in private insurance, it increased from 56.4 in 2019 to 65.6% in 2020; that is, two out of three licenses rejected were due to mental illness. In the case of private insurance, over 90% of the causes of medical leave rejected in mental health correspond to depression, anxiety, and bipolar disorder, and the highest proportion is rejected for women (Table 5). If we compare 2019 with 2020, public insurance increased its rejection rate by 85.6%, two times as much as private insurance, which increased its rejection by 49.3%.

In the case of private insurance, medical licenses may be partially accepted, which implies that they reduce the number of rest days indicated by the doctor. Close to 95% of the reduced licenses are due to depression, anxiety, and bipolar disorder, and a more significant proportion are women (Table 4). We find that 43.9 and 46.8% of all reduced medical leaves correspond to mental illness in 2019 and 2020, respectively. When reviewing the number of reduced days, we observe that more than half of the rest days indicated are reduced. These data indicate that despite the significant demand for mental healthcare and indications of rest by doctors, in the global system, mental health was less protected than the rest of the diseases, particularly in the first year of the pandemic.

Given these results, we explored the behavior of the rate of use of GES cases since 2005 for the available data in schizophrenia, depression, and bipolar disorder (Figure 1). We

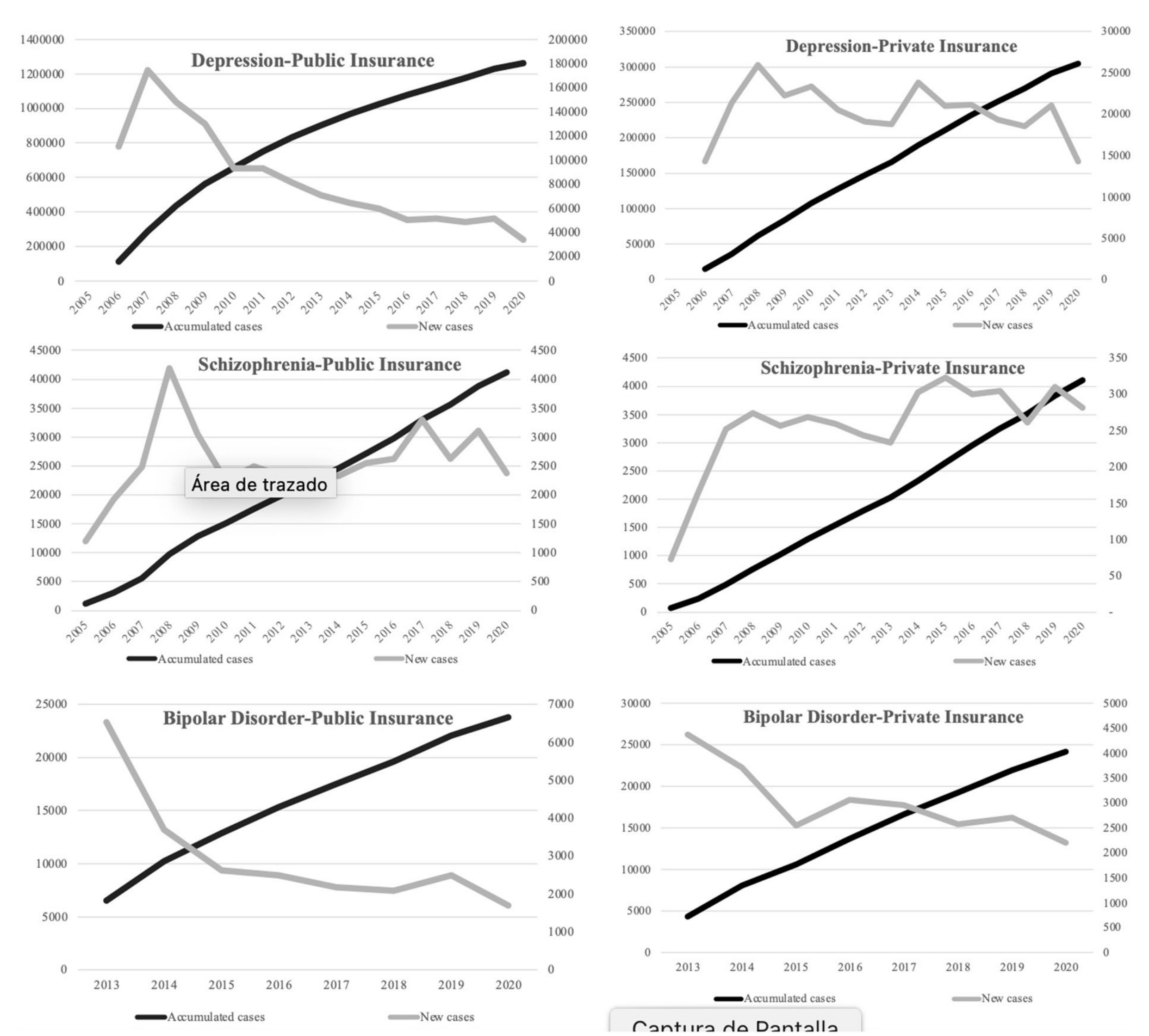


FIGURE 1
New and accumulated cases per year. Use of the universal health guarantee plan GES in three diagnoses of mental illness according to the type of insurance.

observe that in the case of schizophrenia and depression, the first 2 years of incorporating the GES plan tend to increase in cases. Then, there is a variable behavior. For schizophrenia in public insurance from 2010 onwards, relative stability has been maintained at around 2,500 new cases per year. Meanwhile, private insurance has an upward trend in new cases.

In the case of depression, in public insurance from 2007 onwards, a constant decrease in new cases is observed. While in private insurance, there is also a downward trend but not as marked. In both insurances, a more significant decrease is observed in the first year of the pandemic. In the case of bipolar disorder, the first year of incorporation into the GES shows the highest number of new cases. Then, the trend is decreasing for both insurances, although more marked in public.

4. Discussion

Contrary to the initial assumption of this study, the results reflect that during the pandemic, public and private health insurance reduced admissions to the GES universal plan for schizophrenia, depression, and bipolar disorder, even though an increase in the prevalence of mental illnesses has been reported (5). One hypothesis is that this decrease can be linked to the reorganization of health care providers that prioritized care for COVID-19, which, contrary to the recommendations (4), implied the closing of access to mental health services, so that the insurance would not have had space to cover the services.

However, the increase in mental health problems was also observed indirectly in the study when it was found that the demand for consultations with a psychiatrist and psychologist without using the GES plan increased, and at the same time, the prescription of mental health sick leave increased. This could indicate that people sought mental healthcare from private providers that were available for care in person or incorporated telemedicine, which they did not provide through the GES plan. It is necessary to investigate why public and private insurance affiliates entered the GES plan less, although it guarantees greater comprehensiveness and quality of care, including financial protection and opportunity.

In contrast, the increase in cases of psychiatric care without GES and sick leave due to mental illness are usually reduced only to medical care without psychosocial intervention, with high co-payments and high rates of rejection of sick leave or a decrease in prescribed rest days. Even so, it seems that in the case of depression and bipolar disorder, the decrease in the use of the GES plan occurred before the pandemic. The opposite is true for schizophrenia, which continued to be used, which may be associated with the fact that, in this case, the GES plan succeeded in improving coverage and financial protection, especially for the most vulnerable (9). The case of increased care for Alzheimer's disease may be associated with the fact that it was the first year of implementation of the GES plan and many people who were already in treatment saw an opportunity to guarantee access and quality of treatment, thanks to the GES plan. This upward trend in the use of the GES plan during the first year of its implementation was also observed in the case of depression and bipolar disorder, although this trend was later reversed.

In contrast, the higher expense observed in the GES plan of private insurance may be associated with the higher prices charged by private providers for the care of the GES plan. The financial protection guarantee of the GES plan ensures a 20% copayment concerning a standard estimated price defined by the supreme decree. However, private providers are free to set prices, charging a price three times higher on average compared to public providers. Private insurance assumes the price difference to guarantee care, and therefore, the financial coverage of the final GES may end up being $> 80\%$ (13). However, it must be considered that private insurance continues to receive the GES plan premium from their affiliates even when they do not occupy the GES plan in their care. In public insurance, coverage is 80%, but public providers claim that the decreed prices do not cover the actual cost of care, generating structural debt in the system. When facing these situations, a plan that claims to be universal for all types of insurance ends up not being such.

Countries like Chile, that incorporate the individual health insurance system to advance the universal coverage of mental health (14), have an essential challenge in regulation and control to prevent breaches of guarantees, as well as in resolving how the protection of mental health will be addressed in health emergencies.

5. Conclusion

This exploration shows us that people with mental illness had less access to a universal health guarantee plan, alternatively attending individual psychiatric care contrary to a comprehensive model and with less financial coverage, therefore, higher out-of-pocket costs. This may be a problem that is occurring with all types of health insurance (not just the GES plan), and it is necessary to explore whether health insurance systems have been able to cover the mental healthcare needs of their members during the pandemic. In addition, the social protection system for rest indicated by a doctor is more violated in the case of mental illness than in other illnesses. This situation was aggravated in the first year of the COVID-19 pandemic.

The results make it necessary to evaluate the operation of the entire GES plan in the context of the pandemic (not only mental health) since we can learn lessons before continuing to advance the universal mental health coverage policy through this type of plan. A universal guaranteed plan in an individual contribution system can have a significant weakness for individuals when the principles of social security are not complied with, especially regarding the solidarity of the health insurance system. An insurance-based system will require addressing the discussion of reference pricing of mental health actions by providers. Otherwise, universal coverage becomes financially unsustainable.

Data availability statement

The data analyzed in this study is subject to the following licenses/restrictions. The data comes from the mandatory records of health insurance in the Superintendence of Health (government regulatory entity). The authors must have used the anonymized individual data and we are not authorized to share it. In case of data queries, they should be requested from the corresponding author, who is a researcher at the Superintendence of Health, and it will be possible to share some additional aggregated data if required. Requests to access these datasets should be directed to GL, gonzalo.leyton@gmail.com.

Author contributions

OT-D and GL discussed the study's introduction, objectives, methods, analyzed the data in the article, organized the tables to summarize the information, jointly analyzed, wrote up the results, discussed the article's conclusions, iterated to summarize the discussion, conclusions, and developed the manuscript. OT-D edited the final version of those chapters. GL edited the final format of the tables. Both authors contributed to the article and approved the submitted version.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

References

1. Pan American Health and Organization. *The Burden of Mental Disorders in the Region of the Americas*. Washington, DC (2018). Available online at: https://iris.paho.org/handle/10665,2./49578

2. GBD 2019 Diseases and Injuries Collaborators. Disease and injuries collaborators. global burden of 369 diseases and injuries in 204 countries and territories, 1990–2019: a systematic analysis for the global burden of disease study 2019. *Lancet.* (2020) 396:1204–22. doi: 10.1016/S0140-6736(20)30925-9

3. GBD 2019 Universal Health Coverage Collaborators. Measuring universal health coverage based on an index of effective coverage of health services in 204 countries and territories, 1990–2019: a systematic analysis for the global burden of disease study 2019. *Lancet.* (2020) 396:1250–84.

4. Tausch A, Oliveira R, Martínez C, Cayetano C, Barbosa J, Hennis A, et al. Strengthening mental health responses to COVID-19 in the Americas: a health policy analysis and recommendations. *Lancet Regional Health–Am.* (2022) 5:10018. doi: 10.1016/j.lana.2021.100118

5. COVID-19 Mental Disorders Collaborators. Global prevalence and burden of depressive and anxiety disorders in 204 countries and territories in 2020 due to the COVID-19 pandemic. *Lancet.* (2021) 398:1700–12. doi: 10.1016/S0140-6736(21)02143-7

6. Vigo DV, Devora K, Krishna P, Graham T, Atun R. Disease burden and government spending on mental, neurological, and substance use disorders, and self-harm : cross-sectional, ecological study of health system response in the Americas. *Lancet Public Health.* (2018) 18:1–8. doi: 10.1016/S2468-2667(18)30203-2

7. United Nations General Assembly. *Transforming Our World: The 2030 Agenda for Sustainable Development. In Resolution 70/1 Adopted by the General Assembly on 25 September 2015*. (2015). Available online at: https://www.un.org

8. Burrows J. Inequalities and healthcare reform in Chile : equity of what? *J Med Ethics.* (2008) 13:1–5. doi: 10.1136/jme.2007.022715

9. Minoletti A, Gonzalo S-B, Olga T, Matías I, Rosendo Z. Schizophrenia treatment coverage provided by the public and private health systems of Chile. *Psychiatr Ser.* (2020) 72, 478–81. doi: 10.1176/appi.ps.202000018

10. Irarrazaval M, Norambuena P, Montenegro C, Toro-Devia O, Vargas B, Caqueo-Urízar A, et al. Public policy responses to address the mental health consequences of the COVID-19 pandemic: evidence from Chile. *Front Public Health.* (2021) 9:590335. doi: 10.3389/fpubh.2021.590335

11. Ministerio S. *Ley 21331 Del Reconocimiento y Protección de Los Derechos de Las Personas En La Atención de Salud Mental*. Santiago de Chile. (2021). Available online at: https://www.bcn.cl/leychile/navegar?idNorma=1159383

12. Thomson R, Igelström E, Kaur Purba A, Shimonovich M, Thomson H, McCartney G, et al. How do income changes impact on mental health and wellbeing for working-age adults? A systematic review and meta-analysis. *Lancet Public Health.* (2022) 7:e515–28. doi: 10.1016/S2468-2667(22)00058-5

13. Debrott D, Leyton G, Poblete R, Tegtmeier R. *Antecedentes Empíricos Para La Evaluación Del Mecanismo de Compensación de Riesgos GES InterIsapres [Empirical Background for the Evaluation of the GES InterIsapres Risk Compensation Mechanism]*. Santiago de Chile. (2017). Avaiable online at: https://www.supersalud.gob.cl/documentacion/666/articles-16500_recurso_1.pdf

14. Chisholm D, Docrat S, Abdulmalik J, Alem A, Gureje O, Gurung D, et al. Mental Health financing challenges, opportunities and strategies in low–and middle-income countries: findings from the emerald project. *BJPsych Open.* (2019) 6:e68. doi: 10.1192/bjo.2019.24

frontiers | Frontiers in Public Health

TYPE Original Research
PUBLISHED 09 February 2023
DOI 10.3389/fpubh.2023.1054964

Industry-specific prevalence and gender disparity of common mental health problems in the UK: A national repetitive cross-sectional study

Shanquan Chen [1]* and Yuqi Wang[2]

[1]Department of Psychiatry, University of Cambridge, Cambridge, United Kingdom, [2]Department of Computer Science, University College London, London, United Kingdom

Aims: The aim of the study was to evaluate the prevalence and temporal trend of common mental health problems (CMHPs) in the UK by industrial classification from 2012–2014 to 2016–2018 while evaluating the corresponding gender disparities.

Methods: We used data from the Health Survey for England. CMPH was judged by a 12-item General Health Questionnaire. Industrial classifications were defined using the UK Standard Industrial Classification of Economic Activities. Data were fitted by the logistic models.

Results: In this study, 19,581 participants covering 20 industries were included. In total, 18.8% of participants screened positive for CMHP in 2016–2018, which significantly increased from 16.0% in 2012–2014 [adjusted OR (AOR) = 1.17, 95% CI 1.08–1.27]. In 2016–2018, the prevalence of CMHP ranged from 6.2% in the industry of mining and quarrying to 23.8% in the industry of accommodation and food service activities. From 2012–2014 to 2016–2018, none of the 20 industries studied experienced significant decreases in the above prevalence; conversely, three industries saw significant increases, including wholesale and retail trade, repair of motor vehicles and motorcycles (AOR for trend = 1.32, 95% CI 1.04–1.67), construction (AOR for trend = 1.66, 95% CI 1.23–2.24), and other service activities, which cannot be classified (AOR for trend = 1.94, 95% CI 1.06–3.55). In total, 11 of the 20 industries studied had significant gender disparities against women, with the smallest gap being in the industry of transport and storage (AOR = 1.47, 95% CI 1.09–2.0) and the highest in the industry of arts, entertainment, and recreation (AOR = 6.19, 95% CI 2.94–13.03). From 2012–2014 to 2016–2018, gender disparities were narrowed only in two industries, including human health and social work activities (AOR for trend = 0.45, 95% CI 0.27–0.74), and transport and storage (AOR for trend = 0.5, 95% CI 0.27–0.91).

Conclusion : The prevalence of CMHPs has increased and had a wide variation across industries in the UK. There were disparities against women, and the gender disparities have been keeping almost no improvement from 2012–2014 to 2016–2018.

KEYWORDS

gender disparity, industrial classification, UK, workplace, common mental health problems

EDITED BY
Benjamin Miller,
Stanford University, United States

REVIEWED BY
Hua You,
Nanjing Medical University, China
Yao Yao,
Shanghai Jiao Tong University, China

*CORRESPONDENCE
Shanquan Chen
✉ sc2147@cam.ac.uk

SPECIALTY SECTION
This article was submitted to Public Mental Health, a section of the journal Frontiers in Public Health

RECEIVED 27 September 2022
ACCEPTED 17 January 2023
PUBLISHED 09 February 2023

CITATION
Chen S and Wang Y (2023) Industry-specific prevalence and gender disparity of common mental health problems in the UK: A national repetitive cross-sectional study.
Front. Public Health 11:1054964.
doi: 10.3389/fpubh.2023.1054964

Background

Common mental health problems, such as depression and anxiety disorders, influence a wide population. In the UK, ∼1 in seven people in the workplace experience mental health problems, and women are nearly two times as likely to have mental health problems as men (1). It was estimated that economic losses caused by mental health problems account for about 4.1% of the UK GDP (1), and better mental health support in the workplace can save UK businesses up to £8 billion per year (2). Reforms in the UK over the past decade resulted in advancing achievement in the integration of employment and mental health, as well as considerable related outcomes such as helping employed people move off sickness absence (3). However, a recent official report indicated that still more than 50% of all sickness absence days can be attributed to mental health conditions (4).

People are exposed to their unique occupational environments, which depend on the type of industry (such as construction) they belong to. A cross-sectional survey based on 40,986 police employees in the UK indicated that 9.8% of the participants had probable depression, with 12.45% of women vs. 8.24% of men (5). A cross-sectional survey based on 78 emergency ambulance service workers in the UK indicated that 53.8% of respondents experienced work-related burnout and that those most at risk of burnout were full-time working men (6). A cross-sectional survey of 5,497 workers found that clerical and secretarial, sales, and personal and protective services were occupations that usually had a higher prevalence of common mental health problems (CMHPs), whereas craft and related, and plant and machine operatives had a lower prevalence of CMHPs, compared to the overall prevalence in all adults (7). Understanding mental health by industrial classification could be conducive to the individualization and pertinence of policies or intervention measures, especially given that rules and regulations are usually formulated according to the industry. However, based on our knowledge, no study in the UK looked at mental health problems from the perspective of industrial classification.

This study aimed to evaluate the prevalence and temporal trend of CMHPs in the UK by industrial classification from 2012–2014 to 2016–2018 while evaluating the corresponding gender disparities.

Methods

Database and participants

We used data from the Health Survey for England (HSE). HSE is a representative repeated cross-sectional survey of people aged 13 or over in England, looking at changes in the health and lifestyles of people all over the country. It has been widely used by central and local governments in the UK for decision-making (8). The HSE uses stratified multistage probability sampling to select samples. In the first stage, a random sample of primary sampling units (PSUs), based on postcode sectors, was selected. Within each selected PSU, a random sample of postal addresses (known as delivery points) was then drawn (9). This design ensures that every address in England has an equal chance of being included in the survey each year, and the results are representative of the population living in private households. Approximately 8,000 adults and 2,000 children take part in the HSE each year. Information is collected through an interview and, if participants agree, a visit from a specially trained nurse. Collected items included socio-economic and demographic characteristics and validated measures of mental disorder symptoms (discussed below). Detailed descriptions of HSE, such as sampling methods and quality-control procedures, can be found elsewhere (9).

This study used the survey waves of 2012, 2014, 2016, and 2018, because the industrial classification has been kept as the same version since 2012, and data on CMHPs are collected every 2 years (discussed below). To increase the available sample size to improve the precision of our estimates, we combined 2012 and 2014 as the starting period (named 2012–2014), as well as 2016 and 2018 as the ending period (named 2016–2018).

In this study, we only included those aged between 16 and 65, considering the legal working age and retirement age (66 years) in the UK. We excluded the cases with missing values [4,379 (18.3%) records] instead of any imputation. Figure 1 shows the selection of the cases in detail.

This study was carried out in accordance with the Declaration of Helsinki. The data are publicly available. The use of secondary de-identified data made this study exempt from institutional review board review. Participants in the original studies gave informed consent and each study was approved by the London Medical Research Ethics Council and/or Local Research Ethics Councils before each annual data collection cycle (8, 9).

Measures

Common mental health problems

Common mental health problems were judged by the 12-item General Health Questionnaire (GHQ-12). This instrument concentrates on the broader symptoms of psychological morbidity and measures the characteristics such as general levels of happiness, depression, anxiety, sleep disturbance, and self-confidence. Each of the 12 items was rated on a four-point response scale to indicate whether symptoms of mental ill health were "not at all present," "no more than usual," "rather more than usual," or "much more than usual," with first two coded as 0 and last two coded as 1. Then, GHQ-12 is scored on a range from 0 to 12, and a validated score of 4 or more is indicative of probable mental health problems with a sensitivity of 0.69 and specificity of 0.88 (8, 10, 11).

Industrial classification

Industrial classifications were defined using the level 1 of the UK Standard Industrial Classification of Economic Activities (UK-SIC, version 2007), including accommodation and food service activities; administrative and support service activities; agriculture, forestry, and fishing; arts, entertainment, and recreation; Construction; education; electricity, gas, steam, and air conditioning supply; financial and insurance activities; human health and social work activities; information and communication; manufacturing; mining and quarrying; professional, scientific, and technical activities; public administration and defense; compulsory social security; real estate activities; transport and storage; water supply, sewerage, waste management and remediation activities; wholesale and retail trade; repair of motor vehicles and motorcycles; and other service activities (12). The original industrial classifications did not cover non-employed workers. Considering the mutual transformation between employed and non-employed workers, and to broaden the scope of

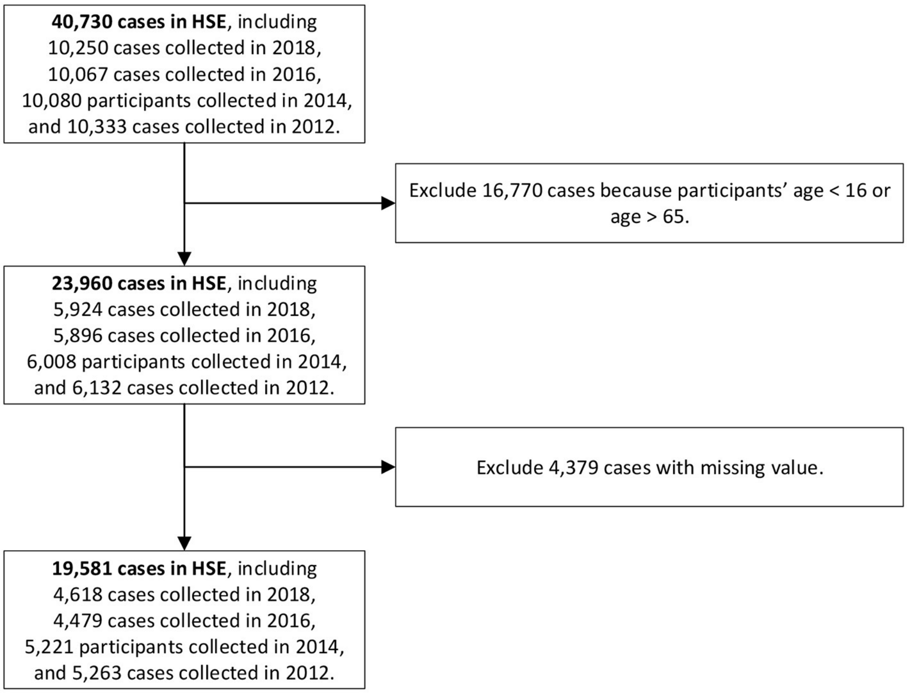


FIGURE 1
Inclusion and exclusion of the participants. HSE, Health Survey for England.

this study, in this study, we included the non-employed as a separate group in the industrial classification.

Other variables

We investigated the following socio-demographic characteristics, including age (16–24, 25–34, 35–44, 45–54, and 55–65), gender (male vs. female), marital status (married/cohabitation, never married, and widowed/divorced/separated), education attained (less than secondary education, secondary general or vocational education, tertiary education, and foreign/other qualifications), and socio-economic status [measure by the index of multiple deprivations, the official measure of relative deprivation in England (13)]. We also investigated long-standing physical illnesses (such as back or neck pain, and disabilities; categorized as yes or no) because of their evidenced influence on psychological health in the workplace (14).

Statistical analysis

Data were analyzed for each industrial classification separately. This makes within-industrial comparisons (analyses of changes over time) robust to any possible between-industrial differences. Repeated cross-sectional sampling is a standard method for measuring changes (15, 16), including for the assessment of trends relating to depression based on the screening tools (17). Survey weighting was used to adjust for the complex survey design, including the clustering, and stratification, to make the estimates representative of each year. The weight values were provided directly in the HSE datasets. Details of how the weights were calculated can be found elsewhere (18, 19). The prevalence was calculated as the proportion of participants scoring 4+ on the GHQ-12.

To estimate the temporal trend, we fitted industrial-specific weighted logistic regression models, with CMHPs (yes or no) as the dependent variable and period (a binary variable with 2012–2014 coded as 0 and 2016–2018 coded as 1) as the key predictor, controlling for age, gender, marital status, education attained, socio-economic status, and long-standing physical illness (Equation 1).

$$CMHP = \alpha + \; period + confunders + \varepsilon \tag{1}$$

To estimate the gender disparities, we fitted industrial-specific weighted logistic regression models, with CMHPs (yes or no) as the dependent variable and gender (a binary variable with male coded as 0 and female coded as 1) as the key predictor, controlling for age, marital status, education attained, socio-economic status, long-standing physical illness, and study period (Equation 2). To explore how gender disparities had changed, we added an interaction term between gender and period (Equation 3).

$$CMHP = \alpha + \; gender + confunders + \varepsilon \tag{2}$$

$$CMHP = \alpha + \; gender + \; period + gender \times period \; + confunders + \varepsilon \tag{3}$$

All analyses were conducted in R version 3.6.0 (20). A p-value of < 0.05 was considered statistically significant. The results are reported following the STROBE checklist for cohort studies.

TABLE 1 Basic description.

Characteristic	No. (%) of participants
Gender (=female)	11,079 (56.6%)
Age	
16–24	2,355 (12.0%)
25–34	3,771 (19.3%)
35–44	4,428 (22.6%)
45–54	4,730 (24.2%)
55–65	4,297 (21.9%)
Education attained	
Less than secondary education	2,366 (12.1%)
Secondary general or vocational education	10,828 (55.3%)
Tertiary education	6,315 (32.3%)
Foreign/other qualifications	72 (0.4%)
Marital status	
Married/cohabitation	13,022 (66.5%)
Never married	4,580 (23.4%)
Widowed/divorced/separated	1,979 (10.1%)
Social economics status	
Most deprived	3,812 (19.5%)
2	3,562 (18.2%)
3	3,802 (19.4%)
4	4,215 (21.5%)
Lest deprived	4,190 (21.4%)
Long-lasting illness (=yes)	7,032 (35.9%)
Study period	
2012–2014	9,097 (46.5%)
2016–2018	10,484 (53.5%)
Industrial classifications	
Accommodation and food service activities	869 (4.4%)
Administrative and support service activities	1,059 (5.4%)
Agriculture, forestry, and fishing	207 (1.1%)
Arts, entertainment, and recreation	335 (1.7%)
Construction	1,622 (8.3%)
Education	1,783 (9.1%)
Electricity, gas, steam, and air conditioning supply	151 (0.8%)
Financial and insurance activities	756 (3.9%)
Human health and social work activities	2,497 (12.8%)
Information and communication	875 (4.5%)
Manufacturing	2,356 (12%)
Mining and quarrying	83 (0.4%)
Non-employed	467 (2.4%)
Other service activities	340 (1.7%)
Professional, scientific and technical activities	1,361 (7.0%)
Public administration and defense; compulsory social security	1,088 (5.6%)
Real estate activities	155 (0.8%)
Transport and storage	1,273 (6.5%)
Water supply, sewerage, waste management and remediation activities	143 (0.7%)
Wholesale and retail trade; repair of motor vehicles and motorcycles	2,161 (11.0%)

Data are shown as numbers (percentages).

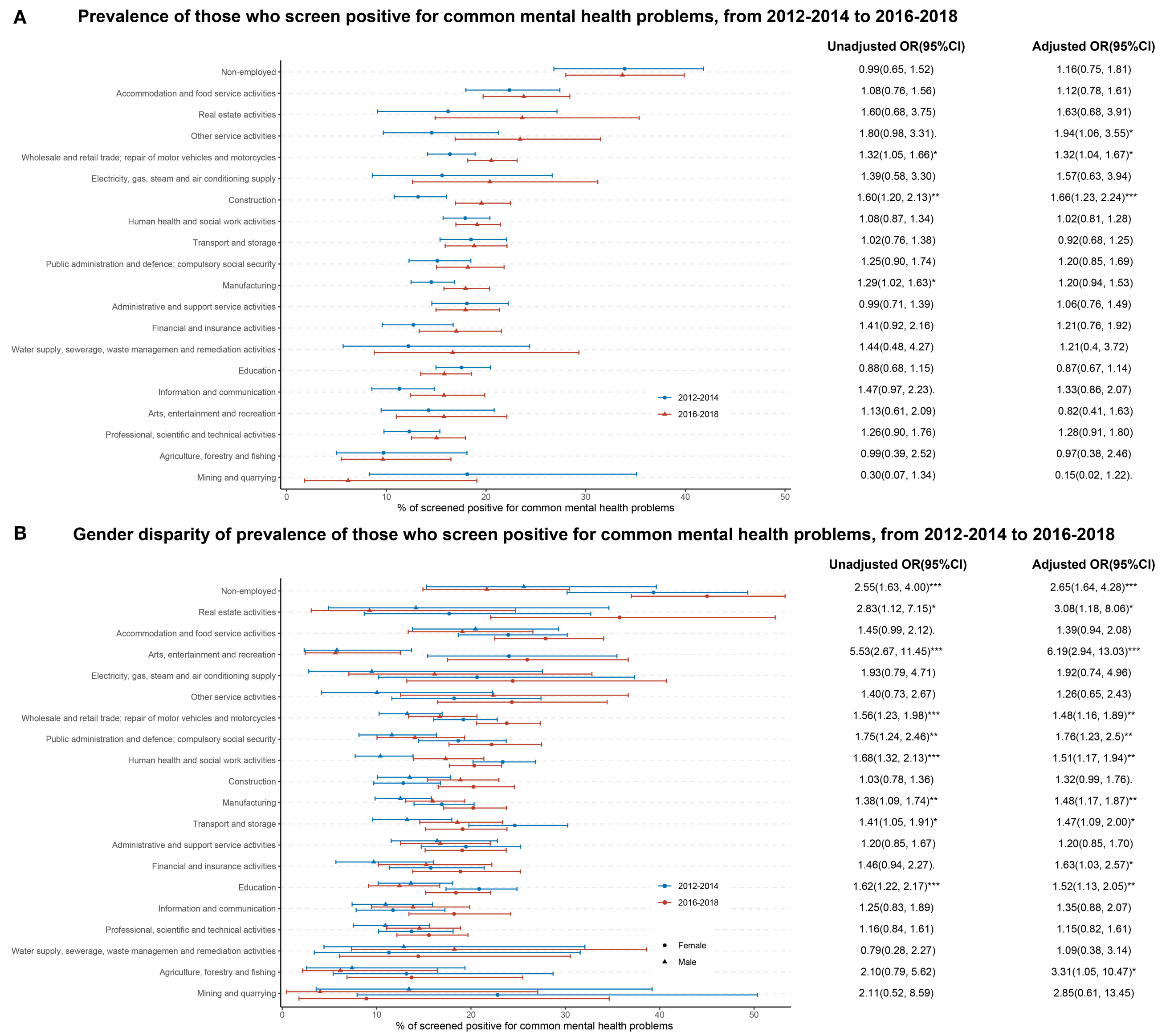
Results

In this study, 19,581 out of 40,730 participants, aged between 16 and 65, were included (9,097 participants in the start phase, 2012–2014, and 10,484 participants in the end phase, 2016–2018; Figure 1). Table 1 summarizes their basic characteristics. Among these participants, 56.6% were female and 66.5% were married or in cohabitation. People aged 45–55 accounted for 24.2%, followed by people aged 35–44 (22.6%). In total, 12.8% of participants were from the industry of human health and social work activities, followed by manufacturing (12.0%).

Among included participants, 18.8% (95% CI 18.0–19.6) of them screened positive for CMHPs in 2016–2018, which significantly increased from 16.0% (95% CI 15.2–16.8) in 2012–2014 [adjusted OR (AOR) = 1.17, 95% CI 1.08–1.27].

Large variations in the prevalence of CMHPs were observed across industries (Figure 2A). In 2016–2018, this prevalence ranged from 6.2% (95% CI 1.8–19.1) in the industry of mining and quarrying, to 23.8% (95% CI 19.7–28.4) in the industry of accommodation and food service activities, and to 33.7% (95% CI 28.0–39.9) in the non-employed (Figure 2A). Figure 2A also indicated that from 2012–2014 to 2016–2018, none of the industries experienced significant decreases in the prevalence; on the contrary, some industries had significant increases, including the industry of wholesale and retail trade, repair of motor vehicles and motorcycles (AOR = 1.32, 95% CI 1.04–1.67), the industry of construction (AOR = 1.66, 95% CI 1.23–2.24), and the industry of other service activities, which cannot be classified (AOR = 1.94, 95% CI 1.06–3.55).

Gender disparities in the prevalence of CMHP also varied widely across industries. In total, 11 of the 20 industries studied had significant gender disparities against women, with the smallest gap being in the industry of transport and storage (AOR = 1.47, 95% CI 1.09–2.0) and the highest in the industry of arts, entertainment, and recreation (AOR = 6.19, 95% CI 2.94–13.03; Figure 2B). From 2012–2014 to 2016–2018, gender disparities were narrowed only in two of the 11 industries above, including the industry of human health and social work activities (AOR for trend = 0.45, 95% CI 0.27–0.74) and



	Unadjusted OR(95%CI)	Adjusted OR(95%CI)
Non-employed	0.99(0.65, 1.52)	1.16(0.75, 1.81)
Accommodation and food service activities	1.08(0.76, 1.56)	1.12(0.78, 1.61)
Real estate activities	1.60(0.68, 3.75)	1.63(0.68, 3.91)
Other service activities	1.80(0.98, 3.31).	1.94(1.06, 3.55)*
Wholesale and retail trade; repair of motor vehicles and motorcycles	1.32(1.05, 1.66)*	1.32(1.04, 1.67)*
Electricity, gas, steam and air conditioning supply	1.39(0.58, 3.30)	1.57(0.63, 3.94)
Construction	1.60(1.20, 2.13)**	1.66(1.23, 2.24)***
Human health and social work activities	1.08(0.87, 1.34)	1.02(0.81, 1.28)
Transport and storage	1.02(0.76, 1.38)	0.92(0.68, 1.25)
Public administration and defence; compulsory social security	1.25(0.90, 1.74)	1.20(0.85, 1.69)
Manufacturing	1.29(1.02, 1.63)*	1.20(0.94, 1.53)
Administrative and support service activities	0.99(0.71, 1.39)	1.06(0.76, 1.49)
Financial and insurance activities	1.41(0.92, 2.16)	1.21(0.76, 1.92)
Water supply, sewerage, waste managemen and remediation activities	1.44(0.48, 4.27)	1.21(0.4, 3.72)
Education	0.88(0.68, 1.15)	0.87(0.67, 1.14)
Information and communication	1.47(0.97, 2.23).	1.33(0.86, 2.07)
Arts, entertainment and recreation	1.13(0.61, 2.09)	0.82(0.41, 1.63)
Professional, scientific and technical activities	1.26(0.90, 1.76)	1.28(0.91, 1.80)
Agriculture, forestry and fishing	0.99(0.39, 2.52)	0.97(0.38, 2.46)
Mining and quarrying	0.30(0.07, 1.34)	0.15(0.02, 1.22).

	Unadjusted OR(95%CI)	Adjusted OR(95%CI)
Non-employed	2.55(1.63, 4.00)***	2.65(1.64, 4.28)***
Real estate activities	2.83(1.12, 7.15)*	3.08(1.18, 8.06)*
Accommodation and food service activities	1.45(0.99, 2.12).	1.39(0.94, 2.08)
Arts, entertainment and recreation	5.53(2.67, 11.45)***	6.19(2.94, 13.03)***
Electricity, gas, steam and air conditioning supply	1.93(0.79, 4.71)	1.92(0.74, 4.96)
Other service activities	1.40(0.73, 2.67)	1.26(0.65, 2.43)
Wholesale and retail trade; repair of motor vehicles and motorcycles	1.56(1.23, 1.98)***	1.48(1.16, 1.89)**
Public administration and defence; compulsory social security	1.75(1.24, 2.46)**	1.76(1.23, 2.5)**
Human health and social work activities	1.68(1.32, 2.13)***	1.51(1.17, 1.94)**
Construction	1.03(0.78, 1.36)	1.32(0.99, 1.76).
Manufacturing	1.38(1.09, 1.74)**	1.48(1.17, 1.87)**
Transport and storage	1.41(1.05, 1.91)*	1.47(1.09, 2.00)*
Administrative and support service activities	1.20(0.85, 1.67)	1.20(0.85, 1.70)
Financial and insurance activities	1.46(0.94, 2.27).	1.63(1.03, 2.57)*
Education	1.62(1.22, 2.17)***	1.52(1.13, 2.05)**
Information and communication	1.25(0.83, 1.89)	1.35(0.88, 2.07)
Professional, scientific and technical activities	1.16(0.84, 1.61)	1.15(0.82, 1.61)
Water supply, sewerage, waste managemen and remediation activities	0.79(0.28, 2.27)	1.09(0.38, 3.14)
Agriculture, forestry and fishing	2.10(0.79, 5.62)	3.31(1.05, 10.47)*
Mining and quarrying	2.11(0.52, 8.59)	2.85(0.61, 13.45)

FIGURE 2
Prevalence and gender dispraise of those who had common mental health problems in the UK, by industrial classification, from 2012–2014 to 2016–2018. Shown are the prevalence and its 95% confidence interval (CI) of populations who screen positive for common mental health problems. The odd ratios (OR) and its 95 CI% were estimated from weighted logistic with depression (yes or no) as the dependent variable and survey period [with 2012–2014 as the reference, in **(A)**] or gender [with male as the reference, in **(B)**] as the key predictor. Adjusted OR controlled for age, gender **(A)** or study period **(B)**, marital status, education attained, index of multiple deprivations, and long-standing physical illness. $^{*}< 0.05$, $^{**}< 0.01$, $^{***}< 0.001$.

the industry of transport and storage (AOR for trend = 0.5, 95% CI 0.27–0.91; Table 2).

Discussion

Statement of principal findings

The prevalence of those who were screened positive for CMHPs increased from 2012–2014 to 2016–2018. None of the 20 industries that were studied experienced decreases in this prevalence, but three industries had significant increases. Salient gender disparities against women were detected in 11 of the 20 industries studied, and among these 11 industries, the gender disparities were narrowed only in two industries from 2012–2014 to 2016–2018.

Possible explanations and comparisons with other studies

The consistently highest prevalence and the non-improvement situation among the non-employed from 2012–2014 to 2016–2018 deserve our attention, although we cannot ignore UK's achievement in helping these people back to work. Previous studies have evidenced the mutual exacerbation of non-employment and common mental health problems and also indicated that the welfare system in the UK does not seem to nullify the effect of non-employment on mental health (21, 22). Besides the existing non-employment benefit and back-to-work support, public policy should therefore also focus on the early prevention of mental health problems among the non-employed. In addition, gender disparities with a higher prevalence

TABLE 2 Temporal trend of gender disparity of prevalence of those who screen positive for common mental health problems, from 2012–2014 to 2016–2018.

Industrial classification	OR for trend (95% CI)[a]
Non-employed	1.61 (0.62, 4.21)
Real estate activities	4.05 (0.58, 28.24)
Accommodation and food service activities	1.32 (0.61, 2.86)
Arts, entertainment and recreation	1.19 (0.27, 5.31)
Electricity, gas, steam, and air conditioning supply	0.77 (0.11, 5.30)
Other service activities	0.50 (0.12, 2.05)
Wholesale and retail trade; repair of motor vehicles and motorcycles	1.07 (0.66, 1.74)
Public administration and defense; compulsory social security	1.00 (0.50, 2.00)
Human health and social work activities	0.45 (0.27, 0.74)**
Construction	1.27 (0.71, 2.28)
Manufacturing	0.92 (0.57, 1.48)
Transport and storage	0.50 (0.27, 0.91)*
Administrative and support service activities	0.92 (0.46, 1.83)
Financial and insurance activities	0.91 (0.36, 2.30)
Education	0.99 (0.55, 1.76)
Information and communication	1.28 (0.55, 2.96)
Professional, scientific, and technical	0.85 (0.43, 1.67)
Water supply, sewerage, waste management, and remediation activities	1.17 (0.12, 11.17)
Agriculture, forestry, and fishing	1.36 (0.19, 10.02)
Mining and quarrying	2.71 (0.02, 296.71)

[a] The odd ratios (ORs) for trend and its 95% CI were estimated by adding an interaction term between gender and study period into the adjusted logistical model in Figure 2B. * < 0.05, ** < 0.01, *** < 0.001.

in women also emphasize that more attention should be paid to female non-employed.

Our findings highlighted some high-risk industries for CMHP and revealed the blind spots in existing mental health studies, including industries of accommodation and food service activities; real estate activities; wholesale and retail trade, repair of motor vehicles and motorcycles; and other services activities, which cannot be classified. These industries usually involve working face-to-face with the general public, involve a degree of responsibility coupled with some unpredictability in how their clients might behave toward them, or involve irregular and long working hours (23). Thus, working in these industries is emotionally demanding and exposes the employees to adverse social behavior (such as violence and verbal aggression), contributing to the important sources of psychological risks in the workplace (7). However, attention from the previous literature to these industries is insufficient, when compared to industries whose voices, in terms of psychological demands, are more likely to be heard due to their high physical-risk occupational environment (such as mining and quarrying, agriculture, forestry and fishing, and construction) or the fact that they are the industries where researchers primary come from (such as professional, scientific and technical activities, and human health and social work activities).

This study also highlighted the insufficient attention to the against-females-disparities on the prevalence of CMHPs in the workplace, as evidenced by the fact that gender gaps in most (nine in 11) of the industries have not been narrowed from 2012–2014 to 2016–2018. Although gender disparities in the industry of human health and social work activities and the industry of transport and storage were narrowed, this improvement was to some extent unreasonable as this narrowing resulted from men being worse off (increased prevalence) and women being better off (decreased prevalence). Previous studies have identified some risk factors, which have gender-specific impacts on mental health (24, 25). For instance, working full-time decreases the risk of mental problems among men, but not among women; fixed-term contract only increases the risk of mental problems among women; men are more affected by the changes in tasks and a lack of pride at work, while mental problem drivers in women are no training, low motivation, and weak social support at work; worrying of involuntary interruptions during work is also disproportionally affect women (24, 25). However, existing evidence cannot explain our findings that the against-females-disparities in the prevalence of CMHPs were only identified in part of (11 of the 20) industries studied not all. Both industry- and gender-specific factors need to be identified in future studies. In addition, our findings that the against-females-disparities in female-dominated areas, such as the industry of education, to some extent contradict the evidence from Denmark, where mental disorders were higher for men working in female-dominated areas (26). These findings may imply the possible influence of cultural differences. The underlying reasons should be explored in future studies and call for more corresponding interventions.

Strengths and limitations

To the best of our knowledge, we first evaluated the prevalence of those who had CMHPs by industrial classification in the UK. The repetitive cross-sectional representative data enabled the exploration of the temporal trend of this prevalence. The gender disparity we explored allowed a more nuanced and practical assessment of previous achievements. This study identified the industries where prevalence and gender disparities were relatively higher and where we should focus in the future.

Our study was limited by the use of self-reported data, which may be subjected to recall bias. Second, the outcome measured by GHQ-12 is not equal to the clinical diagnosis. Third, the self-administered instruments have only been validated for binary detection of depressive disorders and do not provide accurate quantification of severity. Fourth, people with CMHPs may have been successfully treated and thus without residual symptoms to be identified by the survey instruments; such people would have been missed by this approach, underestimating the proportion of people who had common mental health problems.

One unanswered question of this study is that we identified the industries where prevalence and gender disparities were relatively higher and where we should focus in the future, but we were unable to further explore what are the contributing factors, primarily due to the lacking of industry-specific variables, such as the irregular working hours and adverse social behavior we mentioned (7, 23). More studies are needed to explore mental health from the perspective of the industry. In addition, more specific surveys or data with industry-specific information are also needed.

Conclusion

The prevalence of CMHPs has increased and had a wide variation across industries in the UK. There were disparities against women, and the gender disparities have been keeping almost no improvement from 2012-—2014 to 2016–2018. People are exposed to their unique occupational environments, which depend on the type of industry they belong to. Our findings can be used by the pertinence of policies or intervention measures by industries, given that rules and regulations are usually formulated according to the industry.

Data availability statement

Publicly available datasets were analyzed in this study. This data can be found at: https://beta.ukdataservice.ac.uk/datacatalogue/series/series?id=2000021.

Ethics statement

The studies involving human participants were reviewed and approved by the London Medical Research Ethics Council and/or Local Research Ethics Councils prior to each annual data collection cycle. The patients/participants provided their written informed consent to participate in this study.

Author contributions

SC had full access to all of the data in the study, takes responsibility for the integrity of the data and the accuracy of the data analysis, acquisition, analysis, interpretation of data, statistical analysis, administrative, technical, material support, and supervision. SC and YW: concept, design, drafting of the manuscript, and critical revision of the manuscript for important intellectual content. All authors contributed to the article and approved the submitted version.

Funding

SC's research was supported by the Medical Research Council (grant MC_PC_17213). This research was supported in part by the NIHR Cambridge Biomedical Research Center (BRC-1215-20014). The funder of the study had no role in study design, data collection, data analysis, data interpretation, or writing of the article.

Acknowledgments

We sincerely thank the teams of HSE for their efforts in data collection and for making the data publicly available. We also sincerely thank the two frontline psychiatrists for their discussion.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

Author disclaimer

The views expressed are those of the authors and not necessarily those of the NIHR.

Supplementary material

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fpubh.2023.1054964/full#supplementary-material

References

1. Organisation for Economic Co-operation and Development (OECD). *European Union, Health at a Glance: Europe 2018: State of Health in the EU Cycle*. OECD Publishing. (2018).

2. Sainsbury Centre for Mental Health. *Removing Barriers: The Facts About Mental Health and Employment*. London: Sainsbury Centre for Mental Health (2009).

3. Chen S, Cardinal RN. Accessibility and efficiency of mental health services, United Kingdom of Great Britain and Northern Ireland. *Bull World Health Organ*. (2021) 99:674–9. doi: 10.2471/BLT.20.273383

4. Health and Safety Executive. *Health and Safety at Work: Summary Statistics for Great Britain 2019*. London (2019).

5. Irizar P, Gage SH, Field M, Fallon V, Goodwin L. The prevalence of hazardous and harmful drinking in the UK Police Service, and their co-occurrence with job strain and mental health problems. *Epidemiol Psychiatr Sci*. (2021) 30:e51. doi: 10.1017/S2045796021000366

6. Miller E. The prevalence of stress and burnout in UK emergency ambulance service workers and its impact on their mental health and well-being. *Br Paramed J*. (2021) 5:62–3. doi: 10.29045/14784726.2021.3.5.4.62

7. Stansfeld SA, Rasul FR, Head J, Singleton N. Occupation and mental health in a national UK survey. *Soc Psychiatry Psychiatr Epidemiol*. (2011) 46:101–10. doi: 10.1007/s00127-009-0173-7

8. Morris S, Earl K, Neave A. *Health Survey for England 2016: Well-being and Mental Health*. London: Health and Social Care Information Centre (2017).

9. NatCen Social Research, University College London. *Health Survey for England User Guide*. London: NHS Digital (2019).

10. Goldberg DP. *User's Guide to the General Health Questionnaire*. London: Windsor (1988).

11. Hardy GE, Shapiro DA, Haynes CE, Rick JE. Validation of the General Health Questionnaire-12: Using a sample of employees from England's health care services. *Psychol Assess.* (1999) 11:159. doi: 10.1037/1040-3590.11.2.159

12. Office for National Statistics. *UK Standard Industrial Classification of Economic Activities.* (2007). Available online at: https://www.ons.gov.uk/methodology/classificationsandstandards/ukstandardindustrialclassificationofeconomicactivities (accessed September 20, 2022).

13. Ministry of Housing CLG. *English Indices of Deprivation.* (2015). Available online at: https://www.gov.uk/government/statistics/english-indices-of-deprivation-2015 (accessed September 20, 2022).

14. Firth J, Siddiqi N, Koyanagi A, Siskind D, Rosenbaum S, Galletly C, et al. The Lancet Psychiatry Commission: A blueprint for protecting physical health in people with mental illness. *Lancet Psychiatry.* (2019) 6:675–712. doi: 10.1016/S2215-0366(19)30132-4

15. Rafferty A, Walthery P, King-Hele S. *Analysing Change Over Time: Repeated Cross Sectional and Longitudinal Survey Data*. UK Data Service, University of Essex and University of Manchester (2015).

16. Heeringa SG, West BT, Berglund PA. *Applied Survey Data Analysis*. London: Chapman and Hall/CRC (2017).

17. Chobufo MD, Khan S, Agbor VN, Rahman E, Foryoung JB, Jolayemi A, et al. 10-Year trend in the prevalence and predictors of depression among patients with heart failure in the USA from 2007-2016. *Int J Cardiol.* (2020) 301:123–6. doi: 10.1016/j.ijcard.2019.09.028

18. NatCen Social Research, University College London. *Health Survey for England 2018: Methods*. London: NatCen Social Research, University College London (2019).

19. Survey of Health AaRiE. *Release Guide 7.1.0 – SHARE.* (2020). Available online at: https://share-eric.eu/fileadmin/user_upload/Release_Guides/SHARE_release_guide_7-1-0.pdf (accessed September 20, 2022).

20. Team RC. *R: A Language and Environment for Statistical Computing.* Vienna: R Foundation for Statistical Computing. (2013). Available online at: https://www.r-project.org/ (accessed September 20, 2022).

21. Cygan-Rehm K, Kuehnle D, Oberfichtner M. Bounding the causal effect of unemployment on mental health: Nonparametric evidence from four countries. *Health Econ.* (2017) 26:1844–61. doi: 10.1002/hec.3510

22. Butterworth P, Leach LS, Pirkis J, Kelaher M. Poor mental health influences risk and duration of unemployment: A prospective study. *Soc Psychiatry Psychiatr Epidemiol.* (2012) 47:1013–21. doi: 10.1007/s00127-011-0409-1

23. Eurofound. *Working Conditions and Sustainable Work: An Analysis Using the Job Quality Framework*. Luxembourg: Publications Office of the European Union (2021).

24. Cottini E, Lucifora C. Mental health and working conditions in Europe. *ILR Review.* (2013) 66:958–88. doi: 10.1177/001979391306600409

25. Barnay T. Health, work and working conditions: A review of the European economic literature. *Eur J Health Econ.* (2016) 17:693–709. doi: 10.1007/s10198-015-0715-8

26. Wieclaw J, Agerbo E, Mortensen PB, Bonde JP. Risk of affective and stress related disorders among employees in human service professions. *Occup Environ Med.* (2006) 63:314–9. doi: 10.1136/oem.2004.019398

Frontiers in Psychiatry

TYPE Conceptual Analysis
PUBLISHED 09 February 2023
DOI 10.3389/fpsyt.2023.1098292

OPEN ACCESS

EDITED BY
April Joy Damian,
Weitzman Institute, United States

REVIEWED BY
Mary V. Seeman,
University of Toronto, Canada
Jude Bergkamp,
Antioch University Seattle, United States

*CORRESPONDENCE
Sonya C. Faber
✉ dfaber@uottawa.ca
Monnica T. Williams
✉ monnica.williams@uottawa.ca

SPECIALTY SECTION
This article was submitted to
Public Mental Health,
a section of the journal
Frontiers in Psychiatry

RECEIVED 14 November 2022
ACCEPTED 11 January 2023
PUBLISHED 09 February 2023

CITATION
Faber SC, Khanna Roy A, Michaels TI and Williams MT (2023) The weaponization of medicine: Early psychosis in the Black community and the need for racially informed mental healthcare.
Front. Psychiatry 14:1098292.
doi: 10.3389/fpsyt.2023.1098292

The weaponization of medicine: Early psychosis in the Black community and the need for racially informed mental healthcare

Sonya C. Faber[1]*, Anjalika Khanna Roy[2], Timothy I. Michaels[3,4] and Monnica T. Williams[5]*

[1]Department of Epidemiology and Public Health, University of Ottawa, Ottawa, ON, Canada, [2]Counselling Psychology, Faculty of Education, University of Ottawa, Ottawa, ON, Canada, [3]Department of Psychiatry Research, Zucker Hillside Hospital, Northwell Health, Glen Oaks, NY, United States, [4]Donald and Barbara Zucker School of Medicine at Hofstra/Northwell Health, Hempstead, NY, United States, [5]Department of Psychology, University of Ottawa, Ottawa, ON, Canada

There is a notable disparity between the observed prevalence of schizophrenia-spectrum disorders in racialized persons in the United States and Canada and White individuals in these same countries, with Black people being diagnosed at higher rates than other groups. The consequences thereof bring a progression of lifelong punitive societal implications, including reduced opportunities, substandard care, increased contact with the legal system, and criminalization. Other psychological conditions do not show such a wide racial gap as a schizophrenia-spectrum disorder diagnosis. New data show that the differences are not likely to be genetic, but rather societal in origin. Using real-life examples, we discuss how overdiagnoses are largely rooted in the racial biases of clinicians and compounded by higher rates of traumatizing stressors among Black people due to racism. The forgotten history of psychosis in psychology is highlighted to help explain disparities in light of the relevant historical context. We demonstrate how misunderstanding race confounds attempts to diagnose and treat schizophrenia-spectrum disorders in Black individuals. A lack of culturally informed clinicians exacerbates problems, and implicit biases prevent Black patients from receiving proper treatment from mainly White mental healthcare professionals, which can be observed as a lack of empathy. Finally, we consider the role of law enforcement as stereotypes combined with psychotic symptoms may put these patients in danger of police violence and premature mortality. Improving treatment outcomes requires an understanding of the role of psychology in perpetuating racism in healthcare and pathological stereotypes. Increased awareness and training can improve the plight of Black people with severe mental health disorders. Essential steps necessary at multiple levels to address these issues are discussed.

KEYWORDS

psychosis, Black communities, discrimination, racism, misdiagnosis, weaponization of medicine, schizophrenia

1. Introduction

In the words of Martin Luther King Jr., *"Of all the forms of inequality, injustice in health is the most shocking and the most inhuman…"* (1).

2. Psychotic disorders in the United States and Canada

Psychosis is understood broadly to refer to mental states that involve a disconnect from reality. Positive symptoms include hallucinations (perceiving things that are not present, which can be auditory, tactile, visual, olfactory, or taste), delusions (false beliefs that are not easily changed), and disorganized thinking, speech, or behavior (2). Negative symptoms include difficulties with emotional and facial expressions, speech, thinking, task commencement, motivation, and social withdrawal. Other symptoms include cognitive deficits. Psychosis can be a symptom of many different mental and physical disorders such as schizophrenia as well as bipolar disorder and major depressive disorder (MDD), so there is no one simple course, presentation, or cause. Rather, research indicates that a psychotic episode can be brought on by a combination of factors. Biological factors, including genetic factors from genome-wide studies, emphasize the connections between common mental disorders and genes that regulate specific neuronal functions (3, 4). While genetic factors may increase the risk of experiencing psychosis, it is environmental stressors [such as traumatic life events, autoimmune insult, or substance use; (3, 4)] that often act as the trigger and barriers to care such as lack of knowledge about the symptoms, lack of possibilities for treatment (i.e., no local specialists), and lack of access (i.e., no insurance) which can exacerbate the condition.

Therefore, it is imperative that disorders that include psychosis are correctly diagnosed with adequate consideration of environmental factors, to receive appropriate care and early intervention, which can improve prognosis. In this paper, the term "psychotic disorders" will refer broadly to all schizophrenia-spectrum disorders and other conditions that may include psychotic episodes (e.g., bipolar disorder and severe MDD), whereas the term "schizophrenia-spectrum disorders" refers to all disorders in this category, as per the DSM-5. In the interest of space, we will not be focusing on MDD or bipolar disorder, although these disorders may include psychosis, and as such, many of the same issues still apply.

The literature suggests that schizophrenia-spectrum disorders affect up to 4% of the population (5), and for the subset of those affected by schizophrenia, the global prevalence is 1 in 300 people (0.32%) or 24 million people, as shown in Table 1 (6). In the United States, schizophrenia similarly affects 0.25–0.65% of the population [~2.6 million adults aged 18 years and older; (6, 7)], and 40% of individuals with schizophrenia go untreated in any given year. However, counting those with schizophrenia in the United States is complicated, and there is an undercount because so many are incarcerated, homeless, suffer an early death, or are otherwise excluded from official treatment channels. Therefore, a more accurate count based on the 2020 census reaches 1.62%, or 3.8 million adults, which is significantly higher than previous prevalence estimates (7).

The development of schizophrenia-spectrum disorders has been found to vary by gender, with men experiencing the onset of symptoms earlier (late teens to early twenties) and women experiencing them later (early twenties to early thirties). Individuals with a family history of mental illness are at a higher risk of developing schizophrenia-spectrum disorders (8). The early adulthood or late adolescence onset of schizophrenia is particularly tragic as it negatively affects the trajectory of young people as they are poised to embark on an independent life. Globally, schizophrenia is among the top ten causes of disability-adjusted life-years. The annual costs in Canada of schizophrenia are estimated to reach up to Canadian $10 billion (5), while in the United States, the staggering direct and indirect costs of schizophrenia reached $281.6 billion in 2020. A large proportion of the direct costs are derived from healthcare, homelessness, incarceration, and necessary housing of these patients. The total lifetime economic cost of each individual diagnosed with schizophrenia at the age of twenty-five years comes to approximately $92,000 annually (9). These numbers testify to the urgent need for better care in this area.

3. Race and psychology (psychosis in the Black community)

In the United States and Canada, Black persons include those who are racialized as African American, Black American, Caribbean Black, and Black African, and may originate from any country. Persons racialized as Black typically have darker skin shades but may have any color of skin. Black is a racial grouping defined by the federal government (US Census Bureau, Statistics Canada) and is not the same as an ethnic group, nor synonymous with biological relatedness. For this study, Black refers to people racialized as Black by American and Canadian society who have some African ancestry.

In any conversation about racial disparities, it is common to wonder if observed differences are a reflection of socioeconomic differences (class and income). Although people of different classes may be treated differently in the healthcare system, the issue we are highlighting in this paper is specifically about Black people. Contrary to popular stereotypes, most Black people in the United States and Canada are middle class, not poor [81% of Black Americans are not in poverty; Figure 1; (10)]. Certainly, Black people are overrepresented among the poor, but this is due to racism, which takes us back to the issue of race, rather than socioeconomic status.

Similarly, there are pathological stereotypes of Black people surrounding increased substance use, dysfunctional parenting, and poor social skills—which some might assume are factors in the development and maintenance of schizophrenia-spectrum disorders in this population. Addressing these false beliefs are beyond the scope of this paper; however, interested readers are directed to Williams et al. (11) and Jahn et al. (12) studies.

3.1. Epidemiology of race and psychosis

A national epidemiological study by Cohen and Marino (13) found that Black Americans had higher lifetime rates of disorders that included psychotic symptoms (15.3%) compared with Latino (13.6%), White (9.7%), and Asian Americans (9.6%). Furthermore, the lifetime probability of these disorders was associated with the Black and Hispanic race, the current level of disability, and a lifetime diagnosis of substance use disorder or posttraumatic stress disorder (PTSD). African American/Black communities are diagnosed with schizophrenia-spectrum disorders at a rate that is three to four times higher than White communities (14). Studies have shown that Black Americans are 2.4 times more likely to be diagnosed with schizophrenia (13) and are more likely to be diagnosed with schizophrenia-paranoid subtype or schizophrenia-undifferentiated subtype (14, 15). As will be further discussed, some of these disparities are due to clinician error, including overdiagnosis and misdiagnosis.

Finally, for Black people experiencing early symptoms of psychotic disorders, contact with law enforcement often represents the entry point into the medical system and is occurring even in the premorbid and prodromal stages (16). This means that these individuals have a high risk of becoming a target of law enforcement, due to negative stereotypes about Black people, which brings a

TABLE 1 Global prevalence and age-standardized prevalence for schizophrenia in 1990 and 2019 (6).

1990		2019	
Prevalence, in millions (95% UI)	Age-standardized prevalence per 100,000 people (95% UI)	Prevalence, in millions (95% UI)	Age-standardized prevalence per 100,000 people (95% UI)
Total	14.2 (12.2–16.5)	289.9 (249.8–333.2)	23.6 (20.2–27.2)
Male	7.5 (6.4–8.7)	304.5 (262.6–350.0)	12.4 (10.6–14.3)
Female	6.7 (5.8–7.7)	274.9 (236.9–315.5)	11.2 (9.6–12.9)

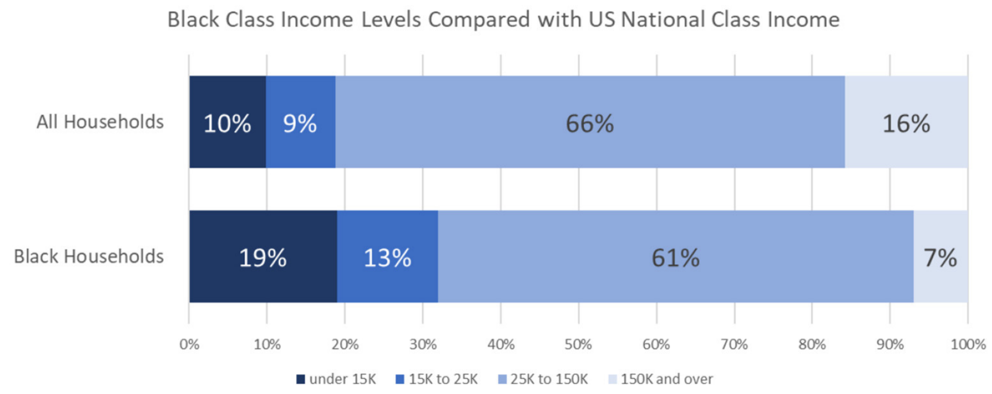


FIGURE 1
Socioeconomic class of Black households in the United States as compared with national class divisions.

host of negative life consequences (11, 17). Having been diagnosed with both a serious mental illness and a history of incarceration makes gainful employment nearly impossible. Furthermore, under United States laws, having a criminal record excludes both the patient and their family (if they live together) from assistance for public housing. Taken together, these inhumane and punitive barriers are a recipe for homelessness and marginalization and virtually ensure that first-episode patients will be unable to establish independent lives (16, 17).

3.2. Racism and psychosis

Black individuals suffering from psychotic disorders may be unable to access treatment or outright punished for becoming ill (Table 2). A case example, with which the authors were involved, is that of Grace Terry (pseudonym), a Black woman with schizophrenia who was incarcerated in the United States for allegedly evading arrest when frightened by police officers. In another example in Canada, Samuel Uko's family described that his race impacted how he was treated during his mental health crisis, leading to a fatal outcome. The CEO of the Saskatchewan Health Authority offered a formal apology, admitting that the staff spent too much time focusing on his identity rather than his care (18).

The situation today is that many Black people die because they do not have access to mental health services, but also because even when they have access they experience additional barriers once they are in the mental health services system (16). As a result of tragedies like this, there has been a public outcry from Black people across North America, noting a scarcity of providers representative of their communities and a lack of cultural competence in care [e.g., (19–21)].

3.3. Purpose of this paper

Racial disparities persist in mental health due to issues that include access to treatment and quality of care. Despite calls for cultural sensitivity and updates of diagnostic manuals, significant issues persist in diagnosis and treatment, especially in the case of psychotic disorders (14, 16, 22). Black individuals may have increased vulnerability to these disorders due to experiencing unique environmental stressors, such as alienation, discrimination, and racism, which contribute to etiology. Due to the double stigma of racism and having a serious mental illness, they are more likely to be marginalized and victimized by law enforcement.

The purpose of this study is to provide an overview of the experiences of Black people living in the United States and Canada with early schizophrenia-spectrum disorders and to discuss racially informed solutions for equitable mental healthcare. This study first describes racial differences in the diagnosis of schizophrenia-spectrum disorders; second, explains barriers to the treatment for Black communities; third, explains the role of bias and clinician empathy in misdiagnosis; fourth, describes the dangers of law enforcement involvement in mental health emergencies; and finally discusses solutions to address these disparities.

4. Medical racism and psychosis

4.1. Defining racism

To understand the connections among race, racism, racial discrimination, and psychosis, it is necessary to understand the terminology being used. *Race* is not a biological construct, but rather a sociopolitical construct that has no relevant genetic

TABLE 2 Case study: The focus on identity rather than care.

Description	Common issues arising in care pathways for psychosis
In 2018, a 40-year-old Black Liberian American immigrant woman, Ms. Terry, was crossing a parking lot at night in a location where police were said to harass members of her community. When they approached her, she became frightened and ran, at one point, hiding behind a bystander and trying to ward off officers with an umbrella. The umbrella made contact with one of the officers, and although police photos showed no visible evidence that the White officer was harmed, Ms. Terry faced a slew of charges, including trespassing, evasion, and assault. Her initial evaluation by a forensic psychologist missed her serious mental illness—despite a medical history of psychosis and hospitalization–and the resulting report was not culturally informed. Once Ms. Terry was able to obtain a culturally informed assessment, she was found to have moderate schizophrenia—which included symptoms of paranoia, auditory hallucinations, and delusional beliefs—as well as mild intellectual disability. She ended up being incarcerated for nearly a year before the court agreed she could be released and offered the proper mental healthcare and social support.	*Law enforcement is uninformed as to how to address acute mental health crises.* *Lack of culturally informed services resulted in misdiagnosis.* *Lack of empathy and misconception of threat-level led to unnecessary, non-therapeutic incarceration.*
In 2020, security officers removed Mr. Uko, a young Black Canadian from the emergency room, who came to the Regina General Hospital twice on the same day begging for acute help for symptoms of psychosis. Mr. Uko's family said that he had been acting in a paranoid manner and had been hearing voices. He did not receive the essential patient–clinic engagement that he needed, despite the fact that he disclosed thoughts of committing suicide and that he had had one previous attempt. When he arrived at the hospital for the second time, a security officer misunderstood instructions that Mr. Uko needed to be moved, as instructions that he needed to be removed. He was forcibly removed from the hospital by four security officers without any registration or seeing a triage nurse and was found dead in Wascana Lake an hour later (18).	*Law enforcement used to address acute mental health crises.* *Racial bias de-prioritizes the needs of Black patients.* *Law enforcement uninformed as to how to address the acute mental health crisis.*

basis. The term *racism* refers to a system of beliefs (racial prejudices), practices (racial discrimination), and policies based on race that advantages individuals with historic power in most of the Western nations, including White people in the United States and Canada. In these societies, race categorizes people based on similar physical and social features, operating as a social caste system (23–26). *Racial discrimination* may be overt or covert. It ranges from microaggressions (everyday slights, either intentional or unintentional, that are based on race) to deprivation of societal goods or even acts of violence. Racial discrimination can be perpetrated by anyone, regardless of race or conscious intention (24, 26).

4.2. Implicit biases and empathy

It is important to understand that race, culture, ethnicity, and religion influence people's mental health and the need to be a part of an honest and healthy dialogue between a healthcare professional and their client or patient (26). However, conversations about race, racism, and racial disparities are difficult for many [e.g., (27, 28)]. In the case of psychotic disorders, the experience of a Black client can, for reasons explored in this study, differ drastically from those of White clients. If asked, Black clients may have harrowing tales about their experiences being stigmatized, harassed, or surveyed based on their race and mental illness. Hearing about the moral failing of an in-group member can cause discomfort if that individual identifies highly with their in-group members (29, 30). Therefore, for White individuals (most therapists in the United States and Canada), listening to stories about racism from BIPOC clients can lead to discomfort if those White persons identify highly with this group.

Such feelings of discomfort surrounding these topics may also be attributed to socialization in environments that do not have conversations about race. Thus, mental health professionals must resolve any anxieties they may have surrounding discussions about race, racism, and racial disparities because, unchecked biases can harm clients of color (31, 32).

4.3. Differential empathy for people of color influences diagnosis and treatment

Race has been shown to influence the level of empathy that individuals have toward each other. Several studies have demonstrated that those with similar skin color (Black or White) have greater empathetic resonance (33–35). Brain imaging furthermore reveals that White individuals perceive the pain of Black people as less painful than that of White people (33, 36). The evidence is compelling as it demonstrates that simply watching an individual being exposed to pain results in a measurable and quantifiable sensorimotor resonance, which is dependent on the racial similarity between the observer and the victim (37, 38).

These studies are important because reduced empathy on the part of White clinicians toward their Black patients may partially explain how mood symptoms in Black patients are often misinterpreted, or why psychotic disorders are overdiagnosed (39, 40). For example, instead of viewing a Black patient as "sad," they are characterized as "mad." Instead of being comforted because they are "afraid," they are labeled as "paranoid." These studies provide a mechanism for how what may traditionally be considered a reliable assessment of psychosis and schizophrenia across racial groups may in fact be biased.

4.4. History of medical racism and psychosis

These biases are not new but rather are rooted in our medical history. Racist discourse on mental health among medical professionals has occurred throughout the history of the United States. An early example of this can be found in the racist writings of a prominently published clinician, Dr. Samuel Cartwright, who taught at the University of Louisiana. In the article, *Diseases and Peculiarities of the Negro Race*, he identified/created two psychotic mental health conditions that he claimed to be unique to Black people. These conditions were "Drapetomania"—a disease that caused slaves to run away—and "Dyseathesia Aethiopica"—a disease that caused "rascality" in Black people both enslaved and free (41). He notes (p. 331–33), "They wander about at night, and keep in a half nodding sleep during the day. They slight their work, cut up corn, cane, cotton, or tobacco when hoeing it, as if for pure mischief. They raise disturbances with their overseers and fellow servants without cause or motive, and seem to be insensible to pain when subjected to punishment." By pathologizing what were normal acts of survival and resistance by enslaved persons, he weaponized medicine in the service of upholding White supremacy.

Medical racism continues into the current time in its discriminatory treatment of Black people. For example, the practice of "race norming" for determining American football players' eligibility for settlement funds after traumatic brain injuries refers to the practice of generating different scales and thresholds for the assessment of cognitive functioning for White players than for Black ones. The norms used in the testing of decrement in cognitive function assumed that Black players have a lower cognitive function at baseline, and so must demonstrate a higher decline in cognitive function compared with non-Black players to qualify for financial settlements. This practice only ended in 2021 after public outcry (42). The NFL had defended this practice in the past, asserting its standards "relied on widely accepted and long-established cognitive tests and scoring methodologies." As illustrated, race and racism contribute to the misdiagnosis of psychosis in African Americans with serious negative consequences for mental healthcare.

Notably, the care, treatment, diagnosis, and social understanding of psychosis in people racialized as Black in North America has a history of being fraught with issues that can confound the interpretation of patient data. This is because it is linked with the White supremacist roots in the very development of psychology as a scientific discipline and difficulty in identifying current racial myths, which may be anchored in the published literature as "scientific facts" (32, 43).

Before the 1960s, persons with schizophrenia were neither feared as criminals nor stigmatized as abnormal; in popular media, schizophrenia was more often associated with White women who developed psychosis due to the stresses associated with being a mother and homemaker (44), although this may not have been the conceptualization among those in the mental health community at the time. Even so, in 1968, a fundamental shift occurred subsequently transforming the meaning of psychosis in the minds of both healthcare professionals and the public. In that year, New York psychiatrists Walter Bromberg and Franck Simon coined the term "protest psychosis" to advance the idea that "Black power" sentiments drove "Negro men to insanity", at which point schizophrenia became a condition used to pathologize Black people (44, 45). This weaponization of medicine was not a new phenomenon, rather only a continuation of the same war aimed at subjugating people by race. Not coincidentally did the emergence of codifying mental health as a tool to denigrate Black people occur just as the American Civil Rights movement was transforming society, inciting feelings of threat in many beneficiaries of the Jim Crow system (44). The purpose of redefining schizophrenia as a disorder to be feared was to support and preserve racial segregation and use the threat of mental illness to control agitators and punish social gains (44, 46). The race-based pathologization of psychosis that started in the 60s was exacerbated by legislative changes in the United States (de-institutionalization) between 1963 and 1965 that emptied psychiatric hospitals in the hope that discharged patients would be cared for in the community (47). But new medications were not simple cures for complex mental disorders and local communities were unprepared for the shift. Many former long-term patients whose families could not care for them were later found either on the street or in jails.

These events left their stain on the conceptualization of psychosis, which to this day continues to influence the understanding and perception of schizophrenia-spectrum disorders. Notably, from 1950 to 1996, the proportion of people who conceptualized those with schizophrenia-spectrum disorders as being violent increased by nearly 250% (48). The unexpected increase in perceptions of violence was confined to those who think of mental illness in terms of psychosis, and not for other conditions such as MDD, showing that this critical misperception about those with schizophrenia-spectrum disorders has become a socially learned bias.

The prism through which psychologists make diagnoses, which is initially based on the observation of behavior, is already tainted by socially learned biases (32). For example, a White psychologist interprets a remark about "people out to get me" as paranoid delusions while a Black psychologist may understand this as perfectly reasonable given that the patient has been stopped by police seven times in one month. Therefore, it is to be expected that racial disparities have been reported in the rates of diagnosis of these disorders (14). Upwards of 76% and an estimated 80% of licensed psychologists in the United States and Canada, respectively, are White (49, 50). Without lived experience to help understand the current social context, clinicians may have difficulty equitably diagnosing patients from cultures where they have little formal training. These unaddressed implicit biases around mental illness and psychosis with regard to other cultures also make it difficult to make comparisons across races.

It is through this lens that the recent increase in the diagnosis of schizophrenia-spectrum disorders in people of color should be considered (14). It has now been noted in several publications that providers interpret behavioral characteristics used in the diagnosis through their own racial or cultural biases, leading to misdiagnosis in Black individuals [e.g., (51, 52)]. Although studies from the United States show that the overall mental health of Black Americans was better or equivalent to that of Whites, with notably lower rates of alcohol and substance use than White groups, Black Americans in general have been diagnosed with higher rates of schizophrenia-spectrum disorders (12, 53, 54) for reasons that we now know may be difficult to disentangle from the initial weaponization of this diagnosis in the late sixties. The differences described are not genetic because, as previously stated, race is not a genetic construct (14).

A more nuanced reading of the literature, including new publications on genetics and socialization, points more to structural and identity-based exclusion as a primary cause that is affecting the variation in rates of schizophrenia-spectrum disorders among races (55). Therefore, it is with a critical eye, taking into account the history and politicization of schizophrenia-spectrum disorders and a lack of cultural competency of the primarily White clinician healthcare community who have been making these assessments, that one must view the literature.

4.5. Why Black people are overdiagnosed with schizophrenia-spectrum disorders

Olbert et al. (15) conducted a meta-analysis to determine the disparities in the diagnosis of schizophrenia between Black and White people in the United States using the DSM-III or later. Furthermore, they investigated whether the use of structured-interview assessments could reduce these disparities. They found that Black individuals were ∼2.4 times more likely to receive a diagnosis of schizophrenia than White people and that the use of structured-interview assessments did not have a significant effect in reducing these racial diagnostic disparities (but a power analysis showed that there may be a small effect). The fourteen studies that were coded as having used structured interviews, conducted a clinical diagnosis using "structured- or semistructured-interview methods or validated symptom checklists" [(3), p. 106]. However, it is unknown if these interviews were culturally informed or whether they were conducted by culturally competent clinicians, and if they had been, whether this would have reduced racial diagnostic disparities. In this regard, as noted by Olbert et al. (15), simply addressing clinician bias and modifying structured-interview instruments will not be sufficient to overcome these racial diagnostic disparities. Other factors such as social, cultural, structural, and institutional disparities that impact Black people would also need to be addressed, as has been stated earlier in this paper.

Black people may be misdiagnosed with schizophrenia-spectrum disorders for several reasons. One proposed reason is a *healthy suspicion* (56), also known as responsive paranoia (57) or cultural mistrust (58). *Healthy suspiciousness* refers to "normative reactions" such as guardedness and mistrust that occur in response to discrimination (59). A study by Combs et al. (60) found that Black individuals endorse higher levels of subclinical paranoia when compared with White control groups. It was also found that perceived racism predicts cultural mistrust and non-clinical paranoia in Black people, and some paranoia may also be viewed as a healthy and adaptive strategy for Black people (59). Healthy suspiciousness may be misunderstood by mental health clinicians and considered to be delusional (61).

A second proposed reason relates to the consequences of stereotypes and implicit bias. Implicit bias refers to unconscious thoughts and feelings, which, due to lack of consciousness, are often not acknowledged or controlled by the person holding them. While overt acts of discrimination may have lessened in the United States, more subtle forms of discrimination, such as implicit bias on an individual and institutional level continue and may impact mental health clinicians' behaviors and choice of treatment (62). For example, these biases may lead to misperceiving Black individuals as "scary, violent, unreliable, less educated, and noncommunicative" [(63), p. 1123], thus interfering with a proper assessment. The study by Plaisime et al. (63) explored how the biases of White and Black healthcare providers in the United States may impact their diagnosis and treatment of Black male patients. Participants indicated that their perceptions were influenced by the largely negative portrayals of Black people in the media. White healthcare providers expressed fear and discomfort regarding working with Black male patients, and that they had very little contact with Black and other people of color often until graduate school. In addition, Black male patients were not offered certain treatments due to assumptions about low economic status and noncompliance. Black patients may also not be prescribed medications because of assumptions about drug use and addiction that are racially driven (64, 65). Furthermore, patients of color may have longer wait times for assessment and treatment (62, 64, 65), be approached condescendingly without consultation and collaboration, not receive a thorough assessment, and be denied interpreters if needed, as well as treatment options and access to family visits (62).

Research by Strakowski et al. (66, 67) has shown there to be a clinician overemphasis on the relevance of psychotic symptoms and an underemphasis on mood-related symptoms in the diagnosis of schizophrenia-spectrum disorders in African Americans. This pattern was also found in a more recent study conducted by Gara et al. (39), which showed that, when compared with Non-Latino Whites, African Americans who screened positive for major depression (moderately severe to severe depression) were significantly more likely to receive a misdiagnosis of schizophrenia. Gara et al. (68) found no significant difference between blind ratings for the severity of depressive and manic symptoms between African American and White individuals; however, African American patients were assigned higher ratings of psychosis. This suggests that in Black patients, clinicians tend to overemphasize psychotic symptoms, and diagnoses may be "skewed" toward schizophrenia-spectrum disorders, even though they exhibit similar levels of depressive and manic symptoms as White individuals (68). Misdiagnosing patients through the influence of bias and stereotypes can harm patients psychologically or socially (14), as per Figure 2.

Finally, the failure to consider the role of spirituality and religious beliefs may lead to an inaccurate diagnosis of schizophrenia-spectrum disorders [e.g., (50)]. Results from the study by Peltier et al. (69) showed that for African Americans, the probability of a schizophrenia-spectrum disorder diagnosis decreased when unusual experiences were viewed by the clinician as spiritual or paranormal. A religious person who says that they have "heard the voice of God" should not automatically be assumed to have had a psychotic experience. Clinicians cannot assume that all visual and auditory hallucinations indicate the presence of a schizophrenia-spectrum disorder (69), as a culturally informed assessment must include the consideration of diverse spiritual beliefs and practices (69, 70), particularly in relation to hallucinations and religious-themed delusions.

It is important to note that schizophrenia is a diagnosis of exclusion, meaning that clinicians are expected to rule out other causes for symptoms and other diagnoses before assigning a diagnosis of schizophrenia (39, 68). This does not appear to sufficiently occur for Black communities due to assessment bias in the diagnostic process, as well as failure to account for the social and environmental risk factors and cultural factors that contribute to the development of symptoms (16). According to Gara et al. (68), understanding the impact of racial bias in clinical assessment is crucial and can reduce racial disparities in healthcare.

4.6. Genetics, race, and schizophrenia

The conflation of race, ethnicity, and genes has led to confusion around the understanding of findings that have been interpreted to mean that certain races are biologically inclined to have an increased incidence of schizophrenia. New data however shed light on the

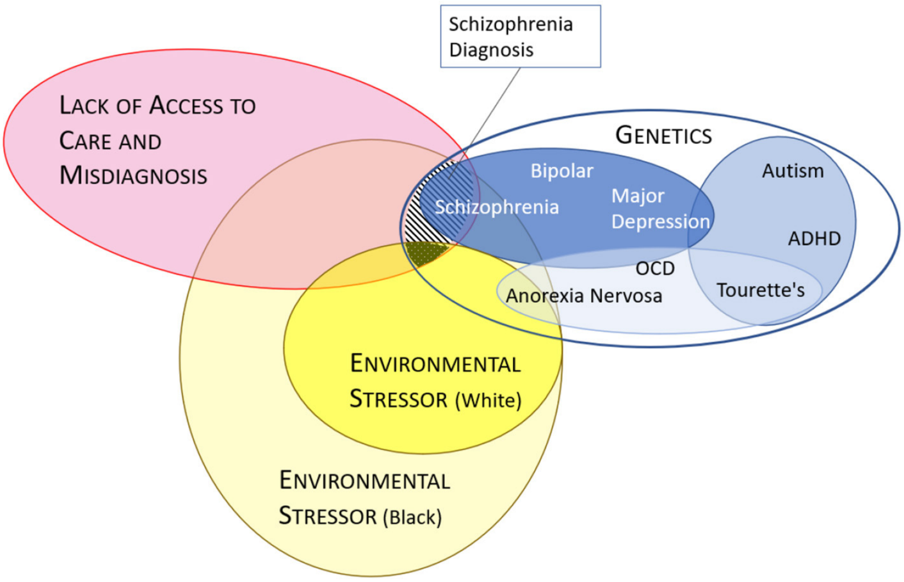


FIGURE 2
Potential factors leading to higher observed diagnoses of schizophrenia. Model of how factors leading to a diagnosis of schizophrenia can differ between Black and White individuals taking into account differences in environment, access to care, misdiagnoses and genetics (15). Stripped area represents diagnoses of schizophrenia in Black populations which has been observed to be greater than in White populations (dotted area). The blue ovals (genetics) are based on a risk model from the Cross-Disorder Group of the Psychiatric Genomics Consortium (3). Misdiagnosis and lack of care (red oval) appears to affect racialized individuals (i.e., Black) more often than White individuals (intersecting orange areas).

relationship of schizophrenia with specific genes (3, 4, 71). These data indicate that schizophrenia exists in a genetic category that places it in the same group as bipolar disorder (Figure 2). This categorization underscores that the diagnosis of schizophrenia, like most mental health disorders, does not rely on objective findings such as blood tests or brain scans and is based on observations from patients, family members, and the diagnosing physician. Lack of appreciation of the linkages among mood and psychotic disorders has resulted in schizophrenia being treated as if it were (i.e., by DSM-5) more disconnected from other psychological disorders than is warranted by the genetic data, which affects treatments and clinical care as well as the cultural and social meaning of having a diagnosis of schizophrenia or psychosis (72).

Two recent publications have been able to locate ultra-rare variations in several genes that increase a person's risk of developing schizophrenia. The basis for one of these studies was a whole-exome sequencing of about 24,000 persons from diverse global populations diagnosed with schizophrenia and 97,000 without schizophrenia (4). The nature of the discovered genes confirms that schizophrenia is a disorder of neuronal communication. The genomic regions that were identified are in ion channels, transporters, and genes regulating expression, primarily only active in neurons of the brain. These genes have their effects on mechanisms such as synaptic structure and some of the identified variants code for genetic mutations that result in a truncated version of the affected protein. If any given individual has a 1% chance of being diagnosed with schizophrenia over a lifetime, having one of the identified mutations can increase the risk by four to 50 times depending on the genetic mutation (4, 73).

Although fewer than one in 10,000 individuals carry any of these ultra-rare higher-risk mutations, simply having a variation in one of the ten most identified genes could boost the risk of contracting schizophrenia, and having combinations of these variants may further stack the odds toward the development of schizophrenia (4, 73).

Genes in the glutamate neurotransmitter pathway including GRIN2A, SP4, and GRIA3 are among the high-risk genes, which confirms the suspicions of researchers. It has long been observed that pharmaceuticals that antagonize receptors in the glutamate pathway including ketamine and PCP are capable in certain doses of triggering symptoms that look like schizophrenia (4, 73).

These breakthroughs in understanding the genetic risk factors for schizophrenia help clarify origins and point away from a risk model based on simplistic racial differences in diagnoses. None of the identified genes are thought to have a direct association with skin shade, a key basis for racial classification. There is no reason to assume a biological or genetic cause for the observed higher prevalence of schizophrenia-spectrum disorders in specific minoritized groups (74), rather strong evidence exists from other studies against a race-based genetic explanation of risk.

These studies examined the same ethnic groups that had vastly different incidences of schizophrenia-spectrum disorders depending on their geographic location. In one study of ethnically Norwegian migrants in the United States state of Minnesota, higher rates of schizophrenia were found in the migrant than in the original population in Norway. Similarly, ethnically similar groups originating from Trinidad, Suriname, and Jamaica had much higher rates of diagnosed psychotic disorders in Western Europe than in their home countries (74). Further empirical research shows, also, that adjusting for environmental risk factors such as social disadvantage and linguistic distance—markers associated with increased odds of psychotic disorders—led to equal risks between ethnic minority groups and White majorities in several EU countries (55). Taken together, these studies do not support the theory that some races or ethnic groups have an increased gene-based propensity to develop schizophrenia-spectrum disorders (55, 74).

Although there are now genes associated with the risk of developing schizophrenia, these do not directly correspond to higher risk by race, as race is a sociopolitical and not a genetic classification. Notably, since belonging to a certain race corresponds to an environmental risk of poor mental health (i.e., social disadvantage), or a tendency to be medically misdiagnosed, an association between race and schizophrenia-spectrum disorders may be expected to be observed (Figure 2).

4.7. Black people may have increased vulnerability due to more PTSD

In addition to overdiagnosis, Black people may have an increased vulnerability to schizophrenia-spectrum disorders due to the higher prevalence of posttraumatic stress disorder (PTSD) and trauma (75, 76), which is a well-established risk factor in the etiology of psychosis (77). The story of Josh Marks (Table 3) is illustrative of many of the issues facing Black people who struggle with severe mental illness.

A meta-analysis by Bailey et al. (79) showed that trauma experienced in childhood may increase the likelihood of hallucinations and delusions. In addition, social marginalization is a known risk factor for developing schizophrenia and psychosis (80), as are environmental factors such as neighborhood conditions—the neighborhood index of multiple deprivation (IMD) significantly predicted psychosis and depression, especially psychotic symptoms with paranoia (81). Black individuals are at high risk for traumatization, including racial trauma, due to discrimination and racism at individual, societal, and structural levels (26). An umbrella review by Varchmin et al. (82) found that one of the most significant social risk factors for psychosis was a vulnerability to racist discrimination, particularly for migrants in low ethnic density areas, minoritized individuals, and Black individuals.

The cumulative effects of racism can exacerbate any genetic predispositions and contribute to PTSD and racial trauma that can go untreated due to institutional racism and lack of access to appropriate care (26, 83). Structural racism, experienced "disproportionately" by Black people, confers social disadvantage through neighborhood factors, discrimination, and collective stress and trauma, which may place them at risk for developing schizophrenia-spectrum disorders (16, 80). Adequate mental healthcare needs to also address these social and environmental factors that include everyday racism, structural racism, and their impact on informing symptoms.

Misdiagnosing patients with schizophrenia-spectrum disorders has many serious implications. If misdiagnosed, patients do not get the correct treatment for their symptoms and conditions. For example, patients with bipolar disorders who are misdiagnosed as having schizophrenia may not be prescribed mood stabilizers (e.g., lithium) to address symptoms of mania. Depressed patients who receive antipsychotic medications due to misdiagnosis must endure serious side effects such as weight gain, metabolic syndrome, diabetes, and movement disorders, which can cause unnecessary physical harm and health consequences (39). Misdiagnosis also contributes to potential lifelong stigma and hopelessness (8), lower expectations for prognosis, and restricted options for treatment (39, 68).

5. Black experiences in medical contexts

5.1. Access to care in the first episode

Overall, people of color experience discrimination in access to and the quality of healthcare at both individual and structural levels (26). The United States cohort study of 3,017 privately insured patients (age 10–21 years) found that White patients were more likely than Black and Hispanic patients to be given behavioral health diagnoses and treatment before the identification of first-episode psychosis. Controlling for socioeconomic variables did not change these observed racial/ethnic disparities. Specific to first-episode psychosis, newly diagnosed youth of color do not see a mental healthcare professional unless they are admitted to the emergency room (84).

There is evidence that people of color are receiving less mental healthcare in the year leading up to their diagnosis of first-episode psychosis (84). Usually, there are subtle attenuated prodromal symptoms (85) that occur before a first-episode psychosis, which are critical for detecting individuals at clinically high-risk for psychosis (84, 86). Timely or early intervention at this stage can reduce the duration of untreated psychopathology, prevent the worsening of symptoms, and improve clinical prognosis (84, 87, 88). Historically, efforts to recruit clinical high-risk individuals for research studies have resulted in the majority of White samples (89), while first-episode psychosis research studies report an overrepresentation of Black patients. These data suggest that Black patients are more likely to access care once the overt symptoms of psychosis have emerged, and efforts are needed to improve their access to clinical high-risk programs. According to Heun-Johnson et al. (84), unequal access to healthcare in the prodromal period may worsen long-term treatment outcomes after diagnosis. These studies demonstrate that it is essential to address racial/ethnic disparities in accessing healthcare so that people of color can receive early intervention, which is critical for a good prognosis (16).

5.2. Overmedicated due to exaggerated fears of dangerousness

When in treatment, Black patients are more likely to be overmedicated due to being stereotyped as "dangerous" by clinicians (16, 90). Segal et al. (90) found that patients' medication status was impacted by their race. Specifically, African American patients were more likely to be prescribed psychiatric medications and administered more high-potency antipsychotic medications at higher doses. They were also given significantly less time for evaluations by clinicians. Furthermore, Black Americans are also often prescribed older medications or first-generation antipsychotic medications, which can have severe side effects such as tardive dyskinesia and extrapyramidal side effects (91, 92). Herbeck et al. (91) found that in comparison to White Americans, African

TABLE 3 Case study: The tragic suicide of a master chef rising star.

Description	Common issues arising in care pathways for psychosis and schizophrenia
Josh Marks was a rising star, having placed as the first runner up in the renowned and beloved cooking competition "Master Chef", when in September of 2012 he began to behave strangely. By January 2013, he began telling his family he was battling evil spirits, and shortly thereafter was hospitalized from a car accident. While in the hospital after behaving erratically; he was strapped to a bed and put on a 72 hours hold. That evening the doctors suspected his increasingly bizarre behavior was due to psychosis and his family was able to arrange a short stay at Rush Medical Hospital.	*The patient's family lacked mental health literacy about psychosis.*
Psychiatrists told Marks' mother that her son was bipolar and was experiencing psychotic episodes. He was sent home with only a prescription for lithium and instructions to watch him closely. His mother was confused as he had never shown any sign of poor mental health. She was unable to find help as every place she called told her that without insurance they would not be able to help. She was eventually able to enroll him in a Cook County Medicaid program (Affordable Care Act). However, even after approval, there were problems because the program was so new, that many providers had not started accepting this type of insurance.	*No beds, and warehousing instead of therapy. Funding for mental healthcare services have been cut everywhere; Illinois's per capita spending ranked 36th nationally in 2010.*
Marks' trajectory took a downward spiral. One night he asked his mother if she too heard all of the voices he was hearing in his head. Later in the car together, he leaped out of the vehicle and just started screaming. Terrified, his mother could only watch as he sped down the street. At a loss, she called 911. By the time officers arrived, he was again calm, but unable to communicate and laid down on the sidewalk. Again, he was taken to the hospital, this time to St. Bernhards, and again they examined, prescribed additional medication, and discharged him.	*Law enforcement used to address the acute mental health crisis. Law enforcement uninformed as to how to address acute mental health crises.*
By July 2013, after wandering aimlessly for hours, in a misguided attempt to quiet the voices in his head while sitting in his car, Marks shot himself in the ear. He survived and was found by Chicago University campus police after he placed a 4 am emergency call for help. They found him with cuts from bullet fragments all over his face.	*Psychotic break misinterpreted by police because of race.*
The police allege that Marks attacked them when they asked him what was wrong and that he tried to take their gun. During the arrest, he was beaten with a baton, tackled to the ground, and sprayed with pepper spray; he babbled incoherently throughout the incident. The police violence left him with a hematoma and a broken jaw, which required surgery. He was charged with felony aggravated assault against a police officer and his bail was set at $150,000. Still undertreated for psychosis, he was remanded to the Cook County jail. His jaw was still wired shut.	*The final diagnosis came late and without resources to treat the disorder.*
A few weeks after his release from jail, his mother discovered that Mercy Hospital and Medical Center accepted CountyCare insurance. At no cost to the family, the hospital provided a two-week inpatient stay and agreed to eight weeks of outpatient therapy: Upon his release from the hospital, however, Marks was given discharge papers which included a final additional diagnosis: paranoid schizophrenia. This diagnosis was devastating for the whole family, who took on the responsibility to watch Marks around the clock. But on October 11, 2013, his mother found him lying on his back, staring up at the heavens with a gun beside him. There was only a small wound, a bullet hole in his head. He was gone [Adapted from Smith (78)].	*The family required to take on the role of an inpatient facility. The lack of treatment was fatal.*

Americans were significantly less likely to be given second-generation antipsychotics, which are generally considered to be a better treatment for schizophrenia-spectrum disorders. In particular, young, male African Americans, or those with schizophrenia, were less likely to be given second-generation antipsychotics. This is of concern because younger patients may benefit from second-generation antipsychotics because of their decreased side effects (91). In addition, Herbeck et al. (91) found that individuals without health insurance were less likely to be given second-generation antipsychotic medications, noting that 10% of African Americans did not have health insurance in comparison to the 3% of White Americans. Similarly, Cook et al. (92) found that Black individuals in high-poverty communities were more than two times as likely to be treated using high-potency first-generation antipsychotics. These racial disparities in treatment continue even though second-generation antipsychotics have been prescribed for over 30 years (92).

Overmedication and the side effects associated with first-generation antipsychotics can negatively impact health and may contribute to decreased compliance with medication (91). This may then result in coercive techniques by healthcare providers to gain compliance. For example, Knight et al. (93) found that Black Canadians of Caribbean or African descent were more likely to receive coercive referral and treatment (through police, ambulance, and court) compared with White Canadians, and were at greater risk for legal coercion and detention for treatment. These disproportionate rates of coercive referrals of Black individuals make a strong case for researching how "authority figures" determine dangerousness in the case of Black patients, especially those with first-episode psychosis (93).

Such discriminatory practices are indicative of racial bias and institutional racism and are highly problematic because coercive treatments often foster cultural mistrust and create a poor patient–clinician relationship. Coercive approaches can also be very harmful, as techniques such as involuntary hospitalization and mandated medication may induce trauma in the patient and their families, leading to greater distrust and avoidance of mental healthcare in the future (94, 95). It is abundantly clear that how Black patients are assessed for treatments needs to be changed. Along these lines, Segal et al. (90) showed that when clinicians in emergency services make efforts to engage patients in treatment, overmedication decreases, underscoring the critical need for engaging Black patients in the evaluation and treatment process.

5.3. Pathways to care vary by ethnoracial group

"Pathways to care" refers to the sequence of interactions, both positive and negative, with individuals, organizations, or events, when an individual or their family attempts to seek help (96, 97). Ideally, each person will have a clear pathway for receiving appropriate care; however, this concept is also used to assess delays in help-seeking and treatment to better understand ways of providing early intervention (98). People of different races and socioeconomic statuses have different pathways that provide them with access to care (96, 99). “Aversive pathways” to specialized care for first-episode psychosis are associated with delays in treatment resulting in longer periods of untreated psychosis, poor engagement with treatment, and poorer outcomes. However, there is little research conducted on the “unique pathways” to care for Black individuals seeking care for schizophrenia-spectrum disorders (16, 96).

A qualitative study of coordinated specialty care for schizophrenia-spectrum disorders among Black Americans with first-episode psychosis found that before the onset of psychosis, participants reported exposure to childhood trauma, diminished social functioning, and greater contact with law enforcement that families described as “overly aggressive” (96). In addition, many prodromal experiences persisted following the onset of psychosis and were associated with delays in treatment and difficulties with navigating services, leading to increased delays in receiving coordinated specialized care. These barriers, which were specifically associated with longer durations of untreated psychosis for African Americans, had been previously described in a qualitative study by Bergner et al. (100). First, they found that healthcare professionals tended to misattribute symptoms of psychosis as depression, stress, or drug use. Second, they initiated treatment based on the presence of positive symptoms of psychosis, waiting for an increase in the severity of symptoms. Third, they required symptoms to reach a certain threshold, using issues of patient autonomy as an excuse. And finally, they allowed systemic factors such as lack of social support, lack of affordable services, and difficulties with scheduling appointments to interfere with the delivery of adequate care (100). In other words, healthcare professionals were providing racially biased and substandard care targeted specifically at Black individuals.

For Black communities, there is an extreme and damning gap between those who require mental health services and those who actually receive timely expertise and compassionate services. According to Tambling et al. (101), a full 70% of those who require treatment fail to access appropriate services (101, 102). The picture in Canada is similarly bleak, with a national survey finding that 42.2% of those seeking care for schizophrenia had difficulty accessing services “often” or “just about every time” (103).

6. Role of law enforcement

6.1. Disturbing statistics

Disparities in pathways to care may arise when law enforcement is involved. Young Black people with psychotic symptoms may be stereotyped as dangerous, and police may be called to deal with patients, putting them at increased risk of harm. However, people experiencing a mental health crisis are more likely to be victimized than cause harm to others (104).

Individuals with untreated severe mental illness are involved in at least one in four and as many as half of all fatal police shootings (105). Saleh et al. (106) included demographics and the presence of mental illness in their investigation of independent databases of killings of civilians by police in the United States. They found that in 2015, 23% of people killed by police showed symptoms of a mental illness. Such tragedies have resulted in a call for action from Black communities and from organizations such as The Centre for Addiction and Mental Health (107), which holds the position that racism and anti-Black racism exacerbate the interactions of individuals experiencing mental illness with law enforcement that compounds their mental health crisis.

Implicit bias and racism on the part of the police are a cause for violence against Black individuals in need of mental healthcare (108, 109). In the United States, the twenty first century Cures Act, passed by Congress and signed by President Obama in December 2016, included a mandate for the United States Attorney General to collect and report data on the role of serious mental illness in fatal law enforcement encounters. The Bureau of Justice Statistics overhauled its system for collecting law enforcement homicide data and at that point resumed reporting arrest-related death statistics. Using the new methodology approximately doubled the number of arrest-related deaths that were verified and reported by the Department of Justice. However, the role of mental illness in them has not yet been reported (105).

6.2. Disturbing examples

There are many problems with including police in situations involving a mental health crisis, as illustrated in Table 4. In all of these cases, police used disproportionate force resulting in tragic deaths, which is already a problem facing Black people (110). These shootings are driven by racism and fear, which has now become a part of the public discourse (20, 111, 112). Simply being Black and being associated with a mentally ill person is perceived as a danger, as evidenced by the case of an unarmed Black therapist shot while laying down with his hands in the air trying to prevent his autistic White patient with a toy firetruck from being shot by police (113). In addition, in many cases, Black people coping with schizophrenia-spectrum disorders are not killed or taken to a hospital but are simply criminally charged and jailed, as we saw in the case of Grace Terry, where today the United States prison system is the largest provider of mental health services in the world (114). Black Americans are incarcerated in state prisons at nearly five times the rate of White Americans and makeup 38% of the total prison population (115, 116), while one study in Ontario also found disproportionately higher incarceration of Black individuals [Black men are five times more likely to be imprisoned than White men; (117)]. Notably, one study found that in a sample of 109 urban, low-income, predominantly African American patients hospitalized for first-episode psychosis, an outsized 57.8% had been previously incarcerated, and for predominantly non-violent crimes (17).

6.3 Weaponization of medicines by law enforcement

Substances that are intended to be therapeutic can be used to control or harm people of color, and this is also referred to as “weaponized medicine” (124). The first account in the literature of this was in 1928, in the *Journal of the American Medical Association*, which reported that in Hawaii, an ethnically Japanese handyman and chauffeur had been arrested as the chief suspect in the kidnapping and murder of a young White boy. A police surgeon injected him

TABLE 4 Fatal examples of police interactions with racialized psychosis patients.

Name	Incident	Response
Clive Mensah	A 30-year-old unarmed Black man from Mississauga, Canada, died after being tasered by police even though he followed police orders. He had mental health issues, "possibly schizophrenia" and was "frequently observed speaking loudly to himself." On the night of his death, calls were made to police that he was making a lot of noise and walking on the street "...swinging his arms, and screaming and yelling" (118).	Although police acknowledged that he needed help, they did not call a mental health crisis team. Instead, police tasered and pepper sprayed him, and he died.
Ejaz Choudry	A 62-year-old Muslim man with schizophrenia from Mississauga, Canada, whose family called a non-emergency line looking for help because he had stopped taking his medication. He appeared confused and had a knife. During this three-hour interaction, he did not receive the required care and was shot dead by the tactical unit (119, 120).	Instead of a crisis team, the police arrived, and despite being told that he did not understand much English, told him to drop his knife.
Regis Korchinski-Paquet	The family of a Black Indigenous woman from Toronto, Canada, made an emergency call looking for help due to a domestic disturbance involving her and her brother (121).	Police could not handle this crisis, and she fell from her balcony to her death.
D'Andre Campbell	A young Black Canadian man with schizophrenia called the police requesting to be taken to the hospital. Instead of the mental health crisis intervention team, police officers were dispatched (122).	Although known to police as someone who had reached out in crisis before, police used stun guns and then fatally shot him.
Ricardo Muñoz	The sister of a 27-year-old man with a diagnosis of paranoid schizophrenia from Pennsylvania called the police for help because he seemed very agitated and had not taken his medication (123).	Police fatally shot him multiple times.

with a substantial dose of hyoscyamine to extract a confession, which he later recanted, and another person was later found to be the perpetrator. This approach was later used on hundreds of convicts.

Recently, two tragic incidents in 2020 involving law enforcement raised concerns over the use of anesthetic ketamine—a powerful sedative normally used in hospitals—as a law enforcement tool to subdue suspects in the field (124, 125). Over a four-day period in Aurora, Colorado, 23-year-old Elijah McClain and 25-year-old Elijah McKnight were both given doses of ketamine in separate police incidents. McClain went into cardiac arrest and died several days later. McKnight was hospitalized on life support but survived. Video footage of both incidents shows that neither McClain nor McKnight was resisting arrest when the ketamine was administered.

These incidents demonstrate that the lawlessness of law enforcement in punitive interactions with Black persons is ongoing. Not only are Black people targeted simply because of their race, but psychosis-inducing substances are also being used to create the veneer of an excuse, which may be justified through myths around the danger of Black psychosis (44). In these cases, the police used the label "excited delirium" to justify the subjugation of suspects with ketamine. However, the diagnosis of excited delirium is not recognized by major medical organizations such as the American Medical Association (126). Furthermore, police officers are not trained to diagnose any sort of delirium, rather this role belongs to medical personnel (127). It may be more accurate to describe the incident involving McClain as an extra-judicial murder using psychosis-inducing drugs, as the circumstances were suspicious. It is now known that McClain only weighed 143 pounds at the time of his arrest yet was given a ketamine dose while handcuffed, he was given a dose for a 200-pound man (128). In 2022, two years after his death, two paramedics and three police officers were indicted by a Colorado grand jury on charges of manslaughter and criminally negligent homicide (129). Despite these issues, the diagnosis of "excited delirium" continues to be used throughout the United States to justify the use of ketamine and to explain deaths in police custody, especially the deaths of young Black men (130).

7. Addressing the issues

Given the unique issues faced by Black people with early symptoms of schizophrenia-spectrum disorders, solutions must be tailored to address their needs, which are complicated by systemic racism in healthcare and law enforcement. Critical issues to address include (1) improving diagnostic accuracy which includes educating psychologists about the unique cultural history and stigmas around psychosis as well as its genetic origins, (2) public education in communities of color to increase mental health literacy, (3) improving interventions surrounding law enforcement for mental health crises, and (4) anti-racism training for mental health clinicians. Examples of how to accomplish this are shown in Table 5.

7.1. Improving diagnostic accuracy

A more deliberate diagnostic process through greater use of the structured clinical interview for schizophrenia-spectrum disorders could reduce reliance on stereotypes and help minimize misdiagnoses [e.g., (3)]. Furthermore, when possible, the benefits of racial and ethnic matching should be considered, as many clinicians do not have the proper training to work effectively across race, ethnicity, and culture (32). For example, a Black person may be cautious or seem reluctant to share details with clinicians from other racial groups due to realistic mistrust that can then be misinterpreted as pathological paranoia.

7.2. Public education

Increasing mental health literacy at the community and population level can improve the early detection of and intervention for psychological disorders (140). Public awareness educational campaigns aimed at the general public can be beneficial in increasing awareness of the nature of schizophrenia and its

TABLE 5 Examples of how to reduce racial disparities in mental healthcare pathways for Black individuals.

Improving diagnostic accuracy	
Structured interviews	• Structured interviews have proven value in improving diagnostic accuracy and can be used in real clinical settings (131).
Racial/ethnic matching	• Methods used in the National Survey of American Life investigating the nature, severity, and impairment of mental disorders in Black and White populations used racial and ethnic matching of interviewers and respondents (132).
Targeted public education in communities of color	
Mental health literacy	• Norway's Treatment and Intervention in Psychosis program, Australia's *beyondblue* initiative for depression and related disorders, as well as Nuremberg's community campaign for depression, represent examples of successful mental health literacy programs (133).
Public awareness campaigns	• One comprehensive mental health awareness program (the Depression is Real Campaign) launched in Louisville, KY (134) developed culturally informed communication about the nature of depression, its symptoms, and treatment for Black communities. A similar approach could be used to raise awareness about psychosis.
Word-of- mouth	• *MindStylz* is a collaborative project between hair stylists, barbers, and the Ethnic Diversity Task Force of the Connecticut Psychological Association (135). It's mission is to promote mental health awareness among hair stylists, barbers, and their clients in communities of color. *MindStylz* helps by providing education and resources to hair stylists and barbers for their clients.
Church-based approaches	• In 2022, the first randomized trial of church-based counselling centres for depression counseling in African Americans started. The idea is to improve care in economically disadvantaged areas (136).
Revisiting the role of law enforcement	
Training law enforcement	• Police in Louisville Kentucky worked with National Alliance on Mental Illness (NAMI) to reduce the harm caused by mental health crisis calls. Outcomes of a special police crisis intervention team (CIT) were reviewed over a year and compared with available pre-CIT statistics. The arrest rate for the CIT was lower than non-CIT runs while the occupancy of the local mental health unit in the jail stayed about the same (∼1,100 patients/year), and referrals to intense psychiatric services (e.g., Central State Hospital) significantly dropped (from 53% in 2001 to 26.8% in 2004).
Alternatives to police involvement	• In both the United States and Canada, traditional law enforcement responders are being replaced with healthcare workers for some emergency calls. Previously, Denver 911 operators only directed calls to police or fire department first responders, but the Support Team Assistance Response (STAR) pilot program created a new track for directing emergency calls to a two-person medical team as did the Vivec Research Team in Ottawa (137, 138).
Anti-racism and anti-bias training for mental health clinicians	
Anti-racism training	• In the MGH/McLean Psychiatry residency program, the Division of Public and Community Psychiatry developed a curriculum addressing racial inequities in mental health, particularly those experienced by African Americans. Training discussing racism in formal didactics integrated into the required didactic curriculum was positively rated by participants (139).

treatment, although these campaigns should be a continuing process, as single campaigns usually do not have much effect (141). Specific messages disconnecting schizophrenia from violent behavior should be crafted as there appears to be a widely held misconception that they are linked (48). Key components of public education can include an emphasis on increasing positive word-of-mouth from trusted leaders in communities of color where long-term relationships are critical. Church-based interventions are effective strategies for reaching Black communities as these resources are connected to a trusted source (142).

7.3. Improving interventions surrounding law enforcement

As previously noted, people with severe mental disorders are much more likely to be killed by police, and the risks multiply when the victim is Black. Therefore, there is a need to address this problem at the level of law enforcement (108, 143, 144). Training for law enforcement on how to recognize and manage mental health crises is essential, but there is also a need for the formal separation of mental health interventions from policing. Police are not mental health providers, and armed persons in uniform should not be the first point of contact for people experiencing psychotic symptoms, especially Black people who are often already highly fearful of police (145, 146). Alternate first responders should be enlisted for crisis intervention and wellness checks as per examples in Table 5 (138, 147).

7.4. Anti-racism training

Organizations serving racialized groups can frame their actions and practices in anti-racist and anti-oppressive philosophies to be more responsive to the populations they serve (20). This can result in better care for racialized groups while addressing the issue of racism and oppression in mental health and medical services (148–150).

8. Conclusion

Black people in the early phases of a schizophrenia-spectrum disorder face barriers to proper diagnosis, impediments to proper care, greater mistrust of mental healthcare systems, and violence from law enforcement. Psychologists and psychiatrists are often the gatekeepers to proper care for these individuals. The clinical treatment of mental disorders is dependent on cultural norms, and the empathetic, culturally informed diagnosis of mental health professionals. Timely awareness of the significance of culture can make a difference in the pathways to care for Black individuals suffering from psychosis and correct any mistaken interpretations of psychopathology (2, 14). Failure to act in accordance with this can result in misdiagnosis and poor outcomes for those served.

While the research, training, and application of culturally responsive assessment and diagnosis have increased over the last several decades, there is a continued need for a focus on training culturally responsive clinicians. The skills of a culturally responsive clinician are similar to those of an effective clinician more broadly, developing cultural humility (to avoid mistaking difference for inferiority), compassion (for self and others), and critical thinking skills (the process of continually questioning one's assumptions and biases). Clinicians who attend to these principles achieve the overarching goal of every clinician: client wellbeing (32, 151). With this in mind, multifaceted approaches are needed to holistically address these problems that include interventions in the community as well.

Author contributions

SF and MW: conceptualization—ideas formulation or evolution of overarching research goals and aims, methodology, development or design of methodology, creation of models, project administration—management, coordination responsibility for the research activity planning, and execution, supervision—oversight, leadership responsibility for the research activity planning and execution, and including mentorship external to the core team. SF, AKR, TM, and MW: investigation—conducting a research and investigation process, specifically performing the experiments, or data/evidence collection, writing—original draft, preparation, creation and/or presentation of the published work, specifically writing the initial draft (including substantive translation), and writing—review and editing. SF: visualization—preparation, creation and/or presentation of the published work, and specifically visualization/data presentation. All authors contributed to the article and approved the submitted version.

Funding

This research was undertaken, in part, thanks to funding from the Canada Research Chairs Program, Canadian Institutes of Health Research (CIHR) grant number 950-232127 (PI: MW).

Conflict of interest

SF has an affiliation with the German GmbH Bioville. This company has no influence and is no involved in any enterprises that would affect this manuscript.

The remaining authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest

Publisher's note

References

1. King ML. *King berates medical care given negroes. Oshkosh Daily Northwestern.* (1996). Available online at: https://pnhp.org/news/dr-martin-luther-king-on-health-care-injustice/ (accessed March 26, 1996).

2. APA. *Bipolar and Related Disorders. Diagnostic and Statistical Manual of Mental Disorders*. Washington, DC: APA (2013).

3. CGPGC. Genomic relationships, novel loci, and pleiotropic mechanisms across eight psychiatric disorders. *Cell.* (2019). 179:1469–82. doi: 10.1016/j.cell.2019.11.020

4. Singh T, Poterba T, Curtis D, Akil H, Al Eissa M, Barchas JD, et al. Rare coding variants in ten genes confer substantial risk for schizophrenia. *Nature.* (2022) 604:509–16. doi: 10.1038/s41586-022-04556-w

5. Lecomte T, Addington J, Bowie C, Lepage M, Potvin S, Shah J, et al. The Canadian network for research in schizophrenia and psychoses: a nationally focused approach to psychosis and schizophrenia research. *Can J Psychiatr.* (2022) 67:172–5. doi: 10.1177/07067437211009122

6. GBD 2019 Mental Disorders Collaborators. Global, regional, and national burden of 12 mental disorders in 204 countries and territories, 1990-2019: a systematic analysis for the global burden of disease study 2019. *Lancet Psychiatr.* (2022) 9:137–150. doi: 10.1016/S2215-0366(21)00395-3

7. Mojtabai R. Estimating the prevalence of schizophrenia in the United States using the multiplier method. *Schizophr Res.* (2021) 230:48–9. doi: 10.1016/j.schres.2021.02.010

8. Herbst D. *Schizophrenia in Black people: Racial disparities explained. PsyCom.* (2021). Available online at: https://www.psycom.net/schizophrenia-racial-disparities-black-people#improvingschizophreniatreatmentsinblackpeople (accessed October 14, 2021).

9. Murphy T, Krasa H, Lavigne G, Frangiosa T, Palsgrove A, Stalters L, et al. *Societal costs of schizophrenia and related disorders*, Alexandria, VA: Schizophrenia and Psychosis Action Alliance (2021).

10. Semega J, Kollar M. *Income in the United States: 2021. United States Census Bureau, Report Number P60-276, Table A2.* (2022). Available online at: https://www.census.gov/library/publications/2022/demo/p60-276.html (accessed September 13, 2022).

11. Williams MT, Gooden AM, Davis D. African Americans, European Americans, and pathological stereotypes: An African-centered perspective. In GR Hayes, MH. Bryant, editors, *Psychology of Culture*. Hauppauge, NY: Nova Science Publishers (2012) pp. 25–46.

12. Jahn ZW, Lopez J, de la Salle S, Faber S, Williams MT. (2021). Racial/ethnic differences in prevalence of hallucinogen use by age cohort: findings from the 2018 national survey on drug use and health. *J Psych Stu.* (2021) 5:69–82. doi: 10.1556/2054.2021.00166

13. Cohen CI, Marino L. Racial and ethnic differences in the prevalence of psychotic symptoms in the general population. *Psychiatric Services.* (2013) 64:1103–9. doi: 10.1176/appi.ps.201200348

14. Schwartz RC, Blankenship DM. Racial disparities in psychotic disorder diagnosis: a review of empirical literature. *World J Psychiatr.* (2014) 4:133–40. doi: 10.5498/wjp.v4.i4.133

15. Olbert CM, Nagendra A, Buck B. Meta-analysis of Black vs. White racial disparity in schizophrenia diagnosis in the United States: do structured assessments attenuate racial disparities? *J Abnorm Psychol.* (2018) 127:104–15. doi: 10.1037/abn0000309

16. OluwoyeO, Davis B, Kuhney FS, Anglin DM. Systematic review of pathways to care in the U.S. for Black individuals with early psychosis. *Nat Partner J Schizophrenia.* (2021) 7:1–10. doi: 10.1038/s41537-021-00185-w

17. Ramsay CE, Goulding SM, Broussard B, Cristofaro SL, Abedi GR, Compton MT, et al. Prevalence and psychosocial correlates of prior incarcerations in an urban, predominantly African-American sample of hospitalized patients with first-episode psychosis. *J Am Acad Psychiatry Law.* (2011) 39:57–64.

18. Issa O, Quon A. *Samwel Uko's Family Continues Search for Justice From the System That Failed Their Son. CBC News.* (2022). Available online at: https://www.

cbc.ca/news/canada/saskatchewan/samwel-uko-parents-speak-out-1, 6472561 (accessed May 31, 2022).

19. Cénat JM. How to provide anti-racist mental health care. *Lancet Psychiatry.* (2020) 7:929–31. doi: 10.1016/S2215-0366(20)30309-6

20. Haeny AH, Holmes SC, Williams MT. Applying anti-racism to clinical care and research. *JAMA Psychiatry.* (2021) 78:1187–8. doi: 10.1001/jamapsychiatry.2021.2329

21. Soloducha A. *Petition calls on Sask. government to hire Black mental health therapists. CBC News.* (2020). Available online at: https://www.cbc.ca/news/canada/saskatchewan/petition-for-black-mental-health-therapists-sask-1 (accessed July 2, 2020).

22. Jarvis GE. The social causes of psychosis in North American psychiatry: a review of a disappearing literature. *Can J Psychiatry.* (2007) 52:287–94. doi: 10.1177/070674370705200503

23. Bryant BE, Jordan A, Clark US. Race as a social construct in psychiatry research and practice. *JAMA Psychiatry.* (2022) 79:93–4. doi: 10.1001/jamapsychiatry.2021.2877

24. Haeny AM, Holmes SC, Williams MT. The need for shared nomenclature on racism and related terminology in psychology. *Pers Psychol Sci.* (2021) 16:886–92. doi: 10.1177/17456916211000760

25. Smedley A, Smedley BD. Race as biology is fiction, racism as a social problem is real: anthropological and historical perspectives on the social construction of race. *Am Psychol.* (2005) 60:16–26. doi: 10.1037/0003-066X.60.1.16

26. Williams MT, Khanna Roy A, MacIntyre MP, Faber S. The traumatizing impact of racism in Canadians of colour. *Current Trauma Reports.* (2022) 8:17–34. doi: 10.1007/s40719-022-00225-5

27. DiAngelo R. *White Fragility: Why It's So Hard for White People to Talk About Racism.* Boston, MA: Beacon Press. (2018).

28. Sue DW, Rivera DP, Capodilupo CM, Lin AI, Torino GC. Racial dialogues and White trainee fears: Implications for education and training. *Cult Div Ethnic Minority Psychol.* (2010) 16:206–14. doi: 10.1037/a0016112

29. Castano E, Paladino MP, Coull A, Yzerbyt VY. Protecting the ingroup stereotype: Ingroup identification and the management of deviant ingroup members. *Br J Soc Psychol.* (2002) 41:365–85. doi: 10.1348/014466602760344269

30. Scheepers D, Ellemers N. Status stress: Explaining defensiveness to the resolution of social inequality in members of dominant groups. In: J Jetten, K Peters, Editors, *The social psychology of Inequality.* Springer, Cham (2019) 267–87.

31. Williams MT. *Managing Microaggressions: Addressing Everyday Racism in Therapeutic Spaces.* Oxford: Oxford University Press. (2020).

32. Williams MT, Faber SC, Duniya C. Being an anti-racist clinician. *Cognit Behav Ther.* (2022) 15:1–22. doi: 10.1017/S1754470X22000162

33. Harjunen VJ, Sjö P, Ahmed I, Saarinen A, Farmer H, Salminen M, et al. Increasing self-other similarity modulates ethnic bias in sensorimotor resonance to others' pain. *Soc Cognit Aff Neurosci.* (2021) 17:673–82. doi: 10.1093/scan/nsab113

34. Hoffman KM, Trawalter S, Axt JR, Oliver MN. Racial bias in pain assessment and treatment recommendations, and false beliefs about biological differences between Blacks and Whites. *Proc Natl Acad Sci U S A.* (2016) 113:4296–301. doi: 10.1073/pnas.1516047113

35. Mathur VA, Richeson JA, Paice JA, Muzyka M, Chiao JY. Racial bias in pain perception and response: experimental examination of automatic and deliberate processes. *J Pain.* (2014) 15:476–84. doi: 10.1016/j.jpain.2014.01.488

36. Berlingeri M, Gallucci M, Danelli L, Forgiarini M, Sberna M, Paulesu E, et al. Guess who's coming to dinner: brain signatures of racially biased and politically correct behaviors. *Neuroscience.* (2016) 332:231–41. doi: 10.1016/j.neuroscience.2016.06.048

37. Zhou Y, Han S. Neural dynamics of pain expression processing: Alpha-band synchronization to same-race pain but desynchronization to other-race pain. *Neuroimage.* (2021) 224:1–12. doi: 10.1016/j.neuroimage.2020.117400

38. Balliet D, Wu J, De Dreu CKW. Ingroup favoritism in cooperation: a meta-analysis. *Psychol Bullet.* (2014) 140:1556–81. doi: 10.1037/a0037737

39. Gara MA, Minsky S, Silverstein SM, Miskimen T, Strakowski SM. A naturalistic study of racial disparities in diagnoses at an outpatient behavioral health clinic. *Psychiatric Serv.* (2019) 70:130–4. doi: 10.1176/appi.ps.201800223

40. Kuno E, Rothbard AB. Racial disparities in antipsychotic prescription patterns for patients with schizophrenia. *Am J Psychiatry.* (2002) 159:567–72. doi: 10.1176/appi.ajp.159.4.567

41. Cartwright S. Diseases and peculiarities of the Negro race. De Bow's Review Souther*n and Western States.* New York, NY: AMS Press, Inc. (1851).

42. Canada T, Carter CR. *The NFL's Racist 'Race Norming' is an Afterlife of Slavery. Scientific American.* (2021). Available online at: https://www.scientificamerican.com/article/the-nfls-racist-race-norming-is-an-afterlife-of-slavery/ (accessed July 8, 2021).

43. Dupree CH, Kraus MW. Psychological science is not race neutral. *Pers Psychol Sci.* (2022) 17:270–5. doi: 10.1177/1745691620979820

44. Metzl JM. *The Protest Psychosis : How Schizophrenia Became a Black Disease.* Boston, MA: Beacon Press. (2009).

45. Hazin R. [Review of the book The protest psychosis: How schizophrenia became a Black disease, by J. *M Metzl] J Nat Med Assoc.* (2011) 103:375. doi: 10.1016/S0027-9684(15)30321-7

46. Metzl JM, MacLeish KT. Mental illness, mass shootings, and the politics of American firearms. *Am J Pub Health.* (2015) 105:240–9. doi: 10.2105/AJPH.2014.302242

47. Chow WS, Priebe S. Understanding psychiatric institutionalization: a conceptual review. *BMC Psychiatry.* (2013) 13:1–14. doi: 10.1186/1471-244X-13-169

48. Phelan JC, Link BG, Stueve A, Pescosolido BA. Public conceptions of mental illness in 1950 and 1996: what is mental illness and is it to be feared? *J Health Soc Behav.* (2000) 41:188–207. doi: 10.2307/2676305

49. Lin L, Stamm K, Christidis P. *How Diverse is the Psychology Workforce?* Worcester, MA: American Psychological Association (2018).

50. Faber S, Williams MT, Metzger IW, MacIntyre MM, Strauss D, Duniya CG, et al. Lions at the gate: How weaponization of policy prevents people of colour from becoming professional psychologists in Canada. *Canadian Psychol.* (In Press). doi: 10.1037/cap0000352

51. Chapman LK, DeLapp R, Williams MT. Impact of race, ethnicity, and culture on the expression and assessment of psychopathology. In DC Beidel, BC Frueh, M Hersen, editors, *Adult Psychopathology and Diagnosis.* John Wiley and Sons, Inc, 131–56 (2018).

52. Ninan PT, Shelton S. Managing psychotic symptoms when the diagnosis is unclear. *Hospital Commun. Psychiatry.* (1993) 44:107–8. doi: 10.1176/ps.44.2.107

53. Louie P, Wheaton B. Prevalence and patterning of mental disorders through adolescence in 3 cohorts of Black and White Americans. *Am J Epidemiol.* (2018) 187:2332–8. doi: 10.1093/aje/kwy144

54. Thomas Tobin CS, Erving CL, Hargrove TW, Satcher LA. Is the Black-White mental health paradox consistent across age, gender, and psychiatric disorders? *Aging Mental Health.* (2022) 26:196–204. doi: 10.1080/13607863.2020.1855627

55. Jongsma HE, Gayer-Anderson C, Tarricone I, Velthorst E, van der Ven E, Quattrone D, et al. Social disadvantage, linguistic distance, ethnic minority status and first-episode psychosis: Results from the EU-GEI case–control study. *Psychol Med.* (2021) 51:1536–48. doi: 10.1017/S003329172000029X

56. Fernando S. *Cultural Diversity, Mental Health and Psychiatry : The Struggle Against Racism.* New York, NY: Brunner-Routledge. (2003).

57. Williams DR, Neighbors HW, Jackson JS. Racial/ethnic discrimination and health: findings from community studies. *Am J Pub Health.* (2003) 93:200–8. doi: 10.2105/AJPH.93.2.200

58. Whaley AL. Cultural mistrust and mental health services for African Americans: a review and meta-analysis. *Couns Psychol.* (2001) 29:513–31. doi: 10.1177/0011000001294003

59. Rouhakhtar PR, Roemer C, Reeves G, Schiffman J. The associations between attenuated psychosis symptoms and functioning in Black and White youth at clinical high-risk for psychosis. *Schizophr Res.* (In press) 1–8. doi: 10.1016/j.schres.2021.11.032

60. Combs DR, Penn DL, Fenigstein A. Ethnic differences in subclinical paranoia: an expansion of norms of the Paranoia Scale. *Cult Div Ethnic Minority Psychol.* (2002) 8:248–56. doi: 10.1037/1099-9809.8.3.248

61. Mosley DV, Owen KH, Rostosky SS, Reese RJ. Contextualizing behaviors associated with paranoia: perspectives of Black men. *Psychol Men Masculinity.* (2017) 18:165–75. doi: 10.1037/men0000052

62. Hall WJ, Chapman MV, Lee KM, Merino YM, Thomas TW, Payne BK, et al. Implicit racial/ethnic bias among health care professionals and its influence on health care outcomes: a systematic review. *Am J Pub Health.* (2015) 105:60–76. doi: 10.2105/AJPH.2015.302903

63. Plaisime MV, Malebranche DJ, Davis AL, Taylor JA. Healthcare providers' formative experiences with race and Black male patients in urban hospital environments. *J Racial Ethnic Health Disp.* (2017) 4:1120–7. doi: 10.1007/s40615-016-0317-x

64. Cuevas AG, O'Brien K, Saha S. African American experiences in healthcare: "I always feel like I'm getting skipped over". *Health Psychology.* (2016) 35:987–95. doi: 10.1037/hea0000368

65. Cuevas AG, O'Brien K, Saha S. What is the key to culturally competent care: Reducing bias or cultural tailoring? *Psychol Health.* (2017) 32:493–507. doi: 10.1080/08870446.2017.1284221

66. Strakowski SM, Hawkins JM, Keck PE Jr, McElroy SL, West SA, Bourne ML, et al. The effects of race and information variance on disagreement between psychiatric emergency service and research diagnoses in first-episode psychosis. *J Clin Psychiatry.* (1997) 58:457–63. doi: 10.4088/JCP.v58n1010a

67. Strakowski SM, Keck PE, Arnold LM, Collins J, Wilson RM, Fleck DE, et al. Ethnicity and diagnosis in patients with affective disorders. *J Clin Psychiatry.* (2003) 64:747–54. doi: 10.4088/JCP.v64n0702

68. Gara MA, Vega WA, Arndt S, Escamilla M, Fleck DE, Lawson WB, et al. Influence of patient race and ethnicity on clinical assessment in patients with affective disorders. *Arch Gen Psychiatr.* (2012) 69:593–600. doi: 10.1001/archgenpsychiatry.2011.2040

69. Peltier MR, Cosgrove SJ, Ohayagha K, Crapanzano KA, Jones GN. Do they see dead people? Cultural factors and sensitivity in screening for schizophrenia spectrum disorders. *Ethnicity Health.* (2017) 22:119–29. doi: 10.1080/13557858.2016.1196650

70. Siddle R, Haddock G, Tarrier N, Faragher EB. Religious delusions in patients admitted to hospital with schizophrenia. *Soc Psychiatry Psychiatr Epidemiol.* (2002) 37:130–8. doi: 10.1007/s001270200005

71. Schizophrenia Working Group. Biological insights from 108 schizophrenia-associated genetic loci. *Nature.* (2014) 511, 421–427. doi: 10.1038/nature13595

72. Marshall M. The hidden links between mental disorders. *Nature.* (2020) 581:19–21. doi: 10.1038/d41586-020-00922-8

73. Trubetskoy V, Pardiñas AF, Qi T, Panagiotaropoulou G, Awasthi S, Bigdeli TB, et al. Mapping genomic loci implicates genes and synaptic biology in schizophrenia. *Nature.* (2022) 604:502–8. doi: 10.1038/s41586-022-04434-5

74. Jongsma HE, Karlsen S, Kirkbride JB, Jones PB. Understanding the excess psychosis risk in ethnic minorities: the impact of structure and identity. *Soc Psychiatry Psychiatr Epidemiol.* (2021) 56:1913–21. doi: 10.1007/s00127-021-02042-8

75. McLaughlin KA, Alvarez K, Fillbrunn M, Green JG, Jackson JS, Kessler RC, et al. Racial/ethnic variation in trauma-related psychopathology in the United States: a population-based study. *Psychol Med.* (2019) 49:2215–26. doi: 10.1017/S0033291718003082

76. Sibrava NJ, Bjornsson AS, Pérez Benítez ACI, Moitra E, Weisberg RB, Keller MB, et al. Posttraumatic stress disorder in African American and Latinx adults: Clinical course and the role of racial and ethnic discrimination. *Am Psychol.* (2019) 74:101–6. doi: 10.1037/amp0000339

77. Arseneault L, Cannon M, Fisher HL, Polanczyk G, Moffitt TE, Caspi A, et al. Childhood trauma and children's emerging psychotic symptoms: a genetically sensitive longitudinal cohort study. *Am J Psychiatry.* (2011) 168:65–72. doi: 10.1176/appi.ajp.2010.10040567

78. Smith B. *Why Chicago's MasterChef Star Killed Himself. Chicago Magazine.* (2014). Available online at: https://www.chicagomag.com/Chicago-Magazine/July-2014/Josh-Marks/ (accessed June 23, 2014).

79. Bailey T, Alvarez-Jimenez M, Garcia-Sanchez AM, Hulbert C, Barlow E, Bendall S, et al. Childhood trauma is associated with severity of hallucinations and delusions in psychotic disorders: a systematic review and meta-analysis. *Schizophr Bull.* (2018) 44:1111–22. doi: 10.1093/schbul/sbx161

80. Anglin DM, Ereshefsky S, Klaunig MJ, Bridgwater MA, Niendam TA, Ellman LM, et al. From womb to neighborhood: a racial analysis of social determinants of psychosis in the United States. *Am J Psychiatr.* (2021) 178:599–610. doi: 10.1176/appi.ajp.2020.20071091

81. Wickham S, Taylor P, Shevlin M, Bentall RP. The impact of social deprivation on paranoia, hallucinations, mania and depression: the role of discrimination social support, stress and trust. *PLoS ONE.* (2014) 9:e105140. doi: 10.1371/journal.pone.0105140

82. Varchmin L, Montag C, Treusch Y, Kaminski J, Heinz A. Traumatic events, social adversity and discrimination as risk factors for psychosis - An umbrella review. *Front Psychiatry.* (2021) 12:1–15. doi: 10.3389/fpsyt.2021.665957

83. Williams MT, Metzger IW, Leins C, DeLapp C. Assessing racial trauma within a DSM−5 framework: The UConn racial/ethnic stress and trauma survey. *Prac Innov.* (2018) 3:242–60. doi: 10.1037/pri0000076

84. Heun-Johnson H, Menchine M, Axeen S, Lung K, Claudius I, Wright T, et al. Association between race/ethnicity and disparities in health care use before first-episode psychosis among privately insured young patients. *JAMA Psychiatry.* (2021) 78:311–9. doi: 10.1001/jamapsychiatry.2020.3995

85. McGlashan TH, Walsh BC, Woods SW, editors. Psychosis-risk syndromes and psychosis in the SIPS. In: *The Psychosis-Risk Syndrome: Handbook for Diagnosis and Follow-Up*. Oxford: Oxford University Press (2010), pp. 24–33.

86. Nørgaard HCB, Søndergaarde Pederson H, Fenger-Grøn M, Mors O, Nordencroft M, Vestergaarde T, et al. Increased use of primary care during 6 years of prodromal schizophrenia. *Acta Psychiatr Scand.* (2016) 134:225–33. doi: 10.1111/acps.12600

87. Kane JM, Robinson DG, Schooler NR, Mueser KT, Penn DL, Rosenheck RA, et al. Comprehensive versus usual community care for first-episode psychosis: 2-year outcomes from the NIMH RAISE early treatment program. *Am J Psychiatry.* (2016) 173:362–72. doi: 10.1176/appi.ajp.2015.15050632

88. Melle I, Larsen TK, Haahr U, Friis S, Johannessen JO, Opjordsmoen S, et al. Prevention of negative symptom psychopathologies in first-episode schizophrenia: two-year effects of reducing the duration of untreated psychosis. *Arch Gen Psychiatry.* (2008) 65:634–40. doi: 10.1001/archpsyc.65.6.634

89. Michaels TI, Carrion R, Addington J. Ethnoracial discrimination and the development of suspiciousness symptoms in individuals at clinical high-risk for psychosis. *Schizophrenia Res.* (2022).

90. Segal SP, Bola JR, Watson MA. Race, quality of care, and antipsychotic prescribing practices in psychiatric emergency services. *Psychiatric Serv.* (1996) 47:282–6. doi: 10.1176/ps.47.3.282

91. Herbeck DM, West JC, Ruditis I, Duffy FF, Fitek DJ, Bell CC, et al. Variations in use of second-generation antipsychotic medication by race among adult psychiatric patients. *Psychiatric Serv.* (2004) 55:677–84. doi: 10.1176/appi.ps.55.6.677

92. Cook TB, Reeves GM, Teufel J, Postolache TT. Persistence of racial disparities in prescription of first-generation antipsychotics in the USA. *Pharmacoepidemiol Drug Saf.* (2015) 24:1197–206. doi: 10.1002/pds.3819

93. Knight S, Jarvis GE, Ryder AG, Lashley M, Rousseau C. Ethnoracial differences in coercive referral and intervention among patients with first-episode psychosis. *Psychiatric Services.* (2022) 73:2–8. doi: 10.1176/appi.ps.202000715

94. Swartz MS, Swanson JW, Hannon MJ. Does fear of coercion keep people away from mental health treatment? Evidence from a survey of persons with schizophrenia and mental health professionals. *Behav Sci Law.* (2003) 21:459–72. doi: 10.1002/bsl.539

95. Paksarian D, Mojtabai R, Kotov R, Cullen B, Nugent KL, Bromet EJ, et al. Perceived trauma during hospitalization and treatment participation among individuals with psychotic disorders. *Psychiatric Serv.* (2014) 65:266–9. doi: 10.1176/appi.ps.201200556

96. Oluwoye O, Stokes B. The unique pathways to coordinate specialty care for Black families navigating early psychosis: a preliminary report. *Schizophrenia Res.* (2021) 4:1–6. doi: 10.1016/j.schres.2021.11.004

97. Rogler LH, Cortes DE. Help-seeking pathways: a unifying concept in mental health care. *Am J Psychiatry.* (1993) 150:554–61. doi: 10.1176/ajp.150.4.554

98. Allan SM, Hodgekins J, Beazley P, Oduola S. Pathways to care in at-risk mental states: a systematic review. *Early Interv Psychiatry.* (2021) 15:1092–103. doi: 10.1111/eip.13053

99. Rotenberg M, Tuck A, Ptashny R, McKenzie K. The role of ethnicity in pathways to emergency psychiatric services for clients with psychosis. *BMC Psychiatry.* (2017) 17:137–47. doi: 10.1186/s12888-017-1285-3

100. Bergner E, Leiner AS, Carter T, Franz L, Thompson NJ, Compton MT, et al. The period of untreated psychosis before treatment initiation: a qualitative study of family members' perspectives. *Compr Psychiatry.* (2008) 49:530–6. doi: 10.1016/j.comppsych.2008.02.010

101. Tambling RR, D'Aniello C, Russell BS. Mental health literacy: a critical target for narrowing racial disparities in behavioral health. *Int J Ment Health Addict.* (2021) 11:1–15. doi: 10.1007/s11469-021-00694-w

102. Thornicroft G. Most people with mental illness are not treated. *Lancet.* (2007) 370:807–8. doi: 10.1016/S0140-6736(07)61392-0

103. Williams MT. *Race-Based Determinants of Mental Health and Racial Trauma. Clinical Health Psychology, Grand Rounds*. Winnipeg, MB: University of Manitoba (2022).

104. De Vries D, van Busschbach B, van der Stouwe JT, Aleman ECD, van Dijk A, Lysaker JJM, et al. Prevalence rate and risk factors of victimization in adult patients with a psychotic disorder: a systematic review and meta-analysis. *Schizophr Bull.* (2019) 45:114–26. doi: 10.1093/schbul/sby020

105. Fuller DA, Lamb HR, Biasotti M, Snook J. *Overlooked in the Undercounted: The Role of Mental Illness in Fatal Law Enforcement Encounters.* Arlington, VA: Treatment Advocacy Center (2015).

106. Saleh AZ, Applebaum PS, Liu X, Stroup TS, Wall M. Deaths of people with mental illness during interactions with law enforcement. *Int J Law Psychiatry.* (2018) 58:110–6. doi: 10.1016/j.ijlp.2018.03.003

107. Centre for Addiction and Mental Health. *CAMH Statement on Police Interactions With People in Mental Health Crisis. CAMH News and Stories.* (2020). Available online at: https://www.camh.ca/en/camh-news-and-stories/camh-statement-on-police-interactions-with-people-in-mental-health-crisis (accessed June 23, 2020).

108. Mulay AL, Vayshenker B, West ML, Kelly E. Crisis intervention training and implicit stigma toward mental illness: reducing bias among criminal justice personnel. *Int J Forensic Ment Health.* (2016) 15:369–81. doi: 10.1080/14999013.2016.1208308

109. Spencer KB, Charbonneau AK, Glaser J. Implicit bias and policing. *Soc Personal Psychol Compass.* (2016) 10:50–63. doi: 10.1111/spc3.12210

110. Ross CT, Winterhalder B, McElreath R. Racial disparities in police use of deadly force against unarmed individuals persist after appropriately benchmarking shooting data on violent crime rates. *Soc Psychol Personal Sci.* (2021) 12:323–32. doi: 10.1177/1948550620916071

111. Brown SM. *Anxiety and racism result in more Blacks killed by police. The Washington Informer.* (2022). Available online at: https://www.washingtoninformer.com/anxiety-and-racism-result-in-more-blacks-killed-by-police/ (accessed April 26, 2022).

112. Williams M, Osman M, Gran-Ruaz S, Strauss D, Zare M. Performative shooting exercises do not predict real-world racial bias in police officers. *Can J Behav Sci.* (2022) 1–11. doi: 10.1037/cbs0000332

113. Alvarado F, Miller ME, Berman M. *North Miami Police Shoot Black Man Who Said his Hands Were Raised While he Tried to Help Autistic Group-Home Resident. The Washington Post.* (2016). Available online at: https://www.washingtonpost.com/news/morning-mix/wp/2016/07/21/fla-police-shoot-black-man-with-his-hands-up-as-he-tries-to-help-autistic-patient/ (accessed July 21, 2016).

114. Al-Rousan T, Rubenstein L, Sieleni B, Deol H, Wallace RB. Inside the nation's largest mental health institution: a prevalence study in a state prison system. *BMC Public Health.* (2017). 17:1–9. doi: 10.1186/s12889-017-4257-0

115. Federal Bureau of Prisons. *Inmate Race. Statistics*. (2022). Available online at: https://www.bop.gov/about/statistics/statistics_inmate_race.jsp (accessed July 30, 2022).

116. Gramlich J. *The Gap Between the Number of Blacks and Whites in Prison is Shrinking. Pew Research Center.* (2019). Available online at: https://www.pewresearch.org/fact-tank/2019/04/30/shrinking-gap-between-number-of-blacks-and-whites-in-prison/ (accesssed April 30, 2019).

117. Owusu-Bempah A, Jung M, Sbaï F, Wilton AS, Kouyoumdjian F. Race and incarceration: the representation and characteristics of Black people in provincial correctional facilities in Ontario, Canada. *Race Justice.* (2021) 8:1–13. doi: 10.1177/21533687211006461

118. Nasser S. *No Criminal Charges for Officers in Death of Black Man With Mental Illness Tasered in Own Backyard. CBC News.* (2021). Available online at: https://www.cbc.ca/news/canada/toronto/clive-mensah-black-man-taser-peel-police-1 (accessed March 29, 2021).

119. Nasser S. *No Charges in Death of Ejaz Choudry, 62-Year-Old Shot and Killed by Police While in Crisis.* CBC News. (2021). Available online at: https://www.cbc.ca/news/canada/toronto/ejaz-choudry-no-charges-siu-peel-police-1 (accessed April 6, 2021).

120. Ramkaran R. *Police are Deadly to People in Crisis: No Justice as the Officer Who Killed Ejaz Ahmed Choudry Escapes Charges. An Injustice*! (2021). Available online at: https://aninjusticemag.com/police-are-deadly-to-people-in-crisis-fbd36a3c45a1 (accessed April 7, 2021).

121. Westoll N. *Justice for Regis Korchinski-Paquet March held in Toronto as Anniversary of Death Approaches. Global News.* (2021). Available online at: https://globalnews.ca/news/7887172/regis-korchinski-paquet-memorial-march-toronto-police/ (accessed May 24, 2021).

122. Kelley M, Syed R. *Family of Young Black Man Killed in Brampton, Ont., Says He Was Shot by Police After Calling 911 Himself.* CBC News. (2020). Available online at: https://www.cbc.ca/news/canada/toronto/fifth-estate-d-andre-campbell-police-shooting-family-1 (accessed June 8, 2020).

123. Sholtis B. *Family mourns man with mental illness killed by police and calls for change. Kaiser Health News.* (2020). Available online at: https://khn.org/news/police-killing-mental-illness-emergency-crisis-care-pennsylvania/ (accessed November 19, 2020).

124. Calkins L. Detained and drugged: a brief overview of the use of pharmaceuticals for the interrogation of suspects, prisoners, patients, and POWs in the US. *Bioethics.* (2010) 24:27–34. doi: 10.1111/j.1467-8519.2009.01774.x

125. Ortiz E. *Elijah McClain Was Injected With Ketamine While Handcuffed. Some Medical Experts Worry About its Use During Police Calls. US News.* (2020). Available online at: https://www.nbcnews.com/news/us-news/elijah-mcclain-was-injected-ketamine-while-handcuffed-some-medical-experts-n1232697 (accessed July 3, 2020).

126. Mutchler C. *New AMA policy opposes "excited delirium" diagnosis.* American Medical Association. (2021). Available online at: https://www.ama-assn.org/press-center/press-releases/new-ama-policy-opposes-excited-delirium-diagnosis (accessed June 14, 2021).

127. Grant JR, Southall PE, Mealey J, Scott SR, Fowler D. Excited delirium deaths in custody past and present. *Am J Forensic Med Pathol.* (2009) 30:1–5. doi: 10.1097/PAF.0b013e31818738a0

128. Young R, McMahon S. *Some States Allow Authorities to Use Ketamine to Subdue Suspects in the Field. But is it Safe*? *WBUR.* (2020). Available online at: https://www.wbur.org/hereandnow/2020/09/08/ketamine-police-safety-elijah-mcclain (accessed September 8, 2020).

129. Tompkins L. *Here's What You Need to Know About Elijah McClain's Death. The New York Times.* (2022). Available online at: https://www.nytimes.com/article/who-was-elijah-mcclain.html (accessed January 18, 2022).

130. Appelbaum PS. Excited delirium, ketamine, and deaths in police custody. *Psychiatric Serv.* (2022) 73:827–9. doi: 10.1176/appi.ps.20220204

131. Aboraya A. Use of structured interviews by psychiatrists in real clinical settings: Results of an open-question survey. *Psychiatry.* (2009) 6:24–8.

132. Jackson JS, Neighbors HW, Nesse RM, Trierweiler SJ, Torres M. Methodological innovations in the National Survey of American life. *Int J Methods Psychiatr Res.* (2004) 13:289–98. doi: 10.1002/mpr.182

133. Jorm AF. Mental health literacy: empowering the community to take action for better mental health. *Am Psychol.* (2012) 67:231–43. doi: 10.1037/a0025957

134. Muvuka B, Combs R, Ali N, Scott H, Williams M. Depression is real: Developing a health communication campaign in an urban African American community. *Res Educ Action.* (2020) 14:161–72. doi: 10.1353/cpr.2020.0029

135. CPA. *MindStylz. Connecticut Psychological Association.* (2021). Available online at: https://connpsych.org/mindstylz/ (accessed October 24, 2021).

136. Hankerson SH, Shelton R, Weissman M, Wells KB, Teresi J, Mallaiah J, et al. Study protocol for comparing Screening, Brief Intervention, and Referral to Treatment (SBIRT) to referral as usual for depression in African American churches. *Trials.* (2022) 23:1–20. doi: 10.1186/s13063-021-05767-8

137. Hillel I, Ottenhof N, Ahmad S. *Alternatives for a safer Ottawa: Non-police mental health crisis response executive summary, Ottawa, ON: Vivic Research.* (2021). Available online at: https://vivicresearch.ca/work/non-police-mental-health-crisis-response-for-the-city-of-ottawa (accessed December 20, 2022).

138. Support Team Assistance Response. *STAR program evaluation, Denver, CO: Support Team Assistance Response.* (2021). Available online at: https://wp-denverite.s3.amazonaws.com/wp-content/uploads/sites/4/2021/02/STAR_Pilot_6_Month_Evaluation_FINAL-REPORT.pdf (accessed January 8, 2021).

139. Medlock M, Weissman A, Wong S, Carlo A, Zeng M, Borba C, et al. Racism as a unique social determinant of mental health: development of a didactic curriculum for psychiatry residents. *MedEdPORTAL13.* (2017) 1–9. doi: 10.15766/mep_2374-8265.10618

140. Miles R, Rabin L, Krishnan A, Grandoit E, Kloskowski K. Mental health literacy in a diverse sample of undergraduate students: demographic, psychological, and academic correlates. *BMC Public Health.* (2020) 20:1–13. doi: 10.1186/s12889-020-09696-0

141. Fleischhacker W, Arango C, Arteel P, Barnes TRE, Carpenter W, Duckworth K, et al. Schizophrenia—Time to commit to policy change. *Schizophrenia Bulletin.* (2014) 40:165–94. doi: 10.1093/schbul/sbu006

142. Hankerson SH, Weissman MM. Church-based health programs for mental disorders among African Americans: a review. *Psychiatric Serv.* (2012) 63:243–9. doi: 10.1176/appi.ps.201100216

143. El-Mallakh RS, Spratt D, Butler C, Strauss G. Evaluation of consequences of implementation of police crisis intervention team in Louisville. *J Kentucky Med Assoc.* (2008) 106:435–7.

144. Teller JL, Munetz MR, Gil KM, Ritter C. Crisis intervention team training for police officers responding to mental disturbance calls. *Psychiatric Serv.* (2006) 57:232–7. doi: 10.1176/appi.ps.57.2.232

145. Pickett JT, Graham A, Cullen FT. The American racial divide in fear of the police. *Criminology.* (2022) 60:291–320. doi: 10.1111/1745-9125.12298

146. Smith Lee JR, Robinson MA. "That's my number one fear in life. It's the police": Examining young Black men's exposures to trauma and loss resulting from police violence and police killings. *J Black Psychol.* (2019) 45:143–84. doi: 10.1177/00957984198 65152

147. Anene E, Nallajerla M, Bath EPJ, Castillo EG. Revisiting research safety protocols: the urgency for alternatives to law enforcement in crisis intervention. *Psychiatric Servi.* (2022) 25:1–4. doi: 10.1176/appi.ps.20220084

148. Corneau S, Stergiopoulos V. More than being against it: anti-racism and anti-oppression in mental health services. *Transcult Psychiatry.* (2012) 49:261–82. doi: 10.1177/1363461512441594

149. Williams MT, Faber S, Nepton A, Ching THW. Racial justice allyship requires civil courage: A behavioral prescription for moral growth and change. *Am Psychol.* (2023) 78:1–19. doi: 10.1037/amp0000940

150. Faber SC, Osman M, Williams MT. Access to mental health care in Canada. *Int J Ment Health.* (2022).

151. Graham-LoPresti J, Williams MT, Rosen DC. Culturally responsive assessment and diagnosis for clients of color. In MT Williams, DC Rosen, JW Kanter, editors *Eliminating Race-Based Mental Health Disparities: Promoting Equity and Culturally Responsive Care Across Settings*. New York, NY: New Harbinger Books, p. 169–85 (2019).

frontiers | Frontiers in Public Health

TYPE Perspective
PUBLISHED 13 February 2023
DOI 10.3389/fpubh.2023.1052077

The network approach: A path to decolonize mental health care

Rediet Emebet Getnet Alemu[1]*, Tom L. Osborn[1] and Christine M. Wasanga[1,2]

[1]Shamiri Institute, Nairobi, Kenya, [2]Department of Psychology, Kenyatta University, Nairobi, Kenya

OPEN ACCESS

EDITED BY
April Joy Damian,
Weitzman Institute, United States

REVIEWED BY
Rosaria Talarico,
ERN ReCONNET Coordination Team, Italy
Regina Pires,
Escola Superior de Enfermagem do Porto, Portugal

*CORRESPONDENCE
Rediet Emebet Getnet Alemu
✉ alemu@shamiri.institute

SPECIALTY SECTION
This article was submitted to Public Mental Health, a section of the journal Frontiers in Public Health

RECEIVED 23 September 2022
ACCEPTED 25 January 2023
PUBLISHED 13 February 2023

CITATION
Alemu REG, Osborn TL and Wasanga CM (2023) The network approach: A path to decolonize mental health care.
Front. Public Health 11:1052077.
doi: 10.3389/fpubh.2023.1052077

The violent colonial history of psychiatry in Africa prevents individuals from help-seeking. Because of this history, mental health care is now stigmatized, and clinical research, practice, and policy fail to capture the salient features of distress across African communities. If we are to transform mental health care for all, we must adopt decolonizing frameworks to ensure mental health research, practice, and policy are enacted in a manner that is ethical, democratic, critical, and serves the needs of local communities. Here, we present that the network approach to psychopathology as an invaluable tool in achieving this purpose. The network approach recognizes mental health disorders not as discrete entities, but rather as dynamic networks that are made of psychiatric symptoms (called *nodes*) and the relationships between these symptoms (called *edges*). This approach can pave a path to decolonizing mental health care by alleviating stigma, allowing context-based understanding of mental health and mental health problems, opening new avenues for (low-cost) mental health care and empowering local researchers to pioneer context-based knowledge production and treatment.

KEYWORDS

mental health, Africa, decolonize, network, de-stigmatization

1. Introduction

The history of "formal" or Western-derived psychiatry in Africa is, to say the least, a violent and colonial one. This form of psychiatry was introduced by colonial administrators in the 19th and early 20th centuries in their respective fledgling colonies across Africa (1). It is now clear—from recent historical analyses—that these efforts were mostly informed by a commitment to finding pseudo-scientific basis of advancing the colonial enterprise instead of providing care to Africans (1, 2). Accordingly, it's no wonder that previous efforts to study the "African mind" were highly influenced by anti-African and anti-Black racism and by white superiority.

1.1. The history of psychiatry in Africa: An illustration from British Kenya

To paint a picture of this history of Western-derived psychiatry in Africa, let us take for instance, the context of British Kenya, where we work. Anti-African sentiments and support for the colonial agenda are evident in the work of the foremost British psychiatrist of the colonial era, Carothers (3). In his work, Carothers concluded that all Africans have a singular culture which shaped their minds and rendered them suffering from a mental health disorder that could only be cured through "acculturation"—i.e., the practice of forcefully making Africans abandon their cultures for a Western one (3). As such, many forms of mental health care that were part of the sociocultural fabric of African life, such as the use of traditional healers, were abandoned as part of these efforts of curing Africans from their culture. Carothers, and his compatriots, displayed grossly incorrect generalizations that were evidently rooted in the notion of white superiority and the need to provide an "empirical" basis for the necessity of a colonial administration (1).

Nowhere is this agenda more evident than the colonial administration's use of psychiatry as a primary tool in making sense of decolonial and liberation movements and providing the framework to crush these movements (1). In Kenya, the British colonial government employed the services of Carothers to arrive at a psychiatric explanation for the cause of the Mau Mau uprising (3)—the movement of the Land and Freedom Army, dubbed "Mau Mau" by the colonial administration, which sought to reclaim African land that was forcefully taken for white settlement (4). Unsurprisingly, Carothers concluded that this movement arose primarily due to the Kikuyu people's culture which embodied "brutal oaths and obscene rituals" and their "'magic' modes of thinking" (3).

In addition, the primary model of psychiatric care was the colonial asylum. Individuals, after a diagnosis of a mental health problem, could be detained in such asylums and deprived of their individual, social, and political liberties. Historians have now concluded that this was a means of political control (1) and punishment (5) by the colonial administrators. The foremost mental health care facility in Kenya, the Mathari Mental Hospital, was founded as one such colonial asylum and aptly named the "Nairobi Lunatic Asylum" upon its establishment in 1910 (6). Unsurprisingly, its patients were exclusively African and its staff exclusively European (6).

1.2. Consequences of the history of mental health care in Africa

Two consequences of the history of psychiatry in Africa still limit efforts to transform mental health care for all in the continent. The first is the societal stigma against help-seeking, and the second is the over-reliance on Western-derived classifications and assumptions that fail to capture the salient features of mental health and mental health problems across African communities.

1.2.1. Societal stigma

In many African countries, societal stigma around mental health problems prevents many people from help-seeking and inhibits efforts to transform mental health for all (7). In Kenya, we have found that youths—as young as children in primary schools—have stigmatizing attitudes toward individuals diagnosed with mental health disorders (8). This stigma, of course, prevents both youths and adults from help-seeking (8, 9).

One reason for this stigma is undoubtedly the colonial history of psychiatry across Africa. In Kenya, for instance, the Mathari Mental Hospital still operates as the principal psychiatric facility (6). Of course, the hospital's violent and colonial history can not only prevent Kenyans from seeking help there, but also encourage them to associate Mathari with problems that require detainment. Here, it is important to note that stigma is fostered and exhibited differently in different contexts, even though stigma itself can exist anywhere. Accordingly, one can hypothesize that this stigma amongst Kenyan communities is heavily exacerbated by the local history of colonial psychiatry.

1.2.2. Western-derived classifications

Clinical psychology and psychopathology have utilized the perspectives of predominantly white- and male-populations as its foundation (7, 10, 11). Psychopathology is still heavily defined through Western-derived taxonomies and classification. For instance, how we conceptualize depression (or Major Depressive Disorder) remains heavily influenced by the American psychiatric school of thought (i.e., the Feighner criteria (12)) which is now considered the gold-standard in clinical practice and research (13). Consequently, mental health care relies on assumptions that Western nosology of disorders are globally generalizable. This is an assumption that years of cross-cultural mental health research has challenged (14–17).

If some of these Western-derived taxonomies appear alien or foreign to African communities, it may inhibit help-seeking. In fact, one recent study in Kenya found that when mental health problems were conceptualized and described through a Western-derived lens, then individuals would be less likely to seek help (17). Specifically, if someone was given a formal DSM-5 diagnosis of Major Depressive Disorder (MDD), they would be less likely to accept that diagnosis and seek help than if the practitioner were to conceptualize the disorder in more specific cultural terms and prioritize the specific challenges faced by the patient i.e., extreme sadness, lack of motivation, problems with sleep, etc. (17).

2. The move to decolonize mental health care in Africa

The traumatic history of colonialism—and apartheid in the context of South Africa—has significant contemporary effects on how individuals and communities access and interface with mental health care (2). Therefore, decolonizing mental health care is very important to address global mental health inequity. In this context, decolonization is defined through efforts to understand, reckon with and rectify the current effects of colonialism (2). These efforts can allow us to engage with African and/or localized conceptions of mental health (18, 19). Indeed, and as is argued elsewhere, decolonizing mental health care will allow us to move toward a paradigm in which mental health research, practice, and policy is enacted in a manner that is ethical, democratic, critical, and serves the needs of local communities (20).

One approach to decolonizing mental health care in Africa is the move toward a critical and "context-based" approach to mental health (2, 21, 22). This approach pairs mental health research and practice with efforts to "promote the participation and collective action of marginalized groups" and foster knowledge production of challenges faced and ideas proposed by local communities (2). In doing so, mental health research can be informed by and address past and present injustices of its local context (2). This approach, it is argued, will ensure that mental health care remains relevant and attuned to the needs of contemporary African contexts (2).

Here, we present the network approach to psychopathology as another pathway toward decolonizing mental health (23, 24).

2.1. The network approach as a path toward decolonizing mental health care in Africa

In the past decade, the network approach to psychopathology has emerged as an increasingly popular framework for conceptualization of mental health disorders. In this approach, we can visualize psychiatry constructs as a dynamic system made up of symptoms and the associations between pairs of symptoms (23–25). Thus, a mental disorder is not a discrete entity but rather a network of interrelated symptoms. The approach departs from the traditional disease model where it is assumed that a disorder arises from an underlying latent disorder but rather as interactions of unique and non-overlapping variables (23–25).

In other words, the network approach represents mental health disorders, not as a discrete entity like MDD, but rather as a network that is sustained by interrelationships among the specific symptoms (23, 24, 26). Thus, "instead of being effects of a common cause, psychiatric symptoms have been argued to cause each other" (23). In this conceptualization, mental health disorders are imagined as dynamic systems that are made of psychiatric symptoms (called *nodes*) and the relationships between these symptoms (called *edges*) (24).

The network approach makes it possible to identify the most central nodes in a network, effectively identifying the symptom(s) with the highest influence on the other symptoms in the network (27). Such a symptom is identified by analyzing the number of symptoms connected to it (its edges) and the likelihood of the connected symptoms (nodes) being activated as a result of its activation (27). Accordingly, in a given context, the network approach can map out not only the psychiatric symptoms that are present, but also the relationships between these symptoms and the most strongly interconnected symptom (27). This is particularly important since interventions targeting the strongest symptom (node) in a network (a representation of interconnected symptoms) are more likely to be effective in treating the network (27). In other words, interventions which can reduce the intensity of the most central node will also reduce the intensity of all the other nodes connected to it, effectively reducing the intensity of the network as a whole.

The network approach to psychopathology can help decolonize mental health care in Africa by: (1) alleviating stigma toward mental health problems, (2) allowing context-based understanding of mental health problems, (3) opening alternative avenues for mental health care, and (4) encouraging local researchers to pioneer context-based knowledge production and treatment design.

Firstly, since this approach emphasizes the role of edges (symptom-symptom relationships) in causing mental health problems, psychiatric labels—which are stigmatized and inhibit help-seeking (8)—can be deemphasized. This is likely to result in a reduction and/or removal of stigma—which can be understood as de-stigmatization—toward people with mental health problems and an improvement in treatment seeking behavior for such problems. Moreover, it could be less emotionally encumbering to accept diagnosis and treatment plans which highlight two or three central nodes (most influential symptoms) as opposed to those which include stigmatized psychiatric labels.

Secondly, various studies show that common mood disorders such as MDD are expressed differently within different contexts (7, 15, 17). This is unsurprising because culture informs the experience of mental health disorders, and Western-derived taxonomies often miss culturally-salient features of distress (14, 16, 28). Accordingly, it can be quite beneficial to utilize the network approach to identify the dominant networks and most influential nodes which are specific to local cultural contexts.

Thirdly, by considering mental health disorders as interrelationships between specific symptoms rather than latent diseases, we can create new help-seeking avenues for mental health care across Africa. Currently, one hindrance to help-seeking is the length and cost of traditional therapies that often require delivery by expert mental health caregivers in regions with a paucity of such experts. Researchers have attempted to address this hindrance through successful trials of low-cost interventions that are delivered by lay-providers without the need for expert delivery (29, 30). Now, with the use of the network approach, researchers can identify the most influential mental health challenges amongst their target demographic and develop low-cost interventions targeting these specific challenges.

Finally, Western researchers still continue to dominate mental health research in low-and middle-income countries including those in African (31). We believe that multi-cultural collaboration where African researchers are empowered and spearhead research—dedicated to mental health—is important if we are to decolonize mental health. As such, the relatively novel network approach to psychopathology could encourage local researchers to spearhead research efforts and knowledge production and to pioneer treatment design. The increased involvement of local researchers could in turn promote community involvement in various parts of the research and treatment design processes, in addition to promoting help seeking.

In conclusion, it is important to emphasize that the network approach to psychopathology is intentionally flexible (24). As such, it is meant to be used as an "organizing framework" with which to understand existing data (24). Therefore, introducing this approach into African communities could help design research and treatment that is more contextualized, empowering, and effective through reducing stigma, encouraging local researchers, and boosting community involvement.

3. Discussion

Mental health problems present a significant global health priority around the world but specifically in low-resource regions like African countries. The consequences of these problems are devastating to individuals and communities. As such, there is an urgent need to transform mental health care for the better, for all.

Unfortunately, in Africa, efforts to transform mental health care are handicapped by the violent and colonial history of "formal" mental healthcare across the continent. Here, we show that because of this history, many individuals who struggle with mental health problems cannot access the help that they need and deserve. As such, efforts to make mental health care better can benefit from a decolonizing approach. Here, we present the network approach to psychopathology as a possible framework to decolonize mental health in Africa. Through the network approach, mental health disorders are conceptualized as complex interrelationships between network of symptoms as opposed to distinct disorders with western-derived psychiatric labels. This approach allows us to decolonize psychology because it alleviates stigma, allows for context-based understanding of mental health, opens new avenues for help seeking, and encourages local researchers to pioneer context-based knowledge production and treatments.

Data availability statement

The original contributions presented in the study are included in the article, further inquiries can be directed to the corresponding author.

Author contributions

RA and TO: perspective design, implementation, original draft manuscript, and manuscript revision. CW: perspective design and draft manuscript edits. All authors contributed to the article and approved the submitted version.

Funding

This project was made possible through the support of a grant from Templeton World Charity Foundation, Inc (funder DOI 501100011730) through grant #0633.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

Author disclaimer

The opinions expressed in this publication are those of the author(s) and do not necessarily reflect the views of Templeton World Charity Foundation, Inc.

References

1. Akyeampong E. A historical overview of psychiatry in Africa. In: Akyeampong E, Hill AG, Kleinman A, editors, *The Culture of Mental Illness and psychiatric Practice in Africa*. Bloomington, IN: Indiana University Press (2015). p. 24–49.

2. Kessi S, Boonzaier F. Centre/ing decolonial feminist psychology in Africa. *South Afr J Psychol.* (2018) 48:299–309. doi: 10.1177/0081246318784507

3. Carothers JC. The African mind in health and disease par J. C Carothers. *Rev Int Croix-Rouge.* (1955) 37:758–60. doi: 10.1017/S0035336100138304

4. wa Thiong'o N. *Birth of a Dream Weaver: A Writer's Awakening*. Manhattan: Random House (2016).

5. Oyebode F. History of psychiatry in West Africa. *Int Rev Psychiatry.* (2006) 18:319–25. doi: 10.1080/09540260600775397

6. *Mathari Mental Hospital | Department of Psychiatry* [Internet]. Available online at: https://psychiatry.uonbi.ac.ke/node/853 (accessed September 22, 2022).

7. Kirmayer LJ, Gomez-Carrillo A, Veissière S. Culture and depression in global mental health: an ecosocial approach to the phenomenology of psychiatric disorders. *Soc Sci Med.* (2017) 183:163–8. doi: 10.1016/j.socscimed.2017.04.034

8. Ndetei DM, Mutiso V, Maraj A, Anderson KK, Musyimi C, McKenzie K. Stigmatizing attitudes toward mental illness among primary school children in Kenya. *Soc Psychiatry Psychiatr Epidemiol.* (2016) 51:73–80. doi: 10.1007/s00127-015-1090-6

9. Osborn TL, Venturo-Conerly KE, Wasil AR, Schleider JL, Weisz JR. Depression and anxiety symptoms, social support, and demographic factors among kenyan high school students. *J Child Fam Stud.* (2020) 29:1432–43. doi: 10.1007/s10826-019-01646-8

10. Anthony J, Sartorius N, Jablensky A, Fenton FR. Cross-cultural studies of depressive disorders: an overview. *Cult Depress Stud Anthropol Cross-Cult Psychiatry Affect Disord.* (1985) 16:299. doi: 10.1525/9780520340923-015

11. Macleod C. South African psychology and 'relevance': continuing challenges. *South Afr J Psychol.* (2004) 34:613–29. doi: 10.1177/008124630403400407

12. Feighner JP. Diagnostic criteria for use in psychiatric research. *Arch Gen Psychiatry.* (1972) 26:57. doi: 10.1001/archpsyc.1972.01750190059011

13. Kawa S, Giordano J. A brief historicity of the diagnostic and statistical manual of mental disorders: issues and implications for the future of psychiatric canon and practice. *Philos Ethics Humanit Med.* (2012) 7:2. doi: 10.1186/1747-5341-7-2

14. Bass JK, Bolton PA, Murray LK. Do not forget culture when studying mental health. *Lancet.* (2007) 370:918–9. doi: 10.1016/S0140-6736(07)61426-3

15. Kleinman A. Culture and depression. *N Engl J Med.* (2004) 351:951–3. doi: 10.1056/NEJMp048078

16. Lewis-Fernández R, Krishan Aggarwal N. Culture and psychiatric diagnosis. In: Alarcón RD, editor. *Advances in Psychosomatic Medicine*. Basel: S. KARGER AG (2013), p. 15–30. Available online at: https://www.karger.com/Article/FullText/348725 (accessed February 20, 2020).

17. Osborn TL, Kleinman A, Weisz JR. Complementing standard Western measures of depression with locally co-developed instruments: a cross-cultural study on the experience of depression among the Luo in Kenya. *Transcult Psychiatry.* (2021) 58:499–515. doi: 10.31234/osf.io/v3hef

18. Palmary I. *Engendering Wartime Conflict : Women and War Trauma*. Braamfontein, ZA: CSVR (2005). Available online at: https://idl-bnc-idrc.dspacedirect.org/handle/10625/31972 (accessed September 22, 2022).

19. Segalo P. Trauma and gender. *Soc Personal Psychol Compass.* (2015) 9:447–54. doi: 10.1111/spc3.12192

20. Malherbe N. Expanding conceptions of liberation: holding Marxisms with liberation psychology. *Theory Psychol.* (2018) 28:340–57. doi: 10.1177/0959354318767757

21. Hook D. *A Critical Psychology of the Postcolonial: The Mind of Apartheid*. New York, NY: Routledge (2012). doi: 10.4324/9780203140529

22. Macleod C, Bhatia S, Kessi S. Postcolonialism and psychology: growing interest and promising potential. In: Willing C, Stainton Rogers W, editors. *The SAGE Handbook of Qualitative Research in Psychology*. London: SAGE Publications Ltd (2017), p. 306–17. doi: 10.4135/9781526405555.n18

23. Borsboom D. A network theory of mental disorders. *World Psychiatry.* (2017) 16:5–13. doi: 10.1002/wps.20375

24. Borsboom D, Cramer AOJ. Network analysis: an integrative approach to the structure of psychopathology. *Annu Rev Clin Psychol.* (2013) 9:91–121. doi: 10.1146/annurev-clinpsy-050212-185608

25. Insel TR. The NIMH Research Domain Criteria (RDoC) project: precision medicine for psychiatry. *Am J Psychiatry.* (2014) 171:395–7. doi: 10.1176/appi.ajp.2014.14020138

26. Jones PJ, Heeren A, McNally RJ. Commentary: a network theory of mental disorders. *Front Psychol.* (2017) 8:1305. doi: 10.3389/fpsyg.2017.01305

27. McNally RJ. Can network analysis transform psychopathology? *Behav Res Ther.* (2016) 86:95–104. doi: 10.1016/j.brat.2016.06.006

28. Balogun-Mwangi O. *The Culture of Mental Illness and Psychiatric Practice in Africa.* Philadelphia, PA: Taylor & Francis Inc (2018).

29. Campbell S, Osborn TL. Adolescent psychopathology and psychological wellbeing: a network analysis approach. *BMC Psychiatry.* (2021) 21:333. doi: 10.1186/s12888-021-03331-x

30. Osborn TL, Venturo-Conerly KE, Arango GS, Roe E, Rodriguez M, Alemu RG, et al. Effect of Shamiri Layperson-provided intervention vs study skills control intervention for depression and anxiety symptoms in adolescents in Kenya: a randomized clinical trial. *JAMA Psychiatry*. (2021) 78:829–37. doi: 10.1001/jamapsychiatry.2021.1129

31. Osborn TL, Wasil AR, Weisz JR, Kleinman A, Ndetei DM. Where is the global in global mental health? A call for inclusive multicultural collaboration. *Gen Psychiatry*. (2020) 33. doi: 10.1136/gpsych-2020-100351

frontiers | Frontiers in Psychiatry

TYPE Original Research
PUBLISHED 27 February 2023
DOI 10.3389/fpsyt.2023.1037499

Association between social support and depressive symptoms among Chinese nurses with formal employment versus contract-based employment

Chang Fu[1], Xuedan Cui[2], Lei Geng[3]* and Fenglin Cao[4]*

[1]Department of Health Service and Management, School of Public Health and Management, Binzhou Medical University, Yantai, Shandong, China, [2]Office of Physician Training, Yidu Central Hospital of Weifang, Weifang, Shandong, China, [3]Department of Pediatric Surgery, Binzhou Medical University Hospital, Binzhou, Shandong, China, [4]Department of Health Psychology, School of Nursing and Rehabilitation, Cheeloo College of Medicine, Shandong University, Jinan, Shandong, China

OPEN ACCESS

EDITED BY
April Joy Damian,
Weitzman Institute,
United States

REVIEWED BY
Neda SoleimanvandiAzar,
Iran University of Medical Sciences,
Iran
Haocen Wang,
Purdue University,
United States

*CORRESPONDENCE
Fenglin Cao
✉ fenglin@sdu.edu.cn
Lei Geng
✉ genglei072022@163.com

SPECIALTY SECTION
This article was submitted to Public Mental Health, a section of the journal Frontiers in Psychiatry

RECEIVED 06 September 2022
ACCEPTED 08 February 2023
PUBLISHED 27 February 2023

CITATION
Fu C, Cui X, Geng L and Cao F (2023) Association between social support and depressive symptoms among Chinese nurses with formal employment versus contract-based employment. *Front. Psychiatry* 14:1037499. doi: 10.3389/fpsyt.2023.1037499

Background: Inequalities may exist in social and health status among nurses with different employment types. Few studies have investigated the relationship between social support and depressive symptoms among formally employed nurses compared with those in contract-based employment. This study aimed to examine the associations between social support and depressive symptoms among Chinese nurses with different forms of employment.

Methods: The present cross-sectional study was performed with 1,892 nurses from 12 tertiary hospitals in Shandong Province, China. The Social Support Rating Scale and the 10-item Center for Epidemiologic Studies Depression Scale were used to measure social support and depressive symptoms, respectively. The association between social support and depressive symptoms among participants was explored using multiple linear regression analysis.

Results: The prevalence of depressive symptoms was 45.7%. The mean score for total social support was 40.16 (SD=7.47), which was lower than the norms in the general Chinese population. Formally employed participants' total social support scores were statistically significantly higher than those of contract-based employees ($p \leq 0.05$). After controlling for confounding factors, the multiple linear regression analysis showed that subjective support and support utilization scores were inversely associated with depressive symptoms. Objective support scores were negatively associated with depressive symptoms only among contract-employment nurses.

Conclusion: Chinese nurses have a higher prevalence of depressive symptoms and lower social support than the Chinese general population. Compared with contract-employment nurses, formally employed nurses had higher social support. Inverse associations exist between social support and depressive symptoms among nurses with different types of employment. It is suggested that improving Chinese nurses' social support levels and reducing their depressive symptoms, especially for nurses employed through contracts, are critical.

KEYWORDS

social support, depressive symptoms, employment type, inequality, nurse

Introduction

Nurses who experience a high intensity of work and work-related pressure are generally prone to suffer from heavy work stress and burnout, which can lead to depression (1). Depression is a multidimensional disorder and has several negative effects on an individual's health outcomes (2). Depression can harm an individual's work performance, interpersonal and social communication, and quality of life (3). Depressive symptoms not only affect nurses' health status but may also impact patients' quality of care (2). Worldwide, there is a high occurrence of depressive symptoms among nurses. Previous studies found that 32.4% of Australian nurses, 18% of American nurses, and 43.83% of Chinese nurses experienced depressive symptoms (3–5). Therefore, hospital administrators and scholars worldwide should pay attention to nurses' mental health.

In recent years, investigations on the relationship between social support and mental health have shown that social support has a protective effect on mental health. Social support is significantly associated with recovery from post-traumatic stress disorder (6), and older adults with good social support have a lower incidence of depression (7). Social support refers to the existence or availability of people one can rely on and from whom one can experience love, care, and value (8). In developed countries, medical professionals are well-respected and often have a high level of social support. The intensive relationship between medical professionals and patients needs to improve in China (9). Currently, the level of social support available to Chinese nurses is unknown because few surveys have investigated the relationship between social support and depressive symptoms for this group. Social support, as a multidimensional concept, consists of three dimensions: objective support, subjective support, and support utilization (6, 10). Different types of social support may have varied effects on individuals' health (9), and it is unclear which types of social support are protective against depressive symptoms among nurses.

Although the nature of nursing employment varies by country, it is usually divided into permanent employment and fixed-term contract-based employment. For example, in Europe, permanent nurses are part of the primary labor market, and they work on an indefinite basis with good working conditions and development opportunities (11). By contrast, nurses employed through contracts are part of the secondary labor market and often experience poor working conditions, including job insecurity, low wages, and few benefits (11). Similarly, in China, nursing employment can be divided into "*bianzhi*" (permanent/formal employment) and contract-based jobs (12). The Chinese public often considers "*bianzhi*" jobs as formal employment guaranteed by the government, from which an individual employer cannot dismiss the incumbent. "*Bianzhi*" nurses have a steady income and certain benefits, including housing, health insurance, pension, etc. By contrast, nurses in contract-based positions are hired by the hospital; they do not have lifetime employment and might experience lower incomes and limited benefits (12). Previous studies have found that contract-employment nurses experience higher work stress and lower levels of organizational justice (13), which indicates that nurses with different employment types may have different levels of social support and health outcomes. However, few studies have compared the different associations between social support and depressive symptoms among formally employed (*bianzhi*) nurses and contract-employment nurses in China.

Therefore, this study aimed to: (1) examine the level of social support among Chinese nurses; (2) investigate the prevalence of depressive symptoms among Chinese nurses; and (3) investigate the associations between social support and depressive symptoms among formally employed nurses and contract-employment Chinese nurses.

Materials and methods

Study design and participants

From 30 July to 30 September 2020, a cross-sectional questionnaire survey was conducted among nurses in Shandong Province, China. Shandong Province, located in eastern China, which has 16 prefecture-level cities with a population of 100.7 million. It is a typical province in China in terms of population demographics, society, and culture (14). The survey adopted a multistage random sampling method. First, the prefecture-level cities were divided into high, medium, and low groups based on *per capita* GDP in 2019. Second, two prefecture-level cities were randomly chosen from each group and two tertiary hospitals were randomly selected from each of the two cities. Third, two-thirds of the departments were selected from internal medicine, surgery, obstetrics and gynecology, pediatrics, emergency, and others in each sampled hospital. Administrative and logistics departments were excluded. A questionnaire survey was administered to nurses in the selected departments. All information was collected based on nurses' self-report. The inclusion criteria included voluntary participation, registration as a nurse, and being employed by the hospital. The exclusion criteria were as follows: nurses who were on vacation or who were participating in a continued education study course in another hospital, and persons with severe mental or physical impairments that would prevent them from participating (15). A total of 1,933 nurses participated in this study. After excluding those with missing data, 1,892 questionnaires were included in the analysis, showing an effective rate of 97.9%.

Measurements

Depressive symptoms

A 10-item Center for Epidemiologic Studies Depression Scale (CESD-10) was used to measure depressive symptoms. The CESD-10 is a simplified version of the Center for Epidemiological Studies Depression Scale (CESD) revised by Andresen in 1994 (16). It has high reliability and validity within the Chinese population (17). The CESD-10 measures the extent to which an individual has experienced depressive symptoms in the past 7 days. Answers for each item include rarely (<1 days), some (1–2 days), occasionally (3–4 days), and most of the time (5–7 days). The total score ranges from 0 to 30, with higher scores suggesting higher levels of depressive symptoms. The cutoff score to identify individuals with depressive symptoms was 10 (16). In this study, Cronbach's alphas for the CESD-10 were 0.696 and 0.674 in the formal employee and contract-based employee groups, respectively.

Social support

The Social Support Rating Scale (SSRS) was used to measure social support. The Chinese version of the SSRS, which was developed by Professor Xiao Shuiyuan, has been widely used in China (6, 18). The scale comprises 10 items and includes three dimensions: subjective support, objective support, and support utilization. Subjective support refers to the emotional support that an individual experiences and is closely related to their subjective feelings. An example of a question covering subjective support is: "How many friends do you have and how much support and help can they provide you?" Objective support refers to the actual support received by an individual. An example of a question covering objective support is: "What are your sources of financial support, and what helps you solve practical problems when you are in an emergency?" The utilization of support refers to an individual's active utilization of various types of social support. An example of a question covering the utilization of support is: "How do you seek help when you have trouble?" The total score of the SSRS is the sum of the scores of subjective support, objective support, and support utilization, with higher scores indicating better levels of social support (9). In this survey, the Cronbach's alpha for the SSRS was 0.79 in the formal employee group and 0.76 in the contract-based employee group.

Other variables

Demographic characteristics included age, sex, marital status, and educational background. Marital status was divided into married and single. Educational background was categorized as junior college or lower, bachelor's degree, and master's degree or higher. Professional characteristics included department, professional title, employment types, and working hours per week. The department was divided into internal medicine, surgery, obstetrics and gynecology, pediatrics, emergency, and others. Professional title was categorized as primary, intermediate, and senior. Employment type was divided into formal or contract-based employees. Working hours per week was divided into ≤40, 41–50, 51–60, and >60 h.

Statistical analyses

All statistical analyses were conducted using SPSS 20.0. The distribution of depressive symptoms was analyzed using both the Kolmogorov–Smirnov test and histogram plot, which showed a normal distribution. The variance inflation factor (VIF) was used to test for multicollinearity in independent variables. The VIF was <10, indicating no multicollinearity (19). For descriptive statistics, continuous variables were described using means and standard deviations, and categorical variables were described using percentages. Variables were compared between formal employee and contract-based employee groups using independent *t*-tests for continuous variables and chi-square tests for categorical variables. Multiple linear regression analysis was used to examine the association between employment type and social support scores. Multivariate logistic regression analysis was used to examine the association between employment type and depressive symptoms. Multiple linear regression analysis was used to examine the association between social support and depressive symptoms among nurses. To describe the sensitivity analysis, the association between social support and depressive symptoms of participants was examined using multivariate logistic regression analysis. Statistical significance was set at <0.05.

Ethical considerations

The present study was approved by the Ethical Review Committee of the School of Nursing and Rehabilitation, Shandong University (approval number: 2020-R-50). All participants provided informed consent for inclusion before participating in the survey.

Results

Sample characteristics

Table 1 shows the participants' sociodemographic characteristics, work characteristics, status of depressive symptoms, and social support scores. The participants' mean age was 33.9 years (*SD* = 7.3 years). Moreover, 93.9% were women, 80.1% were married, 88.1% had a bachelor's degree, 39.3% worked in the surgical department, and nearly half had a primary professional title (47.4%) or an intermediate professional title (48.3%). More than half of the participants worked between 41 and 50 h per week (68.0%). The majority (78.3%) were contract-based employees. The mean CES-D 10 score was 9.17 (SD = 5.39), and 45.7% of the participants had depressive symptoms. The prevalence of depressive symptoms among contract-based employees was significantly higher than among formal employees (47.3% vs. 40.1%). The mean scores for total social support, subjective support, objective support, and support utilization were 40.16 (SD = 7.47), 24.04 (SD = 4.91), 8.28 (SD = 2.38), and 7.84 (SD = 1.98), respectively. Differences in age, sex, marital status, educational background, department, professional title, work hours per week, scores of social support, and depressive symptoms between the formal and contract-based employees were also statistically significant ($p < 0.05$). After controlling the possible confounding factors, the multiple regression analysis showed that there was a statistically significant association between the employment type and social support scores (formal employees have a higher level of social support than contract employees; Supplementary Table 1), while the association between employment type and depressive symptoms was not statistically significant (Supplementary Table 2).

The differences between social support scores among nurses and norms in the general Chinese population

Tables 2, 3 show the differences in social support between nurses in our sample and the norms in the general Chinese population. The formal employees' scores for total social support, objective support, and support utilization were statistically significantly lower than the norms in the general population (20) ($p < 0.05$). Formal employees' subjective support scores were statistically significantly higher than those of the general Chinese population ($p < 0.05$). Contract-based employees' scores for total social support, objective support, and support utilization were statistically significantly lower than the norms in the Chinese general population (20) ($p < 0.05$).

TABLE 1 Demographic characteristics according to employment type.

Characteristics	Sample (n=1892)	Formal employee (n=411)	Contract employee (n=1,481)	t/χ^2	Value of p
Age, years, mean ± SD	33.91 ± 7.27	42.78 ± 7.50	31.45 ± 4.91	28.975	<0.001
Sex, (%)				19.617	<0.001
Male	6.1	1.5	7.4		
Female	93.9	98.5	92.6		
Marital status, (%)				56.245	<0.001
Married	80.1	93.2	76.5		
Single	19.9	6.8	23.5		
Education background, (%)				196.141	<0.001
Junior college or less	7.2	3.2	8.3		
Bachelor	88.1	79.3	90.5		
Master or above	4.8	17.5	1.2		
Department, (%)				27.591	<0.001
Internal medicine	28.2	30.7	27.5		
Surgery	39.3	43.8	38.1		
Obstetrics and gynecology	5.0	4.6	5.1		
Pediatrics	7.1	7.3	7.1		
Emergency	8.7	2.4	10.4		
Other	11.6	11.2	11.7		
Professional title, (%)				522.137	<0.001
Primary	47.4	6.3	58.7		
Intermediate	48.3	74.7	41.0		
Senior	4.3	19.0	0.3		
Work hours per week, (%)				9.139	0.028
≤40	8.8	11.2	8.1		
41–50	68.0	69.8	67.5		
51–60	13.8	12.4	14.2		
>60	9.5	6.6	10.3		
Total social support scores, mean ± SD	40.16 ± 7.47	41.99 ± 7.61	39.65 ± 7.35	5.684	<0.001
Subjective support scores, mean ± SD	24.04 ± 4.91	24.91 ± 4.93	23.80 ± 4.89	4.069	<0.001
Objective support scores, mean ± SD	8.28 ± 2.38	9.01 ± 2.36	8.07 ± 2.35	7.149	<0.001
Support utilization score, mean ± SD	7.84 ± 1.98	8.07 ± 2.12	7.77 ± 1.93	2.572	0.010
Depressive symptoms, (%)				6.571	0.010
Yes	45.7	40.1	47.3		
No	54.3	59.9	52.7		
Depressive scores, mean ± SD	9.17 ± 5.39	8.27 ± 5.91	9.41 ± 5.22	−3.555	<0.001

SD, Standard deviation.

Multiple linear regression analysis

Table 4 reveals the associations between the three dimensions of social support and depressive symptoms among formal and contract-based participants. After adjusting for all covariates, the findings showed that among formal employees, subjective support and support utilization scores were inversely associated with depressive symptoms (subjective support: $\beta = -0.237$, SE = 0.064, $p < 0.001$; support utilization: $\beta = -0.824$, SE = 0.137, $p < 0.001$). Among contract-based employees, subjective support, objective support, and support utilization scores were also inversely associated with depressive symptoms (subjective support: $\beta = -0.284$, SE = 0.031,

TABLE 2 The difference of social support scores between formal employee and the norms of Chinese general population.

Variables	Formal employee	Norms of general population	*t*	Value of *p*
Total social support score, mean ± SD	41.99 ± 7.61	44.38 ± 8.38	−6.367	<0.001
Subjective support score, mean ± SD	24.91 ± 4.93	23.81 ± 4.75	4.523	<0.001
Objective support score, mean ± SD	9.01 ± 2.36	12.68 ± 3.47	−31.526	<0.001
Support utilization score, mean ± SD	8.07 ± 2.12	9.38 ± 3.40	−12.527	<0.001

TABLE 3 The difference of social support scores between contract employee and the norms of Chinese general population.

Variables	Contract employee	Norms of general population	*t*	Value of *p*
Total social support score, mean ± SD	39.65 ± 7.35	44.38 ± 8.38	−24.766	<0.001
Subjective support core, mean ± SD	23.80 ± 4.89	23.81 ± 4.75	0.079	>0.05
Objective support score, mean ± SD	8.07 ± 2.35	12.68 ± 3.47	−75.494	<0.001
Support utilization score, mean ± SD	7.77 ± 1.93	9.38 ± 3.40	−32.103	<0.001

$p < 0.001$; objective support: $\beta = -0.291$, SE = 0.063, $p = 0.035$; support utilization: $\beta = -0.559$, SE = 0.070, $p < 0.001$). However, there was no statistically significant correlation between objective support scores and depressive symptoms among those with formal employment ($p > 0.05$). In the sensitivity analyses, the results of the multivariate logistic regression model showed the same associations between the three dimensions of social support and depressive symptoms among both formal and contract-based employees (Supplementary Table 3).

Discussion

This is the first study to investigate the association between different types of social support and depressive symptoms among Chinese nurses engaged in different forms of employment. As such, it provides useful information for health policymakers, hospital administrators, and nurses to consider when contemplating effective measures to prevent and reduce depressive symptoms.

In this study, the prevalence of depressive symptoms was 45.7%, which was higher than nurses in Guangdong province of China (37.59%) (3), and much higher than that in Chinese general population (12.6%) (21). Nurses have unique working conditions, as they often become overloaded with their clinical work; therefore, they experience long-term occupational pressure, which leads them to have poor mental health (3). Our results also showed that the prevalence of depressive symptoms among contract-based nurses was higher than that of formally employed nurses (47.3% vs. 40.1%). Therefore, the prevalence of depressive symptoms among nurses (especially contract-based nurses) requires the attention of hospital managers.

Our results showed that the level of social support among contract-based nurses was lower than that of formally employed nurses. The social inequalities between formally employed and contract-based nurses may explain this phenomenon (12). Individuals with higher social status may have more social resources and are easier to get social support. Our data also showed that the social support scores of both formally employed and contract-based nurses were significantly lower than those in the general Chinese population. There are three possible explanations for this phenomenon. First, in China, nurses often have a lower professional status than doctors; they are not valued by hospital administrators (22). Furthermore, nurses need to cope with tense nurse–patient relationships, and they seldom receive sufficient respect from patients (22). Second, nurses may face difficulty in balancing family roles with work (23); if nurses do not handle work–family conflicts, they may find it difficult to gain empathy from their work colleagues or other family members, leading to decrease social support. Third, because nurses work long hours, they may not have sufficient time to participate in social organizations; therefore, they have less social interaction (15). These explanations suggest that, to improve nurses' social support, effective measures across society need improvement.

Subjective social support is a psychological perception of reality (24) that reflects an individual's satisfaction with how they are supported, understood, and respected by others (9). Subjective support was a strong predictor of mental health improvement (25). Our results found that subjective support was negatively associated with depressive symptoms, indicating that nurses with more subjective support had fewer depressive symptoms than those who lacked subjective support. Individuals with more subjective support often have greater levels of satisfaction with their social support. A previous study reported that individuals who were more satisfied with their support were less likely to suffer from depression (26). In addition, subjective support can help individuals build a positive self-image and self-efficacy, which are protective factors for depressive symptoms (27). Thus, improving nurses' subjective support can help to reduce their depressive symptoms.

A previous study demonstrated that nurses with higher objective support scores have genuinely received more support from their family members, government organizations, and social organizations (9). In this study, there was no significant association between the objective support scores and depressive symptoms of formally employed nurses. Objective assessment of received social support is less meaningful than subjective measures of social support, and it may have less effect on individuals' mental health than subjective support (24). However, in this study, we found that objective support scores were inversely associated with depressive symptoms among contract-based nurses. There are two possible explanations for this observation. First, formally

TABLE 4 Multiple linear regression model testing the association between social support and depressive symptoms among formal employee and contract employee.

Variables	Formal employee			Contract employee		
	β (SE)	95% CI of β	Value of p	β (SE)	95% CI of β	Value of p
Subjective supports score	−0.237(0.064)	−0.362 to −0.111	<0.001	−0.284 (0.031)	−0.345 to −0.223	<0.001
Objective supports score	−0.132(0.129)	−0.386 to 0.122	0.308	−0.291 (0.063)	−0.414 to −0.168	<0.001
Support utilization score	−0.824(0.137)	−1.093 to −0.554	<0.001	−0.559 (0.070)	−0.695 to −0.422	<0.001
Age	−0.062(0.044)	−0.150 to 0.025	0.163	0.076 (0.035)	0.008 to 0.143	0.029
Sex (ref. Male)						
Female	1.203(2.106)	−2.938 to 5.344	0.568	0.650 (0.481)	−0.293 to 1.593	0.176
Marital status (ref. Married)						
Single	−0.141(1.072)	−2.249 to 1.968	0.896	1.871 (0.380)	1.124 to 2.617	<0.001
Education level (ref. Junior college or less)						
Bachelor	1.167(1.464)	−1.711 to 4.044	0.426	−0.688 (0.444)	−1.559 to 0.183	0.122
Master or above	0.614(1.604)	−2.540 to 3.768	0.702	−1.574 (1.204)	−3.935 to −0.787	0.191
Department (ref. Other)						
Internal medicine	1.482(0.878)	−0.244 to 3.207	0.092	1.244 (0.436)	0.389 to 2.099	0.004
Surgery	1.691(0.837)	0.046 to 3.336	0.044	1.284 (0.415)	0.471 to 2.098	0.002
Obstetrics and gynecology	0.882(1.367)	−1.806 to 3.569	0.519	1.325 (0.648)	0.055 to 2.596	0.041
Pediatrics	3.549(1.193)	1.203 to 5.896	0.003	1.440 (0.589)	0.285 to 2.596	0.015
Emergency	1.539(1.779)	−1.959 to 5.037	0.388	0.898 (0.529)	−0.139 to 1.935	0.090
Professional title (ref. Primary)						
Intermediate	0.145(1.110)	−2.037 to 2.327	0.896	0.054 (0.295)	−0.525 to 0.632	0.855
Senior	−1.749(1.374)	−4.450 to 0.953	0.204	−3.888 (2.393)	−8.582 to 0.806	0.104
Weekly working hours (ref. $\leq$40)						
41–50	2.769(0.802)	1.192 to 4.347	0.001	−1.137 (0.449)	−2.017 to −0.256	0.011
51–60	2.972(1.038)	0.931 to 5.012	0.004	−0.155 (0.539)	−1.212 to 0.903	0.774
>60	6.004(1.259)	3.529 to 8.478	<0.001	−0.214 (0.576)	−1.344 to 0.917	0.711
ΔF	10.885			23.903		
R^2	0.333			0.227		
Adjusted R^2	0.303			0.218		

β, the coefficients; CI, confidence interval; SE, standard error.

employed nurses have a higher occupational status in the hospital than contract-based nurses, as their position is guaranteed by the government, and they have extensive benefits (28). In addition, formally employed nurses often have higher educational levels, income levels, and social status (12). Therefore, formally employed nurses may take support from family members or social organizations for granted, whereas contract-based nurses may find themselves feeling grateful for this support owing to their relatively low status. A second possible reason is the treatment inequity between contract-based and formally employed nurses. A previous study has found that while both groups play an equal role in job responsibility, differences in treatment do exist (12). Such feelings of inequality can affect contract-based nurses' work satisfaction, which may eventually lead to depression (29). Contract-based nurses who receive objective support may disregard their feelings of inequality, which can reduce the prevalence of depressive symptoms.

Our findings showed that social support utilization scores were inversely associated with depressive symptoms in both formally employed and contract-based nurses. Social support utilization reflects the degree to which individuals utilize available social support (6). According to the SSRS, higher support utilization scores indicate that a person may actively participate in social organizations (such as party, religious, or community organizations) and have many ways to seek help from others (such as family members, friends, or social organizations) when they experience trouble (9). Help from a varied use of social resources can help nurses overcome their troubles and relieve stress (30), which may, in turn, help them reduce their depressive symptoms (31, 32). Furthermore, participation in social organizations may promote social interactions among nurses and free them from stressful work, which would help them experience fewer depressive symptoms (33).

Limitations

This study had some limitations. First, this was a cross-sectional study; therefore, causal relationships between social support and depressive symptoms among Chinese nurses could not be investigated. Second, the responses in this study were self-reported, which may have caused recall bias. Third, the participants in this study were all selected from tertiary hospitals; thus, it may not be possible to generalize the results to primary and secondary hospitals.

Conclusion

Our study found that Chinese nurses have a higher prevalence of depressive symptoms than the Chinese general population. Formally employed nurses had a higher level of social support than contract-employment nurses. The level of social support for both formally employed and contract-employment nurses was lower than that in the general population. Both subjective support and support utilization scores were negatively associated with depressive symptoms among both formally employed and contract-based nurses. Objective support scores were negatively associated with depressive symptoms only for contract-based nurses. The findings of this study can be used to develop strategies to improve nurses' social support and reduce depressive symptoms among them.

Policy implications

To improve nurses' mental health, our findings suggest that hospital administrators should pay attention to the role of nurses and arrange their working hours reasonably to reduce work pressure. They should also improve contract-based nurses' benefits (e.g., housing, health insurance, and pensions). We also suggest that nurses' family members should understand their unique working conditions, share housework, and take care of them. Policymakers should promote nurses' contributions and foster a nurse-friendly social environment. Finally, we recommend that nurses should actively participate in social organizations to enhance their social interaction.

Data availability statement

The data analyzed in this study is subject to the following licenses/restrictions: The datasets generated and/or analyzed during the current study are not publicly available due to agreements with participants who restricted data sharing but are available from the corresponding author on reasonable request. Requests to access these datasets should be directed to CF, fuchang@sdu.edu.cn.

Ethics statement

The studies involving human participants were reviewed and approved by Ethical Review Committee of the School of Nursing and Rehabilitation, Shandong University. The patients/participants provided their written informed consent to participate in this study.

Author contributions

CF contributed to the study design. CF, XC, and LG contributed to the data collection. CF contributed to the data analysis. CF, LG, and FC wrote the main manuscript text and revised the manuscript. All authors contributed to the article and approved the submitted version.

Funding

This study was funded by the Surface Project of National Natural Science Foundation of China (grant number: 32071084). The funding source played no role in the design of this study; collection, analysis, and interpretation of data; writing of the report; or decision to submit the article for publication.

Acknowledgments

We thank all the administrators in each selected hospital who helped us to get the written informed consent and to distribute the questionnaires. We also thank all participants who had been involved and contributed to the procedure of data collection.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

Supplementary material

The Supplementary material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fpsyt.2023.1037499/full#supplementary-material

References

1. Chen, C, and Meier, ST. Burnout and depression in nurses: a systematic review and meta-analysis. *Int J Nurs Stud*. (2021) 124:104099. doi: 10.1016/j.ijnurstu.2021.104099

2. Bai, C, Bai, B, and Kong, F. Strength use and nurses' depressive symptoms: the mediating role of basic psychological needs satisfaction. *J Nurs Manag*. (2021) 29:1660–7. doi: 10.1111/jonm.13322

3. Xie, N, Qin, Y, Wang, T, Zeng, Y, Deng, X, and Guan, L. Prevalence of depressive symptoms among nurses in China: a systematic review and meta-analysis. *PLoS One*. (2020) 15:e0235448. doi: 10.1371/journal.pone.0235448

4. Letvak, S, Ruhm, CJ, and McCoy, T. Depression in hospital-employed nurses. *Clin Nurse Spec*. (2012) 26:177–82. doi: 10.1097/NUR.0b013e3182503ef0

5. Maharaj, S, Lees, T, and Lal, S. Prevalence and risk factors of depression, anxiety, and stress in a cohort of Australian nurses. *Int J Environ Res Public Health*. (2018) 16:61. doi: 10.3390/ijerph16010061

6. Dai, W, Chen, L, Tan, H, Wang, J, Lai, Z, Kaminga, AC, et al. Association between social support and recovery from post-traumatic stress disorder after flood: a 13-14 year follow-up study in Hunan. *BMC Public Health*. (2016) 16:194. doi: 10.1186/s12889-016-2871-x

7. Tengku Mohd, TAM, Yunus, RM, Hairi, F, Hairi, NN, and Choo, WY. Social support and depression among community dwelling older adults in Asia: a systematic review. *BMJ Open*. (2019) 9:e026667. doi: 10.1136/bmjopen-2018-026667

8. Liu, L, Gou, Z, and Zuo, J. Social support mediates loneliness and depression in elderly people. *J Health Psychol*. (2016) 21:750–8. doi: 10.1177/1359105314536941

9. Fu, C, Wang, G, Shi, X, and Cao, F. Social support and depressive symptoms among physicians in tertiary hospitals in China: a cross-sectional study. *BMC Psychiatry*. (2021) 21:217. doi: 10.1186/s12888-021-03219-w

10. Xiao, S. The theoretical basis and research applications of the social support scale. *J Clin Psychiatry*. (1994) 4:98–100.

11. Heponiemi, T, Kouvonen, A, Sinervo, T, and Elovainio, M. Do psychosocial factors moderate the association of fixed-term employment with work interference with family and sleeping problems in registered nurses: a cross-sectional questionnaire survey. *Int J Nurs Stud*. (2010) 47:1096–104. doi: 10.1016/j.ijnurstu.2010.01.008

12. Shang, J, You, L, Ma, C, Altares, D, Sloane, DM, and Aiken, LH. Nurse employment contracts in Chinese hospitals: impact of inequitable benefit structures on nurse and patient satisfaction. *Hum Resour Health*. (2014) 12:1. doi: 10.1186/1478-4491-12-1

13. De Witte, H, and Naswall, K. Objective versus subjective job insecurity:consequences of temporary work for job satisfaction and organizational commitment in four European countries. *Econ Ind Democr*. (2003) 24:149–88. doi: 10.1177/0143831X03024002002

14. Zhao, S, Zhang, J, Liu, Y, Ji, H, and Lew, B. The association between psychological strains and life satisfaction: evidence from medical staff in China. *J Affect Disord*. (2020) 260:105–10. doi: 10.1016/j.jad.2019.09.006

15. Fu, C, Ren, Y, Wang, G, Shi, X, and Cao, F. Fear of future workplace violence and its influencing factors among nurses in Shandong, China: a cross-sectional study. *BMC Nurs*. (2021) 20:123. doi: 10.1186/s12912-021-00644-w

16. Andresen, EM, Malmgren, JA, Carter, WB, and Patrick, DL. Screening for depression in well older adults: evaluation of a short form of the CES-D (Center for Epidemiologic Studies Depression Scale). *Am J Prev Med*. (1994) 10:77–84. doi: 10.1016/S0749-3797(18)30622-6

17. Luo, Y, Zhu, D, Nicholas, S, and He, P. Depressive symptoms, health behaviors and risk of diabetes in Chinese mid-aged and older adults. *J Affect Disord*. (2019) 246:783–8. doi: 10.1016/j.jad.2018.12.131

18. Shi, L, Wang, L, Jia, X, Li, Z, Mu, H, Liu, X, et al. Prevalence and correlates of symptoms of post-traumatic stress disorder among Chinese healthcare workers exposed to physical violence: a cross-sectional study. *BMJ Open*. (2017) 7:e016810. doi: 10.1136/bmjopen-2017-016810

19. Yang, WC, Lin, CH, Wang, FC, and Lu, MJ. Factors related to the improvement in quality of life for depressed inpatients treated with fluoxetine. *BMC Psychiatry*. (2017) 17:309. doi: 10.1186/s12888-017-1471-3

20. Deng, L, Wang, H, Chen, J, and Li, L. Social support and negative emotion in parents of children with congenital heart disease before operation. *Zhong Nan Da Xue Xue Bao Yi Xue Ban*. (2013) 38:915–9. doi: 10.3969/j.issn.1672-7347.2013.09.008

21. Lancet. Mental health in China: what will be achieved by 2020? *Lancet*. (2015) 385:2548. doi: 10.1016/s0140-6736(15)61146-1

22. Feng, D, Su, S, Yang, Y, Xia, J, and Su, Y. Job satisfaction mediates subjective social status and turnover intention among Chinese nurses. *Nurs Health Sci*. (2017) 19:388–92. doi: 10.1111/nhs.12357

23. Haji Matarsat, HM, Rahman, HA, and Abdul-Mumin, K. Work-family conflict, health status and job satisfaction among nurses. *Br J Nurs*. (2021) 30:54–8. doi: 10.12968/bjon.2021.30.1.54

24. Sun, J, Sun, R, Jiang, Y, Chen, X, Li, Z, Ma, Z, et al. The relationship between psychological health and social support: evidence from physicians in China. *PLoS One*. (2020) 15:e0228152. doi: 10.1371/journal.pone.0228152

25. Lei, X, and Kantor, J. Social support and family functioning in Chinese families of children with autism Spectrum disorder. *Int J Environ Res Public Health*. (2021) 18:3504. doi: 10.3390/ijerph18073504

26. Ren, J, Jiang, X, Yao, J, Li, X, Liu, X, Pang, M, et al. Depression, social support, and coping styles among pregnant women after the Lushan earthquake in Ya'an. *PLoS One*. (2015) 10:e0135809. doi: 10.1371/journal.pone.0135809

27. Gyasi, RM, Phillips, DR, and Abass, K. Social support networks and psychological wellbeing in community-dwelling older Ghanaian cohorts. *Int Psychogeriatr*. (2019) 31:1047–57. doi: 10.1017/S1041610218001539

28. Bao, M, and Huang, C. Job preferences of medical and nursing students seeking employment in rural China: a discrete choice experiment. *BMC Med Educ*. (2021) 21:146. doi: 10.1186/s12909-021-02573-3

29. Gao, YQ, Pan, BC, Sun, W, Wu, H, Wang, JN, and Wang, L. Depressive symptoms among Chinese nurses: prevalence and the associated factors. *J Adv Nurs*. (2012) 68:1166–75. doi: 10.1111/j.1365-2648.2011.05832.x

30. Fu, C, Li, Z, and Mao, Z. Association between social activities and cognitive function among the elderly in China: a cross-sectional study. *Int J Environ Res Public Health*. (2018) 15:231. doi: 10.3390/ijerph15020231

31. Hsieh, HF, Liu, Y, Hsu, HT, Ma, SC, Wang, HH, and Ko, CH. Relations between stress and depressive symptoms in psychiatric nurses: the mediating effects of sleep quality and occupational burnout. *Int J Environ Res Public Health*. (2021) 18:7327. doi: 10.3390/ijerph18147327

32. Shepherd-Banigan, M, Bell, JF, Basu, A, Booth-LaForce, C, and Harris, JR. Workplace stress and working from home influence depressive symptoms among employed women with young children. *Int J Behav Med*. (2016) 23:102–11. doi: 10.1007/s12529-015-9482-2

33. Wang, Y, Li, Z, and Fu, C. Urban-rural differences in the association between social activities and depressive symptoms among older adults in China: a cross-sectional study. *BMC Geriatr*. (2021) 21:569. doi: 10.1186/s12877-021-02541-y

Frontiers in Public Health

TYPE Original Research
PUBLISHED 08 March 2023
DOI 10.3389/fpubh.2023.1003923

OPEN ACCESS

EDITED BY
Benjamin Miller,
Stanford University, United States

REVIEWED BY
Lorena Canet-Juric,
CONICET, Argentina
April Joy Damian,
Weitzman Institute, United States

*CORRESPONDENCE
Sarah L. McKune
✉ smckune@ufl.edu

†These authors share first authorship

SPECIALTY SECTION
This article was submitted to
Public Mental Health,
a section of the journal
Frontiers in Public Health

RECEIVED 26 July 2022
ACCEPTED 16 February 2023
PUBLISHED 08 March 2023

CITATION
McKune SL, Acosta D, Fujii Y, Joyce-Beaulieu D, Sayeed MA, Cato E, Flaherty KE, Creasy-Marrazzo A, Pu R, Kariyawasam S, Arukha A, Cummings DAT, Long MT, Maurelli AT and Nelson EJ (2023) The infected and the affected: A longitudinal study of the impact of the COVID-19 pandemic on schoolchildren in Florida. *Front. Public Health* 11:1003923.
doi: 10.3389/fpubh.2023.1003923

The infected and the affected: A longitudinal study of the impact of the COVID-19 pandemic on schoolchildren in Florida

Sarah L. McKune[1*†], Daniel Acosta[1†], Yui Fujii[1], Diana Joyce-Beaulieu[2], Md Abu Sayeed[1,3], Emilee Cato[3], Katelyn E. Flaherty[1], Ashton Creasy-Marrazzo[1,3], Ruiyu Pu[4,5], Subhashinie Kariyawasam[4], Anantha Arukha[4], Derek A. T. Cummings[1,3], Maureen T. Long[4,5], Anthony T. Maurelli[1,5] and Eric J. Nelson[1,3,5]

[1]Department of Environmental and Global Health, University of Florida, Gainesville, FL, United States, [2]Department of Special Education, School Psychology, and Early Childhood Studies, College of Education, University of Florida, Gainesville, FL, United States, [3]Department of Pediatrics, University of Florida, Gainesville, FL, United States, [4]Department of Comparative Diagnostic and Population Medicine, College of Veterinary Medicine, University of Florida, Gainesville, FL, United States, [5]Emerging Pathogens Institute, University of Florida, Gainesville, FL, United States

Objectives: To identify risk factors associated with symptoms of anxiety, depression, and obsessive-compulsive disorder (OCD) among children during the 1st year of the COVID-19 pandemic.

Methods: A longitudinal study with three cross-sectional timepoints [April 2020 ($n = 273$), October 2020 ($n = 180$), and April 2021 ($n = 116$)] was conducted at a K-12 public school in Florida. Infection and sero-positivity for SARS-CoV-2 was determined by molecular and serologic approaches. Adjusted odds ratios using mixed effect logistic regression models for symptom-derived indicators of anxiety, depression, and OCD in children in April 2021 are presented; past infection and seropositivity were included in the models.

Results: The prevalence of anxiety, depression, or OCD moved from 47.1, to 57.2, to 42.2% across the three timepoints during the study. By endline of the study, in April 2021, non-white children were at higher risk for depression and OCD. Risk for anxiety, depression, and OCD was associated with students who lost a family member due to COVID-19 and who were identified as at-risk in previous timepoints. Rates of SARS-CoV-2 infection and seropositivity were low and not statistically associated with assessed outcomes.

Conclusions: In situations like the COVID-19 pandemic, targeted mental health interventions and screenings are needed in children and adolescents, especially among minority children.

KEYWORDS

COVID-19, pediatrics, mental health, school-aged children, anxiety, depression, obsessive-compulsive disorder (OCD)

Introduction

Over 476 million confirmed cases and 6.1 million deaths occurred during the first 2 years of the COVID-19 pandemic (1). While the majority of cases and deaths from infection with the etiologic agent SARS-CoV-2 have been in adults, severe and fatal cases involving children have occurred throughout the pandemic (2). Each wave of variants increased uncertainty surrounding risk of infection in children, who were largely spared infection during the first wave of COVID-19, but were increasingly susceptible to the Delta and Omicron wave of infections (3–6). Simultaneously, health related consequences of the pandemic beyond those associated with infection, including adverse mental health outcomes in children, rapidly emerged as a dominant area of interest concern (7–10). These events have led us to define two major groups: those "infected" by SARS-CoV-2 and the clinical sequalae, and those "affected" (but not "infected") by the psychological sequalae caused by the broader impacts of the COVID-19 pandemic.

Emerging scientific literature shows that, while children constitute a small fraction of infection related morbidity and mortality (11), children worldwide have been *affected* by the pandemic in great numbers: there have been increased rates of depression, anxiety, and PTSD-related symptoms among children and adolescents since the start of the COVID-19 pandemic (12–15), with some evidence that rates of depression and anxiety have doubled since pre-pandemic levels (16). While lockdown measures and other social distancing interventions were used to protect against infection and transmission, evidence indicates that these actions may have fueled increases in negative psychosocial health (12, 17, 18). And, importantly, the effects of the pandemic on children's psychosocial health are not equally distributed. A study in Bangladesh found that children living in rural areas were less prone to suffer from mental health related problems compared to children living in urban areas (19). A systematic review of the impact of the pandemic on child and adolescent mental health showed that across the globe (inclusive of studies across Europe, Asia, Australia, North America, and South America) risk factors for adverse mental health symptoms included being female, being an adolescent, excessive exposure to COVID-19 information, previous mental health issues, community case frequency, lack of routine, and having relatives working on the front lines of COVID-19 response (20). Several other studies have also found that girls were at heightened risk for developing symptoms of anxiety and depression during the pandemic compared to boys (16, 21–23).

In the general population of the US, researchers have identified racial and ethnic disparities in mental health outcomes during the pandemic, including worsened outcomes of depression and anxiety among Black, Hispanic, and Asian adults when compared to White adults (24). A study found that those who have experienced racial discrimination in the US were at higher risk of psychological distress and increased unhealthy behaviors (e.g., smoking) than those who have not (25). Persistent systemic social inequities, the additional barriers minorities face when trying to access mental health care, disparities in food security that exacerbated during the pandemic, and the co-occurrence of racially motivated attacks (e.g., murders of minorities by the police) are also cited as reasons for the widening racial disparities in mental health outcomes observed during the pandemic (24, 26). It follows that, like in adults, the psychosocial health of children from minority groups was disproportionately negatively affected by the exacerbation of social inequities during the pandemic (27, 28). Interestingly, the multi-country systematic review did not find race or ethnicity as a risk factor for poor adolescent mental health (20). Children from racial minorities were disproportionally affected in terms of mental health outcomes, as their families are more likely to be affected by the financial and health impacts of the pandemic (29). Findings also suggest that lower socioeconomic status (SES) reported more fears about social distancing than those from higher SES, which was also the case for the subsample of Black participants in another study (30). Furthermore, children's exposure to firearm arm violence increased during the pandemic, with greater increases among children from racial minorities (31). Limited access to full-time, in-person learning as well as low social economic status, both of which unequally burden racial and ethnic minority groups, are thought to have contributed to poorer mental health outcomes in children (30, 32).

As the United States entered lockdown in March 2020, we assembled a study that aimed to identify and answer important questions at the intersection of medicine and mental health: what were the rates of viral and serologic SARS-CoV-2 positivity in school-age children? What role did these children play in household transmission? And how was the pandemic affecting their mental health? As public health professionals responding to the pandemic, this intersection and the tradeoffs between the epidemiology of infection, access to education, and equity to both education and health became a dominant point of tension. As data came in from our study and others, and rates of infection remained relatively low in children, our study aims shifted: children were suffering, but not necessarily from infection. Leveraging data collected during 12-months at the beginning of the COVID-19 pandemic (April 2020–April 2021), this paper aims to identify the children who were most *affected* by the pandemic during this time. Specifically, given what we know about the inequity in experience of the pandemic and various health outcomes outlined above, we aim to identify risk factors associated with indicators of poor mental health outcomes in school-aged children during the 1st year of the COVID-19 pandemic. The results expose high-risk groups for depression, anxiety, and OCD, underscoring which groups may benefit from targeted interventions.

Methods

Study context

This study took place in a K-12 developmental research school. As a developmental research school, students and their families/guardians are familiar with research activities. The school is funded by the Florida Department of Education, and it is positioned and governed by the College of Education at the University of Florida. Therefore, during the COVID-19 pandemic, the school fell under the guidance of the State University System of Florida. The school has a total student population of around 1,300 students and enrolls students according to the demographics, including race, ethnicity, gender, and income, of the state of Florida. The last day of in-person schooling during Spring of 2020 was March 13. After a 2 week extended spring break, all children were provided laptops to facilitate online learning. Students were given the option of returning to school campus in September of 2020, though the option to remain at home and connect virtually remained in place through Spring of 2021.

Study design

The study was designed to be a prospective cohort study among students at a K-12 school to understand both patterns of transmission of SARS-CoV-2 and the psychosocial impact of the pandemic in children. However, given that student enrollment was lower than expected, and that the role of children in transmission of SARS-CoV-2 was lower than initially theorized, the study opened eligibility for enrollment to household contacts to be tested, and for students who did not initially participate to enroll at later stages of the study. Thus, the design was a longitudinal study made up of three cross-sectional timepoints. Participants were recruited from a K-12 public school in Florida. The inclusion criteria for the study limited enrollment to students at the selected school who were over 5 years old. Eligible household (HH) contacts of the students were defined as people who lived with the participant at the time of the study. There were no age restrictions for HH contacts.

The investigators worked closely with the school administration to inform parents about the study and how they could enroll. Data were collected at three timepoints. Timepoint 1 (TP1) data were collected during April 2020; timepoint 2 (TP2) during October 2020; and timepoint 3 (TP3) during April 2021. The first round of data collection, conducted 3 weeks after all students had transitioned to a fully virtual educational format, consisted of survey data from students and their parents, and polymerase chain reaction (PCR) and antibody testing conducted solely on students. As the pandemic unfolded, and epidemiologic data indicated that infections continued to primarily affect adults, the original research protocol was modified to offer PCR and antibody testing to HH contacts of students previously enrolled; therefore, student data from April 2020 were supplemented in June with data from newly recruited household contacts; these data were combined and are treated as a single cross sectional timepoint (see Figure 1).

For TP2, students and HH contacts from TP1 as well as new participants and their HH contacts were invited to participate in an effort to increase sample size and include more underrepresented students. Finally, in TP3 all previous participants, regardless of in which timepoint they had participated, were invited to return. Enrollment of new students was not permitted during TP3, but new HH contacts from students previously participating students were allowed to enroll. Participation from students and HH contacts in the study decreased over time. The research team tried to address attrition at TP3 by increasing outreach to previous participants and including a $20 gift card as an incentive, which had not occurred during the first two timepoints of data collection.

Sample collection and laboratory procedures

Quantitative reverse transcriptase PCR (qRT-PCR) to detect SARS-CoV-2 infection was conducted. Oral pharyngeal samples were collected by medical professionals concurrent in the period that participants completed surveys at each timepoint. The process for SARS-CoV-2 detection and quantification by rRT-qPCR have been described previously (33).

To detect previous SARS-CoV-2 infection, blood was obtained using pediatric lancets and applied to dry blood spot (DBS) cards (Whatmann Protein Saver 930). Samples were secured and transported to the BSL-2+ laboratory at the Emerging Pathogens Institute at the University of Florida for storage and processing. Serologic testing was performed to detect IgG antibody to SARS-CoV-2. Several drops of blood were collected by a fingerprick blood draw (BD Microtainer Contact-Activated Lancet) and applied to each well of a DBS card. Cards were desiccated a minimum of 72 h at room temperature. and later single 6 mm punches were taken from each blood spot and placed 66 μl of PBS-0.05% Tween and incubated with rocking at 50 rpm at 4°C overnight. After incubation, the tubes were centrifuged at 10,500 X *g* for 2 min and after incubation the supernatant removed from the paper, transferred in a new microcentrifuge tube and frozen at −80°C until use. A research ELISA targeting the Receptor Binding Domain (RBD) of the virus was used to detect exposure to SARS-CoV-2. The ELISA was adapted from a previously published protocol, which targets the RBD of the spike protein (34, 35). Briefly, 96-well ELISA plates were coated with 1 μg/ml RBD protein diluted in carbonate/bicarbonate buffer (pH 9.6) and incubated at room temperature (RT) for 1 h. Each plate was blocked with 1X Tris-buffered saline (TBS) with 5% milk and incubated for 2 h. After blocking, each sample, diluted at a concentration of 1:100 in TBS-0.5% Tween, was added in duplicate to the plate. Mouse anti-human IgG-HRP (Jackson Immunoresearch, 109-035-098) was added and incubated for 1 h. After incubation and washing, 3,3',5,5'tetramethylbensidine (TMB, Neogen Life Sciences) was added to each well, incubated for 5 min then stopped using $NaSO_4$. The reaction was read using a microplate reader (Multiskan FC, Fisher or SynergyH1 BioTek) for absorbance at 450 nm. Included on each plate were positive controls consisting of a human anti-SARS-CoV-2 monoclonal antibody as well as serum from a pool of subjects who were clinically ill with COVID-19 and tested positive by rtPCR for the virus at least 4 weeks before collection of serum. A negative control consisted of a pooled serum from patients from the pre-pandemic period. Two blank wells were also included in each plate and consisted of all reagents except for primary antibody. The cut-off for this assay was based on Receiver-Operator Curve (ROC) analysis performed on 50 positive control samples and 200 prepandemic serum samples. The prepandemic samples were obtained from an archived serum bank consisting of adults that had enrolled in a diabetes study.

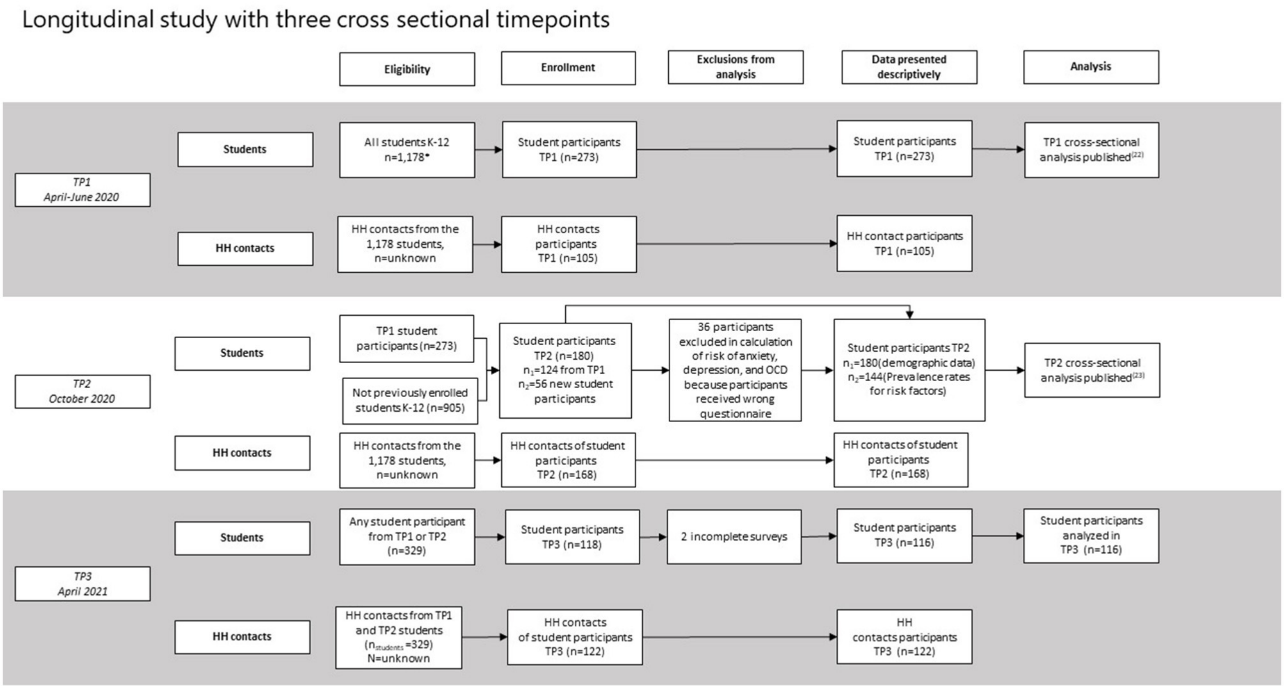


FIGURE 1
Study design, eligibility, and enrollment.

Data collection instruments

Survey data were collected using REDCap as described previously in studies of TP1 and TP2 (22, 23). Questions were designed in March of 2020, when little was known about the COVID-19 pandemic. Most of the student survey instrument remained the same across the three timepoints, however, some questions were added during TP2 (23) and remained in place through TP3. These additions reflect the evolution of the pandemic (e.g., parental attitudes toward masks, lockdowns, vaccines, and parental behaviors) and are thus missing from the first round of data collection. Across the three timepoints, the student survey included questions about demographics, parental knowledge, attitudes, and practices (KAP) around COVID-19, child and adolescent symptom-derived indices for anxiety, depression, and OCD, and clinical symptoms associated with COVID-19. Demographic data collected included information such as: age, school enrollment level, parental occupation, race, ethnicity, gender, and income. Parental KAP consisted of 16 knowledge questions about COVID-19, 14 questions about attitudes toward COVID-19, and 8 questions about practices around COVID-19. From these questions, KAP scores were generated with each question counting for one point. For knowledge, all questions were considered part of the score (16 being the maximum score). For attitudes and practices, only those that were considered preventive attitudes or practices were considered for the score, with 10 and 7 being the maximum attitude and practice score, respectively. These questions, and details on how scores were developed, can be found in the Supplementary material. Risk of anxiety, depression, and OCD were assessed using a symptom-derived index created by the investigators in collaboration with a team of school psychologists associated with the study school. A 5-point Likert scale was used to assess the prevalence of symptoms. Using language appropriate for different age groups, questions were divided into two groups, those for children aged 13 years and younger and those for children older than 13 years. The associated scores to each question were also age specific; for instance, children 13 and under had the following response options: Never (1), A little (2), Sometimes (3), A lot (4), or Always/constantly (5), while adolescents over 13 had the following options: Never (1), Occasionally (2), Half the Time (3), Often (4), Always (5) (22). The questions aimed to identify the prevalence symptoms associated with anxiety, depression, and OCD. Questions included psychosomatic symptoms (e.g., fatigue, insomnia), as well as psychological symptoms (e.g., feeling nervous, irritability). If a participant responded to one or more of the questions with 3 or higher in the 5-point Likert scale ("Sometimes" for children 13 and younger and "Half the time" for adolescents over 13) they were coded "At Risk" of one of the three outcomes. While the full methodology used to develop the symptom-based psychosocial outcomes has been described elsewhere (22, 23), a detailed table showing the items used in each outcome is included in the Supplementary material and remained unchanged across the three timepoints. Psychosocial variables were only assessed for student participants, as HH contacts received a different questionnaire (the household contact survey only collected demographic information and vaccination status) which is not included in the analysis and can be found in the Supplementary material.

Statistical analyses

Data were examined using a bivariate analysis between the outcome measures at TP3 (risk of anxiety, depression, or OCD) and the variables of interest: previous risk of anxiety, depression, or OCD at enrollment; parental vaccine attitudes; parental occupation; parental loss of income; parental risk behaviors; mode of schooling (remote or in-person); participation in sports; participation in the school band; knowledge scores; attitude scores; practice scores; parental healthy days; parental resilience scores; parental optimism scores; COVID-19 infection in household; death of a family member due to COVID-19; and household income. The variable *Previous risk of anxiety, depression, or OCD at enrollment* was a binary variable where participants had either no previous risk, or presented risk for any of the three outcomes, at the time of their enrollment in the study (TP1 or TP2). The COVID-19 infection in household variable was assessed using the answers from the survey where parents self-reported whether someone in their household had had a confirmed or suspected case of COVID-19 since the start of the pandemic. The vaccine attitude items (5-point Likert Scale, see Supplementary material) were dichotomized (Concern/No Concern and Agree/Disagree) for analysis purposes. The other variables, such as Knowledge Scores, Attitude Scores, and Practices Scores were calculated by summing correct (knowledge) or preventative (attitudes and practices) items of each category. A detailed account of the creation of these scores, and other variables has been previously published (23). Mixed effect logistic regression models were developed using only those variables that were significantly associated ($p > 0.2$) with the outcome measure in the bivariate analysis, with the exception of a few confounders of interest (race, sex, school level, COVID-19 infection in household, and death of family member due to COVID-19) which were included in the models regardless of the results of bivariate tests for significance. Using these variables, models with the lowest Akaike Information Criterion were kept for each of the dependent variables. For the variable Race, participants were given several options and a fill-in option for race, and ethnicity was asked as a separate question (see Supplementary material). However, these data were categorized into four groups Black, Hispanic, Multiracial/Other, White, in order to reflect groupings required by the State of Florida when the school reports data. These four categories are used to present data descriptively. However, for the regression models, due to the small sample size and underrepresentation of minorities in the third timepoint (one group had < 5 participants), the variable Race was recoded (White/Non-White). Data on Race and the three outcome variables (Anxiety, Depression, OCD) is presented descriptively in the results. Only data from completed questionnaires were included in the analysis. Questionnaires that were partially answered or had missing values were removed from the data set.

Ethics

All participants provided informed written digital consent/assent online (*via* REDCap) to participate in the study; assent was required for participants between 8 and 18 years of age. The study was approved by the Internal Review Board at the University of Florida.

Results

Participant enrollment was as follows: TP1 (04/17/2020 to 06/06/2020) 273 children and 105 household contacts; TP2 (10/05/2020 to 10/17/2020) 180 children and 168 household contacts; TP3 (04/05/2021 to 04/22/2021) 116 children and 122 household contacts. Student population characteristics are shown in Table 1, while HH contact characteristics can be found in the Supplementary material. For TP3, the distribution of students by school level was similar to that of previous timepoints, roughly reflecting the distribution of the school population's age. For race, the sample from TP3 was less diverse, with 68.1% of the sample being White (an increase from 56.1 in TP2, and 62.4% in TP1). Most notably, a decrease in the participation of those categorized as Multiracial/Other was observed, from 11.1 in TP2 to 3.4% in TP3. The percentage of male participants also decreased compared to previous timepoints (48.2% in TP1 and 47.2% in TP2), to 43.1%. Table 1 also shows the prevalence of children at risk for each outcome at each of the three timepoints. These data indicate that 47.1% of students presented with symptoms consistent with OCD, anxiety, or depression in April 2020, increased to 57.2% in October 2020, and decreased to 42.2% in April 2021.

At TP1, all student participants tested were negative by PCR and one (0.4%) was IgG positive for SARS-CoV-2. All household contacts tested were negative by PCR and one (1.1%) was IgG positive for SARS-CoV-2. At TP2, two students (1.4%) tested positive by PCR and five students (3.8%) were IgG positive for SARS-CoV-2. All household contacts tested negative by PCR and six household contacts (3.9%) were IgG positive for SARS-CoV-2. At TP3, all students tested negative by PCR and 22 students (22.2%) were IgG positive for SARS-CoV-2. Seven students were fully vaccinated and 14 were partially vaccinated (only had received 1 dose of a 2-dose series vaccine against COVID-19). All fully vaccinated students and 10 of the partially vaccinated (71.4%) were IgG positive for SARS-CoV-2. All household contacts tested negative by PCR and 88 (83.8%) were IgG positive for SARS-CoV-2. Sixty-five household contacts were fully vaccinated, from which 62 (95.4%) were IgG positive for SARS-CoV-2. Twenty-seven household contacts were partially vaccinated, from which 24 (88.9%) were IgG positive for SARS-CoV-2.

The analysis of anxiety, depression, and OCD risk factors at TP3 used regression models that adjusted for multiple factors (Table 2). Race was significantly associated with risk of depression and OCD, with Non-White participants being at higher risk of depression [aOR = 3.45, CI 95% = (1.13–10.58)], and OCD [aOR = 4.51, CI 95% = (1.52–13.34)] compared to White participants. Death of a family member due to COVID-19 was associated with higher risk of anxiety [aOR = 6.49, CI 95% = (1.00–42.08)] and depression [aOR = 25.23, CI 95% = (2.34–271.58)]. There was no significant difference in risk for anxiety, depression, and OCD between males and females. For school level, being a high school student was associated with higher risk of anxiety [aOR = 6.97, CI 95% = (1.68–28.95)]. Being previously identified as at risk during TP1 or TP2 for any of the three outcomes of the study was also associated with

TABLE 1 Participant characteristics.

Students	TP1 $n = 273$[a]	TP2 $n = 180$[a]	TP3 $n = 116$[a]		
School level					
Elementary	85 (31.1%)	53 (29.4%)	28 (24.1%)		
Middle	81 (29.7%)	54 (30%)	36 (31%)		
High	107 (39.2%)	73 (40.6%)	52 (44.8%)		
Race					
Black	24 (8.8%)	21 (11.7%)	12 (10.3%)		
Hispanic	52 (19%)	38 (21.1%)	21 (18.1%)		
Multiracial	26 (9.5%)	20 (11.1%)	4 (3.4%)		
White	171 (62.6%)	101 (56.1%)	79 (68.1%)		
Sex					
Female	142 (52%)	95 (52.8%)	66 (56.9%)		
Male	131 (48%)	85 (47.2%)	50 (43.1%)		
Prevalence of risk	**TP1 $n = 273$**	**TP2 $n = 144$[b]**	**TP3 = 116**		
Anxiety	34.3%	42.4%	34.5%		
Depression	35.8%	45.1%	27.6%		
OCD	32.8%	41.7%	31.9%		
Anxiety, depression, or OCD	47.1%	57.2%	42.2%		
PCR	**TP1 $n = 265$**	**TP2 $n = 146$**	**TP3 $n = 102$**		
Positive	0 (0%)	2 (1.4%)	0 (0%)		
Negative	265 (100%)	144 (98.6%)	102 (100%)		
Serology	**TP1 $n = 252$**	**TP2 $n = 130$**	**TP3 $n = 99$**		
			Fully vaccinated $n = 7$	Partially vaccinated $n = 14$	Not vaccinated $n = 78$
Positive	1 (0.4%)	5 (3.8%)	7 (100.0%)	10 (71.4%)	5 (6.4%)
Negative	250 (99.2%)	125 (96.2%)	0 (0.0%)	4 (28.6%)	71 (91.0%)

[a] TP1, April 2020; TP2, October 2020; TP3, April 2021. Only completed surveys are included in the analysis.

[b] For TP2 the sample size decreased to $n = 144$ for variables regarding the risk of anxiety, depression, and OCD as 36 participants were taken out of the analysis as they received the wrong psychosocial questionnaire due to a technical issue.

risk of anxiety [aOR = 10.8, CI 95% = (3.03–38.47)], depression [aOR = 5.42, CI 95% = (1.52–19.36)], and OCD [aOR = 14.67, CI 95% = (3.8–56.65)] in TP3. Higher parental COVID-19 knowledge scores were a significant protective factor against risk of depression [aOR = 0.56, CI 95% = (0.35–0.89)]. Higher parental COVID-19 attitude scores were associated with risk of anxiety [aOR = 1.51 CI 95% = (1.03–2.23)]. Parental belief that vaccinating their child was not important for the health of others in the community was protective against their child presenting at risk for OCD [aOR = 0.16 CI 95% = (0.03–0.92)]. No statistically significant associations were found between risk (anxiety, depression, and/or OCD) and additional variables included in the analyses, including COVID-19 household infection.

Race, coded as Black, White, Multiracial/Other, or Hispanic, could not be included in the model due to a small sample size. The prevalence of White students presenting at risk for anxiety was 27.8%, for depression 20.3%, and for OCD 22.8%; this was lower than for Black participants at 50.0, 41.7, and 50.0%, Hispanic participants at 47.6, 47.6, and 42.9%, and Multiracial/Other participants at 50.0, 25.0, and 100%, respectively.

Discussion

Children are at less risk of serious clinical complications from SARS-CoV-2. However, even though our sample population had low rates of infection at each time point (consistent with positivity rate trends within the community), symptoms associated with risk for anxiety, depression, and OCD were persistent across the study period. At least 42.2% of the participants presented as at risk for depression, anxiety, or OCD throughout the study period. The prevalence of symptoms peaked during TP2. During TP1 and TP2, race was not significantly associated with risk of anxiety, depression, or OCD (22, 23). For TP3, however, when the prevalence of students at risk was lowest, a significant association between race and risk for depression and OCD emerged, with minorities being at higher risk.

TABLE 2 Determinants of anxiety, depression, and OCD at timepoint 3 (TP3).

Variables	Anxiety: aOR[a] (95%CI)	Depression: aOR[a] (95%CI)	OCD: aOR[a] (95%CI)
Race			
White (Reference)	Ref	Ref	Ref
Non-White[b]	2.58 (0.89–7.5)	**3.45 (1.13–10.58)**	**4.51 (1.52–13.34)**
Sex			
Male (Reference)	Ref	Ref	
Female	0.69 (0.26–1.89)	2.7 (0.85–8.59)	0.68 (0.25–1.91)
School level			
Primary (Reference)	Ref	Ref	Ref
Middle School (2)	3.46 (0.92–13.07)	3.41 (0.76–15.32)	1.64 (0.44–6.15)
High School (1)	**6.97 (1.68–28.95)**	2.3 (0.5–10.53)	3.02 (0.74–12.31)
Prior risk			
Previous risk of anxiety, depression, OCD	10.8 (3.03–38.47)	5.42 (1.52–19.36)	14.67 (3.8–56.65)
Exposure and deaths in family			
Death in Family due to COVID−19	**6.49 (1.00–42.08)**	25.23 (2.34–271.58)	1.77 (0.33–9.41)
COVID-19 household infection	2.01 (0.47–8.48)	0.57 (0.12–2.85)	1.92 (0.47–7.82)
Parental COVID-19 Vaccine attitudes and parental knowledge, attitudes, and practices (KAP) around COVID-19			
Ability to openly discuss COVID-19 vaccine with child's doctor [Binary variable, Agree(Ref)/Don't Agree]	0.17 (0.02–1.75)	NA	NA
Parental perception of the importance of COVID-19 vaccines for the health of the community [Binary variable, Agree (Ref) /Don't Agree]	NA	NA	**0.16 (0.03–0.92)**
Knowledge Index Score (0–16), with 0 being low knowledge and 16 being high knowledge.	NA	**0.56 (0.35–0.89)**	NA
Attitude Score (0–10) with 0 being lowest protective attitude and 10 being highest protective attitude score	**1.51 (1.03–2.23)**	NA	NA
Practice Score (0–8) with 0 being lowest protective practice and 8 being highest protective practice score	NA	NA	1.35 (0.88–2.08)
Participation in sports			
Child participating in Sports during the Spring	NA	NA	2.34 (0.67–8.14)

[a] aOR, Adjusted Odds Ratios. Bold text designates 95% confidence intervals above or below aOR of 1. NA, Not applicable, as not all variables were used in each model.

[b] Disaggregated race data could not be include in the analysis due to small sample size.

The association between race and mental health or psychosocial outcomes has emerged as a prominent feature of the COVID-19 pandemic (28, 32). Our prior studies at TP1 and TP2 did not find a link between race and mental health, however the association was prominent at TP3. One explanation is that rates were similar early yet differed at TP3 because racial minorities might experience slower rates of mental health recovery after the initial shock at TP1 and TP2 that nearly all children experienced. This finding on race is also accompanied by a significant longitudinal association of anxiety, depression, and OCD at TP1 and subsequent risk at TP3. This could also be because of progressive negative effects of the pandemic (both health-related and social issues) have disproportionately affected minorities (36–38). During the COVID-19 pandemic, research found profound racial and ethnic inequalities in schools when it comes to access to resources and engagement in school (32, 39). These disparities across studies may reflect the temporally dynamic nature of the psychosocial impact of the COVID-19 pandemic. They also highlight how the pandemic could have an amplified effects on minorities, even if not infected they are likely to be more affected due to the cumulative effect of different factors that have impacted minorities at a greater scale

Grade level was associated with risk of anxiety, with students from High School being at highest risk. Previously published analyses on this study population found that elementary school students were at higher risk for poor psychosocial outcomes, thus suggesting a recovery of younger students that did not occur to the same degree among older students. A study in Greece, which focused on senior High School students, found that there was an increase in anxiety and depressive symptoms across this population, with girls and those reporting symptoms at baseline being at higher risk (12). This might suggest that students in elementary and middle school are less likely to remain at risk than high school students. Moreover, there was a strong association with symptoms of anxiety and depression in participants who had lost a family member due to COVID-19, which is a concerning association that other studies have found (10, 40, 41). Given the disproportionate mortality among Black and other minority communities, this may explain the association with non-white populations seen above.

Regarding KAP, parental attitudes supportive of protective measures against COVID-19 were associated with children presenting symptoms of anxiety. High protective attitude scores could be related to higher levels of parental fear toward COVID-19, which has been associated with parents being less concerned with protecting children's mental health (42). Conversely, parental knowledge of COVID-19 was a protective factor for depressive symptoms, which is congruent with findings from other studies (43, 44). When it came to COVID-19 vaccine attitudes, children whose parents indicated that COVID-19 vaccines were not important for the health of the community were less likely to present with symptoms of OCD. While COVID-19 related KAP should serve to protect against COVID-19—and it may have—the same knowledge, attitudes, and practices may exacerbate *other* health outcomes, including anxiety, depression, and OCD. These findings, on the associations between parental COVID-19 related KAP and children's psychosocial outcomes are complex. Previously published data from this study population (TP2) align with this point, as parental knowledge scores were strongly predictive of anxiety and protective attitudes by parents were associated with symptoms of OCD in children (23). This variation in the role of KAP, where some present as protective and others as risk factors, highlight the importance and complexity of parental KAP as a driver for children's health.

Limitations

Given the urgency to launch the study as the COVID-19 pandemic began in the state of Florida in 2020, a sample size calculation was not performed *a priori*. Sample sizes were limited at each timepoint, especially for TP3 ($n = 116$), which may have resulted in an enrollment bias. In addition, the small sample size may affect interpretability of results. As a developmental research school, the demographics of the school are designed to match those of the state. Compared to the school population, minority students and families were underrepresented in our study and wealthier students were overrepresented (reported median income of participating households was $100,000 USD). The surveys were also only available in English, which could have limited participation of families were English is not the first language. These factors could limit the generalizability of the study, particularly for low-income, rural, and minority populations not represented in the study. While the study was a prospective longitudinal study, not all participants participated at all time points. This likely results in heterogeneity and reduced statistically significant effect sizes.

Conclusions

The findings of this study highlight the need for mental health screening and support for school-aged children during a pandemic. Targeted interventions should also be implemented, with a strong focus on addressing the racial disparities in access to mental health resources, as our research suggests that minorities are at higher risks of presenting symptoms associated with depression and OCD 12 months into the pandemic.

Data availability statement

The original contributions presented in the study are included in the article/Supplementary material, further inquiries can be directed to the corresponding author.

Ethics statement

The University of Florida's Internal Review Board approved this study (IRB202001345), which was conducted under a parent study (IRB202000488). Written informed consent/assent, as appropriate, was provided.

Author contributions

SM led the study. SM, EN, and AM conceived, designed, and supervised the study and assisted with data analysis and drafting of the manuscript. DA and YF led the analysis of the data collected *via* surveys, as well as led the drafting of the manuscript. DJ-B led the design and interpretation of the psychosocial variables and guided the analysis and interpretation of the data. EN led the laboratory aspect of the study. EC, KF, AC-M, RP, SK, AA, DC, and ML conducted the laboratory data analysis and collaborated in the design of the laboratory aspect of the study. All authors contributed to the article and approved the submitted version.

Funding

Research reported in this publication was supported by the University of Florida Clinical and Translational Science Institute, which is supported in part by the NIH National Center for Advancing Translational Sciences under award number UL1TR001427. The research was also supported by the University of Florida College of Public Health and Health Professions, the College of Medicine, the Emerging Pathogens Institute at the University of Florida, and the Florida Children's Miracle Network. The costs of publication for this article were supported by the University of Florida Emerging Pathogens Institute.

Acknowledgments

A special thanks to the study participants and their families. We are also grateful to the school personnel and staff; the medical, public health, and nursing student volunteers; Tara Sabo-Atwood, John Lednicky, and the entire research testing lab staff in Environmental and Global Health; and Glenn Morris and Michael Lauzardo for their support and guidance. We are grateful for the provision of reagents and protocols for the rbdELISA from Dr. Aaron Schmidt PhD at the Ragon Institute/Harvard

Medical School (Boston MA) and Jason Harris MD MPH at the Massachusetts General Hospital/Harvard Medical School (Boston MA).

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

Author disclaimer

The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

Supplementary material

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fpubh.2023.1003923/full#supplementary-material

References

1. WHO Coronavirus (COVID-19) Dashboard|WHO Coronavirus (COVID-19) Dashboard With Vaccination Data. Available online at: https://COVID19.who.int/ (accessed Mar 27, 2022).

2. Ong JSM, Tosoni A, Kim YJ, Kissoon N, Murthy S. Coronavirus disease 2019 in critically Ill children: a narrative review of the literature∗. *Pediatric Critical Care Med.* (2020) 21:662–6. doi: 10.1097/PCC.0000000000002376

3. Allen H, Vusirikala A, Flannagan J. Household transmission of COVID-19 cases associated with SARS-CoV-2 delta variant (B.16172): national case-control study. *Lancet Regional Health Europe.* (2021) 20:100252. doi: 10.1016/j.lanepe.2021.100252

4. Karim SSA, Karim QA. Omicron SARS-CoV-2 variant: a new chapter in the COVID-19 pandemic. *Lancet.* (2021) 398:2126–8. doi: 10.1016/S0140-6736(21)02758-6

5. Torjesen I. COVID-19: Omicron may be more transmissible than other variants and partly resistant to existing vaccines, scientists fear. *BMJ.* (2021) 375:n2943. doi: 10.1136/bmj.n2943

6. Lopez Bernal J, Andrews N, Gower C, Gallagher E, Simmons R, Thelwall S, et al. Effectiveness of COVID-19 vaccines against the B.16172 (Delta) Variant New England. *J Med.* (2021) 385:585–94. doi: 10.1056/NEJMoa2108891

7. Yoshikawa H, Wuermli AJ, Britto PR, Dreyer B, Leckman JF, Lye SJ, et al. Effects of the global coronavirus disease-2019 pandemic on early childhood development: short- and long-term risks and mitigating program and policy actions. *J Pediatrics.* (2020) 223:188–93. doi: 10.1016/j.jpeds.2020.05.020

8. Patra S, Patro BK. COVID-19 and the need for child and adolescent telepsychiatry services, a case report. *Asian J Psychiatr.* (2020) 54:102298. doi: 10.1016/j.ajp.2020.102298

9. Cohen RIS, Bosk EA. Vulnerable youth and the COVID-19 pandemic. *Pediatrics.* (2020) 1:146. doi: 10.1542/peds.2020-1306

10. Hillis SD, Unwin HJT, Chen Y, Cluver L, Sherr L, Goldman PS, et al. Global minimum estimates of children affected by COVID-19-associated orphanhood and deaths of caregivers: a modelling study. *Lancet.* (2021) 398:391–402. doi: 10.1016/S0140-6736(21)01253-8

11. Nikolopoulou GB, Maltezou HC. COVID-19 in children: where do we stand? *Arch Med Res.* (2022) 53:1–8. doi: 10.1016/j.arcmed.2021.07.002

12. Giannopoulou I, Efstathiou V, Triantafyllou G, Korkoliakou P, Douzenis A. Adding stress to the stressed: Senior high school students' mental health amidst the COVID-19 nationwide lockdown in Greece. *Psychiatry Res.* (2021) 295:113560. doi: 10.1016/j.psychres.2020.113560

13. Ma Z, Idris S, Zhang Y, Zewen L, Wali A, Ji Y, et al. The impact of COVID-19 pandemic outbreak on education and mental health of Chinese children aged 7–15 years: an online survey. *BMC Pediatr.* (2021) 21:1–8. doi: 10.1186/s12887-021-02550-1

14. Daniunaite I, Truskauskaite-Kuneviciene I, Thoresen S, Zelviene P, Kazlauskas E. Adolescents amid the COVID-19 pandemic: a prospective study of psychological functioning. *Child Adolesc Psychiatry Ment Health.* (2021) 15:1–10. doi: 10.1186/s13034-021-00397-z

15. Jones EAK, Mitra AK, Bhuiyan AR. Impact of COVID-19 on mental health in adolescents: a systematic review. *Int J Environ Res Public Health.* (2021) 18:2470. doi: 10.3390/ijerph18052470

16. Racine N, McArthur BA, Cooke JE, Eirich R, Zhu J, Madigan S. Global prevalence of depressive and anxiety symptoms in children and adolescents during COVID-19: a meta-analysis. *JAMA Pediatr.* (2021) 175:1142–50. doi: 10.1001/jamapediatrics.2021.2482

17. Achterberg M, Dobbelaar S, Boer OD, Crone EA. Perceived stress as mediator for longitudinal effects of the COVID-19 lockdown on wellbeing of parents and children. *Sci Rep.* (2021) 11:1–14. doi: 10.1038/s41598-021-81720-8

18. Pizarro-Ruiz JP, Ordóñez-Camblor N. Effects of COVID-19 confinement on the mental health of children and adolescents in Spain. *Sci Rep.* (2021) 11:1–10. doi: 10.1038/s41598-021-91299-9

19. Yeasmin S, Banik R, Hossain S. Hossain MdN, Mahumud R, Salma N, et al. Impact of COVID-19 pandemic on the mental health of children in Bangladesh: a cross-sectional study. *Child Youth Serv Rev.* (2020) 117:105277. doi: 10.1016/j.childyouth.2020.105277

20. Panchal U, Salazar de. Pablo G, Franco M, Moreno C, Parellada M, Arango C, et al. The impact of COVID-19 lockdown on child and adolescent mental health: systematic review. *Eur Child Adolesc Psychiatry.* (2021) 1:1–27. doi: 10.1007/s00787-021-01856-w

21. Zhang H, Xu H, Huang L, Wang Y, Deng F, Wang X, et al. Increased occurrence of PTSD symptoms in adolescents with major depressive disorder soon after the start of the COVID-19 outbreak in China: a cross-sectional survey. *BMC Psychiatry.* (2021) 21:1–9. doi: 10.1186/s12888-021-03400-1

22. McKune SL, Acosta D, Diaz N, Brittain K, Beaulieu DJ, Maurelli AT, et al. Psychosocial health of school-aged children during the initial COVID-19 safer-at-home school mandates in Florida: a cross-sectional study. *BMC Public Health.* (2021) 21:603. doi: 10.1186/s12889-021-10540-2

23. Acosta D, Fujii Y, Joyce-Beaulieu D, Jacobs KD, Maurelli AT, Nelson EJ, et al. Psychosocial health of k-12 students engaged in emergency remote education and in-person schooling: a cross-sectional study. *Int J Environ Res Public Health.* (2021) 18:8564. doi: 10.3390/ijerph18168564

24. Thomeer MB, Moody MD, Yahirun J. Racial and ethnic disparities in mental health and mental health care during the COVID-19 pandemic. *J Racial Ethn Health Disparities.* (2022) 1–16. doi: 10.1007/s40615-022-01284-9

25. Shi L, Zhang D, Martin E, Chen Z, Li H, Han X, et al. Racial discrimination, mental health and behavioral health during the COVID-19 pandemic: a national survey in the United States. *J Gen Intern Med.* (2022) 37:2496–504. doi: 10.1007/s11606-022-07540-2

26. McKnight-Eily LR, Okoro CA, Strine TW, Verlenden J, Hollis ND, Njai R, et al. Racial and ethnic disparities in the prevalence of stress and worry, mental health conditions, and increased substance use among adults during the COVID-19 pandemic—United States, April and May 2020. *MMWR Morb Mortal Wkly Rep.* (2021) 70:162–6. doi: 10.15585/mmwr.mm7005a3

27. Nickerson AB, Sullkowski ML. The COVID-19 Pandemic as a long-term school crisis: impact, risk, resilience, and crisis management. *J School Psychol.* (2021) 36:271–6. doi: 10.1037/spq0000470

28. Stinson EA, Sullivan RM, Peteet BJ, Tapert SF, Baker FC, Breslin FJ, et al. Longitudinal impact of childhood adversity on early adolescent mental health during the COVID-19 pandemic in the ABCD study cohort: does race or ethnicity moderate findings? *Biol Psychiatry Global Open Sci.* (2021) 4:324–35. doi: 10.1016/j.bpsgos.2021.08.007

29. Gazmararian J, Weingart R, Campbell K, Cronin T, Ashta J. Impact of COVID-19 pandemic on the mental health of students from 2 semi-rural high schools in Georgia*. *J School Health.* (2021) 91:356–69. doi: 10.1111/josh.13007

30. Bhogal A, Borg B, Jovanovic T, Marusak HA. Are the kids really alright? Impact of COVID-19 on mental health in a majority Black American sample of schoolchildren Amanpreet. *Psychiatry Res.* (2021) 304:114146. doi: 10.1016/j.psychres.2021.114146

31. Martin R, Rajan S, Shareef F, Xie KC, Allen KA, Zimmerman M, et al. Racial disparities in child exposure to firearm violence before and during COVID-19. *Am J Prev Med.* (2022) 63:204–12. doi: 10.1016/j.amepre.2022.02.007

32. Oster E, Jack R, Halloran C, Schoof J, McLeod D, Yang H, et al. Disparities in learning mode access among K−12 students during the COVID-19 pandemic, by race/ethnicity, geography, and grade level—United States, September 2020–April 2021. *MMWR Recommendations Rep.* (2021) 70:953–8. doi: 10.15585/mmwr.mm7026e2

33. Rainey AL, Loeb JC, Robinson SE, Lednicky JA, McPherson J, Colson S, et al. Wastewater surveillance for SARS-CoV-2 in a small coastal community: effects of tourism on viral presence and variant identification among low prevalence populations. *Environ Res.* (2022) 208:112496. doi: 10.1016/j.envres.2021.112496

34. Roy V, Fischinger S, Atyeo C, Slein M, Loos C, Balazs A, et al. SARS-CoV-2-specific ELISA development. *J Immunol Methods.* (2020) 484–485:112832. doi: 10.1016/j.jim.2020.112832

35. Louis R, Pu R, Logan TD, Trimmer-Smith L, Chamblain R, Gallagher A, et al. *SARS-CoV-2 infections in infants in Haiti 2020–2021; evidence from a serological cohort.* medRxiv (2022). doi: 10.1101/2022.03.17.22272561

36. Karaca-Mandic P, Georgiou A, Sen S. Assessment of COVID-19 Hospitalizations by Race/Ethnicity in 12 States. *JAMA Intern Med.* (2021) 181:131. doi: 10.1001/jamainternmed.2020.3857

37. Gemelas J, Davison J, Keltner C, Ing S. Inequities in employment by race, ethnicity, and sector during COVID-19. *J Racial Ethn Health Disparities.* (2022) 9:350–5. doi: 10.1007/s40615-021-00963-3

38. Labgold K, Hamid S, Shah S, Gandhi NR, Chamberlain A, Khan F, et al. Estimating the unknown. *Epidemiology.* (2021) 32:157–61. doi: 10.1097/EDE.0000000000001314

39. Jones TM, Williford A, Spencer MS, Riggs NR, Toll R, George M, et al. School mental health providers' perspectives on the impact of COVID-19 on racial inequities and school disengagement. *Child Sch.* (2021) 43:97–106. doi: 10.1093/cs/cdab009

40. Liu D, Baumeister RF, Veilleux JC, Chen C, Liu W, Yue Y, et al. Risk factors associated with mental illness in hospital discharged patients infected with COVID-19 in Wuhan, China. *Psychiatry Res.* (2020) 292:113297. doi: 10.1016/j.psychres.2020.113297

41. Simon NM, Saxe GN, Marmar CR. Mental health disorders related to COVID-19–related deaths. *JAMA.* (2020) 324:1493. doi: 10.1001/jama.2020.19632

42. Gerçeker GÖ, Özdemir EZ, Özdemir B, Bektaş M. Development of the parental attitude scale-protecting children during COVID-19 and the relationship between parental attitudes and fear of COVID-19. *J Pediatr Nurs.* (2022) 62:113–20. doi: 10.1016/j.pedn.2021.09.007

43. Xue Q, Xie X, Liu Q, Zhou Y, Zhu K, Wu H, et al. Knowledge, attitudes, and practices towards COVID-19 among primary school students in Hubei Province, China. *Child Youth Serv Rev.* (2021) 120:105735. doi: 10.1016/j.childyouth.2020.105735

44. Jia Y, Qi Y, Bai L, Han Y, Xie Z, Ge J. Knowledge–attitude–practice and psychological status of college students during the early stage of COVID-19 outbreak in China: a cross-sectional study. *BMJ Open.* (2021) 11:e045034. doi: 10.1136/bmjopen-2020-045034

frontiers | Frontiers in Public Health

TYPE Perspective
PUBLISHED 30 March 2023
DOI 10.3389/fpubh.2023.1113222

OPEN ACCESS

EDITED BY
Benjamin Miller,
Stanford University, United States

REVIEWED BY
Erica D. Diminich,
Stony Brook Medicine, United States

*CORRESPONDENCE
Leslie B. Adams
✉ ladams36@jhu.edu

SPECIALTY SECTION
This article was submitted to Public Mental Health, a section of the journal Frontiers in Public Health

RECEIVED 01 December 2022
ACCEPTED 07 March 2023
PUBLISHED 30 March 2023

CITATION
Adams LB and Thorpe RJ Jr (2023) Achieving mental health equity in Black male suicide prevention. *Front. Public Health* 11:1113222. doi: 10.3389/fpubh.2023.1113222

Achieving mental health equity in Black male suicide prevention

Leslie B. Adams[1]* and Roland J. Thorpe Jr[2]

[1]Department of Mental Health, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, United States, [2]Program for Research on Men's Health, Hopkins Center for Health Disparities Solutions, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, United States

Despite a steady decrease in suicide rates in the United States, the rate among Black males has increased in recent decades. Moreover, suicide is now positioned as the third leading cause of death in this population, signaling a public health crisis. Enhancing the ability for future suicide prevention scholars to fully characterize and intervene on suicide risk factors is an emerging health equity priority, yet there is little empirical evidence to robustly investigate the alarming trends in Black male suicide. We present fundamental areas of expansion in suicide prevention research focused on establishing culturally responsive strategies to achieve mental health equity. Notably, we identify gaps in existing research and offer future recommendation to reduce suicide death among Black males. Our perspective aims to present important and innovative solutions for ensuring the inclusion of Black males in need of suicide prevention and intervention efforts.

KEYWORDS

Black males, structural racism, health equity (MeSH), suicide prevention and intervention, recruitment and retention

Introduction

The Centers for Disease Control (CDC) report that suicide is now the third leading cause of death for Black male adolescents and young adults. The crisis of suicide among Black Americans is inherently gendered, with Black boys and men accounting for the vast majority (81%) of completed suicides in this population (1). A recent study revealed that, in the past two decades, suicide attempts rose by 73% between for Black adolescents (boy and girls), while injury by attempt increased by 122% for Black adolescent boys (2). Moreover, in this same time span, rates of suicide death among Black men increased by 25.3%, signaling a public health crisis for this population (1). These alarming suicide trends warrant more effective understandings of the cumulative phenomena that Black boys and men, herein referred to as Black males, face throughout the lifecourse.

This crisis has recently garnered growing national recognition as a public health priority facing Black males, as evidenced by the recent efforts by the National Institutes of Health and the 2018 report from the Emergency Task Force on Black Youth Suicide and Mental Health (3, 4). These calls to action highlight the need for unique direction to address suicide among Black males through preventive approaches. Yet, the suicide prevention field has often overlooked this population in past efforts and targeted approaches to curtail fatal (death by suicide) and non-fatal (suicidal thoughts and behavior-STBs) outcomes (5–9). To advance scientific contributions toward equitable solutions for suicide prevention, researchers must incorporate the diverse perspectives of Black males.

Given that the life expectancy for Black males is among the lowest of all racial and ethnic and gender groups (10), obtaining more robust indicators of risk among Black males is an important public health objective and a critical first step toward reducing suicide. To that end, the goal of our perspective is 2-fold. First, we identify critical research gaps in conducting suicide prevention research with Black males, an underrepresented demographic in prevention science. Next, we offer recommendations to advance the field of suicide prevention to more equitably benefit Black males.

Knowledge gaps in understanding suicide prevention for Black males

Much of the extant research investigating suicidality has been conducted among persons of European descent, thus masking the unique population-level risk factors that are present for this population (11). When Black males are included in research studies focusing on suicide, their numbers are usually small and are oftentimes compared to White, middle-class participants in assessing suicidal risk and protection. In these comparisons, assumptions, values, and methodologies used for interpreting results are generalized to Black Americans without attention to differences in culture, gender norms, and sociocultural realities that may influence risk. Thus, creating equitable strategies to better inform structural and cultural factors related to the increased risk of suicide among Black males is a critical need in the field of suicide prevention.

In order to fully contextualize pathways to suicide prevention for Black males, researchers much first contend with the detrimental role of racism. Racism is a multilevel construct that encompasses all aspects of society and results in the diminished availability of resources to support wellbeing. This marked disadvantage has an influence on health outcomes, with racialized populations consistently demonstrating shorter lifespans and poorer physical and mental health than their advantaged counterparts (12, 13). As an organized system of oppression, racism exists and operates synergistically at multiple levels, including the interpersonal, community, and societal or structural level (14, 15). To this end, structural racism encompasses the "totality of ways in which multiple systems and institutions interact to assert racist policies, practices, and beliefs about people in a racialized group" (16).

Despite recent advancements in the study and measurement of structural racism in the lives of Black Americans (13, 16, 17), its application in suicide prevention research remains in its infancy. Certainly, structural racism is both an acute and chronic presence in the lives of Black males, resulting in unintended consequences on their mental wellbeing. A recent systematic review, conducted by Addison et al. (18), highlighted the interplay of structural racism and mental health outcomes among Black men who have experienced incarceration, with significant associations between past incarceration history and poor mental health, including higher levels of psychological distress, increased severity of depressive and PTSD symptoms, and delayed mental health treatment. By positioning structural racism as a central determinant of suicide risk for Black males, researchers may be more equipped to consider inventive solutions to determine understand and mitigate psychological distress in the context of pervasive racialized experiences.

A recent review, conducted by Kiara Alvarez et al., highlighted the need for a multi-sector approach in suicide prevention and identified settings in which structural racism may permeate and exacerbate mental wellbeing, including outpatient mental health settings, schools, and crisis response interventions (e.g., the intersection of law enforcement, emergency services, and inpatient psychiatric settings) (19). The interplay of multi-level exposures of racism across sectors may ultimately thwart existing suicide prevention efforts, particularly in the healthcare setting. Incidentally, the barriers that presently exist in the healthcare system as a result of structural racism ultimately result in lower utilization of mental health services for Black males in need of mental health services (18, 20, 21). Experiences of racism at the structural and interpersonal level that are embedded in healthcare settings also limit the motivation for Black males to view this system as a supportive environment when experiencing mental health crisis (22–25). The systemic challenges that limit Black males' ability to seek adequate mental health care in the moments leading up to crisis create limitations in the utility of electronic health record (EHR) and medical claims data as a primary method of health information for suicide prevention among Black males.

Lack of uniformity of these data sources also obscure reliable information on the social determinants that precede mental health challenges. Outside of research participation, the health and safety of Black males who elect to participate in studies focused on their mental wellbeing is of paramount importance. In considering this population and the frequent racialized threats that encompass their lived experiences, the nature of mental health crisis support itself must be re-examined to provide inclusive safety considerations for Black males at high risk of suicide. Indeed for Black males, the intersection of the criminal justice system and police involvement has resulted in a disproportionate amount of state-sanctioned violence and racialized trauma (26–29). These experiences have a direct influence on the mental wellbeing of communities where Black males reside (18, 26).

Recommendations to support equity in Black male suicide prevention

The current landscape of suicide prevention research is primed for novel approaches to ensure that Black males live to their fullest potential. Accordingly, by noting evidentiary gaps, we can prioritize areas of targeted opportunity for future initiatives to support Black males in crisis. Although the need for innovative solutions to curtail Black male suicide is clear (3, 4, 30), systematic efforts are lacking that address the challenges researchers experience in achieving equitable solutions to reduce suicide outcomes. Our recommendations below serve as a pioneering effort to highlight the future needs of the field to address the rising rates of suicide among Black males.

Recommendation #1: Prioritize funding and strategic frameworks centered on Black male suicide prevention

The current shortage of scholars in the field focused on Black male suicide may also yield limited research on the topic itself. Notably, Black researchers who may be more inclined to address such topics are less likely to receive funding from federally funded organizations (31, 32). A recent strategic framework to address youth mental health disparities was recently launched by the National Institute on Mental Health (NIMH), in coordination with other NIH institutes, with the goal of advancing evidence that can inform the reduction of mental health disparities among youth (ages 24 and younger) in the next decade (33). A promise of this emerging initiative is embedded in its goals of addressing known knowledge gaps, expanding research opportunities, extending and supporting stakeholder engagement, and the growth of future scholars in the youth mental health disparities workforce. In concert with these recent funding initiatives, additional examples of priority setting and sponsorship attributed to enhancing research on Black male suicide from both advocacy and government stakeholders are warranted.

The paucity of available literature on Black male suicide prevention also demonstrates the need for more research to establish conclusive linkages that catalyze suicidal thoughts and behaviors in this vulnerable population. As evidenced by the Congressional Black Caucus' recent Emergency Task Force Report (4), there are additional protective factors that could be explored in future research, including familial support, religious and spiritual engagement, community and social support, personal, and structural factors (e.g., stable family housing, income and employment). Emphasizing the role of these factors for Black males should be specifically prioritized in future research initiatives. By clarifying risk and protective factors for suicide among Black males, researchers, policy makers, and other key stakeholders will have key evidence to develop more culturally informed preventive approaches.

Recommendation #2: Address innovative solutions to maintain continuity of care for Black males in the healthcare sector

The healthcare sector is a vital institution for characterizing and treating emerging psychiatric distress and subsequent suicidal thoughts and behaviors. Yet, Black males often lose contact with health care services following the utilization of emergency services for suicide (34, 35). Thus, the need for equitable continuity of care following discharge from the hospital for a mental health crisis is critical. Advances in smartphone-based technologies may provide one such opportunity to enhance continuity of services and therapeutic support, post-discharge with the use of experience sampling assessments (e.g., ecological momentary assessments, EMA) (36, 37). These approaches can be culturally tailored and targeted tp Black males to enhance real-time pathways of identifying acute crisis and delivering brief interventions in the community setting (38). To date, the development and implementation of such approaches among Black males at high risk of suicide is limited and necessitates directed funding in the development of such smartphone-based adaptive interventions to support this population in times of crisis.

Enhancing brief interventions that leverage smartphones to support Black males in real-time may also support the therapeutic alliance with the healthcare setting. Research suggests that Black Americans are the most active mobile phone users in the United States, adopting and using smartphones at much higher rates than other racial and ethnic groups. Additionally, 67% of Black Americans have used their phone in the past year to seek health information, compared to 58% of White respondents (39, 40). Future studies should investigate the suitability of smartphones and other mobile devices (e.g., smartwatches, activity trackers) to deliver supportive messages and support continuity of care following a suicide attempt.

Recommendation #3: Enhance research approaches to better capture the heterogeneity of Black males in suicide research

A critical extension of current literature requires a within-group focus on the unique risk factors that influence suicide risk among Black males (41). To investigate unique risk and protective factors for Black males further, inclusion of validated measures of racism at the structural and interpersonal level in future data collection efforts is needed (17). Indeed, although measurement of structural racism is still rapidly developing, researchers should consider the inclusion of such measures as well as other macro-level indicators of structural disadvantage, such as racial residential segregation, criminal justice involvement, and access to quality health services.

Our recent data on suicide increases among Black Americans have largely positioned Black males as a homogenous group. This sampling decision across studies has the potential to omit the diverse African diasporic communities that are present in the United States. By expanding study samples to account for heterogeneity in the Black male suicide experience (42), researchers have the potential to translate evidence-based research to support populations most at risk of experiencing mental health crises, including but not limited to nativity, ethnicity, sexual orientation, and gender identity.

Recommendation #4: Leverage advancements in crisis support hotlines and safety planning to better serve Black males

With the recent national implementation of the 988 Suicide and Crisis Lifeline, there are more opportunities to reach Black males in crisis and connect them to timely care. Thus, it is imperative that these initiatives also prioritize enhancing the diversity of the counseling workforce to better serve the emergent needs of Black males that may rely on this resource. Moreover, the occupational composition of such crisis teams should be carefully considered to ensure that resulting responses do not further place Black males at risk of criminal justice involvement or state-sanctioned violence by police officers.

In many instances of mental health crises there is an emergent, but ultimately unmet, need that occurs when armed police encounter Black males. The potential harm of such interactions outweighs the benefit when considering mental health crisis support care for Black males. Safety planning interventions offer a promising approach to identify resources for psychiatric crisis before it occurs (43, 44). Future work in refining safety planning interventions should incorporate resources that include trained mental health counselors and avert police or criminal justice involvement in the immediate outreach for mental health support in times of crisis (45).

Recommendation #5: Place community stakeholders at the forefront of solution-driven suicide prevention research

Finally, community stakeholders are critical in ensuring the mental wellbeing of Black males at risk of suicide. To this end, placing community leaders in the driver's seat of suicide prevention efforts is a natural next step in enhancing trust in prevention efforts and reducing cultural stigma related to mental health help-seeking for Black males. These engaged efforts will center the needs of Black males and move beyond comparative models in the development of future suicide prevention interventions. Guided by participatory practices that ensure a co-learning structure between researchers and community, these partnerships will have a more sustainable approach for identifying and dismantling pathways in which structural racism limits opportunities for Black males to thrive. Targeting areas where Black males live, work, and play, such as gyms, churches, barbershops, and outdoor activity spaces may bolster trust to participate in suicide prevention efforts. Consequentially, eliciting the direct perspectives of Black males at risk for suicide using qualitative and engaged approaches may be critical early step in understanding targeted areas of improvement and reducing mistrust in research participation.

Community-based involvement would require an intentional approach to maintain successful partnerships over time and maintain contact with research participants beyond the duration of the study. In previous studies, these approaches have included directed follow-up communication *via* calls or email, home visits, or holiday or birthday notes (46). For Black males at risk of suicide, these outreach efforts may also include caring and supportive communication to maintain a supportive relationship with the research participant over time. Indeed, research has identified brief caring contacts as an understudied but effective approach in maintaining social connectedness with individuals at high risk for suicide (47). This approach is especially critical in longitudinal studies, where maintained connection between researchers and participants becomes a measurable goal.

Conclusion

Our perspective highlights key gaps in our understanding of Black male suicide and offers preliminary recommendations to engage stakeholders in action-oriented advancement in the field of suicide prevention. Consistent with ongoing efforts that highlight the alarming rates of suicide in the Black community (4, 8, 48), we offer innovative and evidence-based approaches to progress equitable suicide prevention efforts. Formal integration of structural racism within the suicide prevention framework is crucial and will bring much needed clarity to bolster public health efforts that comprehensively assesses the etiology of suicide. Our recommendations also support a more nuanced understanding of the guiding forces that contribute to suicide among Black males and may ultimately provide insight on targetable areas of future intervention. By providing a unified, multi-sector approach to addressing these complex social challenges, future scholars in the field will the ability to further cultivate and sustain the mental wellbeing of Black males.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Author contributions

LA conceptualized and wrote the first draft. RT contributed to critical revision and writing of the final manuscript. All authors contributed to and approved the final manuscript.

Funding

LA was supported by a grant (K01MH127310) from the National Institutes on Mental Health and the American Foundation on Suicide Prevention (YIG-0-001-19). RT was supported by grants from NIH K02AG059140 and U54MD000214.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

References

1. Centers for Disease Control and Prevention, National Centers for Injury Prevention and Control, National Center for Injury Prevention and Control. *Web-based Injury Statistics Query and Reporting System (WISQARS)* (2005). Available online at: www.cdc.gov/injury/wisqars (accessed December 18, 2020).

2. Lindsey MA, Sheftall AH, Xiao Y, Joe S. Trends of suicidal behaviors among high school students in the United States: 1991-2017. *Pediatrics*. (2019) 144:e20191187. doi: 10.1542/peds.2019-1187

3. Gordon JA, Avenevoli S, Pearson JL. Suicide prevention research priorities in health care. *JAMA Psychiatry*. (2020) 77:885–6. doi: 10.1001/jamapsychiatry.2020.1042

4. Emergency Task Force on Black Youth Suicide and Mental Health. *Ring the Alarm: The Crisis of Black Youth Suicide in America*. Representative Bonnie Watson Coleman (2018). Available online at: https://watsoncoleman.house.gov/uploadedfiles/full_taskforce_report.pdf (accessed October 05, 2020).

5. Bath E, Njoroge WFM. Coloring outside the lines: making black and brown lives matter in the prevention of youth suicide. *J Am Acad Child Adolesc Psychiatry*. (2021) 60:17–21. doi: 10.1016/j.jaac.2020.09.013

6. Meza JI, Patel K, Bath E. Black youth suicide crisis: prevalence rates, review of risk and protective factors, and current evidence-based practices. *Focus*. (2022) 20:197–203. doi: 10.1176/appi.focus.20210034

7. Stratford B, Surani K, Gabriel A, Abdi F. Addressing Discrimination Supports Youth Suicide Prevention Efforts. *Child Trends*. (2022). doi: 10.56417/3349i4871b

8. Sheftall AH, Vakil F, Ruch DA, Boyd RC, Lindsey MA, Bridge JA. Black youth suicide: investigation of current trends and precipitating circumstances. *J Am Acad Child Adolesc Psychiatry*. (2022) 61:662–75. doi: 10.1016/j.jaac.2021.08.021

9. Romanelli M, Sheftall AH, Irsheid SB, Lindsey MA, Grogan TM. Factors associated with distinct patterns of suicidal thoughts, suicide plans, and suicide attempts among US adolescents. *Prev Sci*. (2021) 23:1–12. doi: 10.1007/s11121-021-01295-8

10. Harper S, Rushani D, Kaufman JS. Trends in the black-white life expectancy gap, 2003-2008. *JAMA*. (2012) 307:2257–9. doi: 10.1001/jama.2012.5059

11. Joe S, Canetto SS, Romer D. Advancing prevention research on the role of culture in suicide prevention. *Suicide Life Threat Behav*. (2008) 38:354–62. doi: 10.1521/suli.2008.38.3.354

12. Williams DR, Lawrence JA, Davis BA. Racism and health: evidence and needed research. *Annu Rev Public Health*. (2019) 40:105–25. doi: 10.1146/annurev-publhealth-040218-043750

13. Bailey ZD, Feldman JM, Bassett MT. How structural racism works — racist policies as a root cause of U.S. racial health inequities. *N Engl J Med*. (2020) 384:768–73. doi: 10.1056/NEJMms2025396

14. Williams DR, Mohammed SA. Racism and health I: pathways and scientific evidence. *Am Behav Sci*. (2013) 57:1152–73. doi: 10.1177/0002764213487340

15. Williams DR, Mohammed SA. Discrimination and racial disparities in health: evidence and needed research. *J Behav Med*. (2009) 32:20–47. doi: 10.1007/s10865-008-9185-0

16. Bailey ZD, Krieger N, Agénor M, Graves J, Linos N, Bassett MT. Structural racism and health inequities in the USA: evidence and interventions. *Lancet*. (2017) 389:1453–63. doi: 10.1016/S0140-6736(17)30569-X

17. Dean LT, Thorpe RJ Jr. What structural racism is (or is not) and how to measure it: clarity for public health and medical researchers. *Am J Epidemiol*. (2022) 191:1521–6. doi: 10.1093/aje/kwac112

18. Addison HA, Richmond TS, Lewis LM, Jacoby S. Mental health outcomes in formerly incarcerated Black men: a systematic mixed studies review. *J Adv Nurs*. (2022) 78:1851–69. doi: 10.1111/jan.15235

19. Alvarez K, Polanco-Roman L, Samuel Breslow A, Molock S. Structural racism and suicide prevention for ethnoracially minoritized youth: a conceptual framework and illustration across systems. *Am J Psychiatry*. (2022) 179:422–33. doi: 10.1176/appi.ajp.21101001

20. Ahmedani BK, Stewart C, Simon GE, Lynch F, Lu CY, Waitzfelder BE, et al. Racial/Ethnic differences in health care visits made before suicide attempt across the United States. *Med Care*. (2015) 53:430–5. doi: 10.1097/MLR.0000000000000335

21. Ahmedani BK, Simon GE, Stewart C, Beck A, Waitzfelder BE, Rossom R, et al. Health care contacts in the year before suicide death. *J Gen Intern Med*. (2014) 29:870–7. doi: 10.1007/s11606-014-2767-3

22. Powell W, Richmond J, Mohottige D, Yen I, Joslyn A, Corbie-Smith G. Medical mistrust, racism, and delays in preventive health screening among african-american men. *Behav Med*. (2019) 45:102–17. doi: 10.1080/08964289.2019.1585327

23. Progovac AM, Cortés D, Chambers V, Delman J, Delman D, McCormick D, et al. Understanding the role of past health care discrimination in help-seeking and shared decision-making for depression treatment preferences. *Qualit Health Res*. 30:1833–50. (2020). doi: 10.1177/1049732320937663

24. Powell W, Adams LB, Cole-Lewis Y, Agyemang A, Upton RD. Masculinity and race-related factors as barriers to health help-seeking among African American men. *Behav Med*. (2016) 42:150–63. doi: 10.1080/08964289.2016.1165174

25. Adams LB, Zimmer C, Progovac AM, Creedon T, Rodgers CR, Sonik RA, et al. Typologies of mental healthcare discrimination experiences and associations with current provider care ratings: a latent class analysis. *SSM-Mental Health*. (2022) 2:100105. doi: 10.1016/j.ssmmh.2022.100105

26. Bor J, Venkataramani AS, Williams DR, Tsai AC. Police killings and their spillover effects on the mental health of black Americans: a population-based, quasi-experimental study. *Lancet*. (2018) 392:302–10. doi: 10.1016/S0140-6736(18)31130-9

27. Smith Lee JR, Robinson MA. "That's my number one fear in life. It's the police": examining young black men's exposures to trauma and loss resulting from police violence and police killings. *J Black Psychol*. (2019) 45:143–84. doi: 10.1177/0095798419865152

28. Frank JW, Wang EA, Nunez-Smith M, Lee H, Comfort M. Discrimination based on criminal record and healthcare utilization among men recently released from prison: a descriptive study. *Health Just*. (2014) 2:6. doi: 10.1186/2194-7899-2-6

29. Kirkinis K, Pieterse AL, Martin C, Agiliga A, Brownell A. Racism, racial discrimination, and trauma: a systematic review of the social science literature. *Ethnicity Health*. (2018) 26:1–21. doi: 10.1080/13557858.2018.1514453

30. Ramchand R, Gordon JA, Pearson JL. Trends in suicide rates by race and ethnicity in the United States. *JAMA Network Open*. (2021) 4:e2111563. doi: 10.1001/jamanetworkopen.2021.11563

31. Ginther DK, Basner J, Jensen U, Schnell J, Kington R, Schaffer WT. Publications as predictors of racial and ethnic differences in NIH research awards. *PLoS ONE*. (2018) 13:e0205929. doi: 10.1371/journal.pone.0205929

32. Ginther DK, Schaffer WT, Schnell J, Masimore B, Liu F, Haak LL, et al. Race, ethnicity, and NIH research awards. *Science*. (2011) 333:1015–9. doi: 10.1126/science.1196783

33. *NIMH Strategic Framework for Addressing Youth Mental Health Disparities*. National Institute of Mental Health (NIMH). Available online at: https://www.nimh.nih.gov/health/publications/nimh-strategic-framework-for-addressing-youth-mental-health (accessed February 10, 2023).

34. Vidal C, Ngo TL, Wilcox HC, Hammond CJ, Campo JV, O'Donnell E, et al. Racial differences in emergency department visit characteristics and management of preadolescents at risk of suicide. *Psychiatr Serv*. (2022) 4:312–5. doi: 10.1176/appi.ps.202100608

35. O'Donnell EP, Yanek L, Reynolds E, Ryan LM, Ngo TL. Characteristics of mental health patients boarding for longer than 24 hours in a pediatric emergency department. *JAMA Pediatr*. (2020) 174:1206–8. doi: 10.1001/jamapediatrics.2019.5991

36. Adams L, Igbinedion G, DeVinney A, Azasu E, Nestadt P, Thrul J, et al. Assessing the real-time influence of racism-related stress and suicidality among black men: protocol for an ecological momentary assessment study. *JMIR Res Protoc*. (2021) 10:e31241. doi: 10.2196/31241

37. Kleiman EM, Turner BJ, Fedor S, Beale EE, Picard RW, Huffman JC, et al. Digital phenotyping of suicidal thoughts. *Depress Anxiety*. (2018) 35:601–8. doi: 10.1002/da.22730

38. Coppersmith DDL, Dempsey W, Kleiman EM, Bentley KH, Murphy SA, Nock MK. Just-in-time adaptive interventions for suicide prevention: Promise, challenges, and future directions. *Psychiatry*. (2022) 85:317–33. doi: 10.1080/00332747.2022.2092828

39. NW 1615 L. *St, Suite 800Washington, Inquiries D 20036USA202 419 4300 | M 857 8562 | F 419 4372 | M. Racial and ethnic differences in how people use mobile technology*. Pew Research Center. Available online at: https://www.pewresearch.org/fact-tank/2015/04/30/racial-and-ethnic-differences-in-how-people-use-mobile-technology/ (accessed September 28, 2019).

40. Smith A. *Nearly Half of American Adults are Smartphone Owners*. Pew Research Center: Internet, Science & Tech (2012). Available online at: https://www.pewinternet.org/2012/03/01/nearly-half-of-american-adults-are-smartphone-owners/ (accessed September 28, 2019).

41. Whitfield KE, Allaire JC, Belue R, Edwards CL. Are comparisons the answer to understanding behavioral aspects of aging in racial and ethnic groups? *J Gerontol Ser B*. (2008) 63:P301–8. doi: 10.1093/geronb/63.5.P301

42. Volpe VV, Smith NA, Skinner OD, Lozada FT, Hope EC, Del Toro J. Centering the heterogeneity of black adolescents' experiences: guidance for within-group designs among african diasporic communities. *J Res Adolesc*. (2022) 2:1298–311. doi: 10.1111/jora.12742

43. Stanley B, Brown GK. Safety planning intervention: a brief intervention to mitigate suicide risk. *Cogn Behav Pract*. (2012) 19:256–64. doi: 10.1016/j.cbpra.2011.01.001

44. Ferguson M, Rhodes K, Loughhead M, McIntyre H, Procter N. The effectiveness of the safety planning intervention for adults experiencing suicide-related distress: a systematic review. *Arch Suicide Res*. (2022) 26:1022–45. doi: 10.1080/13811118.2021.1915217

45. Waters R. Enlisting mental health workers, not cops, in mobile crisis response. *Health Affairs (Project Hope)*. (2021) 40:864–9. doi: 10.1377/hlthaff.2021.00678

46. Robinson KA, Dennison CR, Wayman DM, Pronovost PJ, Needham DM. Systematic review identifies number of strategies important for retaining study participants. *J Clin Epidemiol*. (2007) 60:757.e1–757.e19. doi: 10.1016/j.jclinepi.2006.11.023

47. Ryan TC, Chambers S, Gravey M, Jay SY, Wilcox HC, Cwik M. A brief text-messaging intervention for suicidal youths after emergency department discharge. *Psychiatr Serv*. (2022) 73:954–7. doi: 10.1176/appi.ps.202000559

48. Joe S, Scott ML, Banks A. What works for adolescent black males at risk of suicide: a review. *Res Soc Pract*. (2018) 28:340–5. doi: 10.1177/1049731517702745

frontiers | Frontiers in Public Health

TYPE Original Research
PUBLISHED 01 June 2023
DOI 10.3389/fpubh.2023.1134076

Check for updates

OPEN ACCESS

EDITED BY
April Joy Damian,
Weitzman Institute, United States

REVIEWED BY
Brenda Robles,
University of Girona, Spain
Joseph Gallo,
Johns Hopkins University, United States

*CORRESPONDENCE
Jason Mallonee
✉ jrmallonee@utep.edu

RECEIVED 29 December 2022
ACCEPTED 15 May 2023
PUBLISHED 01 June 2023

CITATION
Mallonee J, Escalante R, Robles EH and Tucker C (2023) "Something very taboo": a qualitative exploration of beliefs, barriers, and recommendations for improving mental health care and access for Hispanic adults in the Paso del Norte U.S.-Mexico border region.
Front. Public Health 11:1134076.
doi: 10.3389/fpubh.2023.1134076

"Something very taboo": a qualitative exploration of beliefs, barriers, and recommendations for improving mental health care and access for Hispanic adults in the Paso del Norte U.S.-Mexico border region

Jason Mallonee[1]*, Rosa Escalante[1], Eden Hernandez Robles[2] and Christal Tucker[3]

[1]Department of Social Work, College of Health Sciences, The University of Texas at El Paso, El Paso, TX, United States, [2]Worden School of Social Service, Our Lady of the Lake University, San Antonio, TX, United States, [3]The Kelly Center for Hunger Relief, El Paso, TX, United States

Background: Hispanic adults with mental health conditions in the United States experience disproportionate access to and utilization of professional mental health treatment. This is believed to be in part due to systemic barriers and challenges, difficulty accessing care, cultural factors, and stigma. Studies to date have failed to examine these specific factors within the unique context of the Paso del Norte U.S.-Mexico border region.

Methods: For this study, 25 Hispanic adults identifying primarily of Mexican descent participated in four focus groups exploring these topics. Three groups were facilitated in Spanish and one group in both English and Spanish. Focus groups followed a semi-structured format eliciting perspectives on mental health and mental illness, help-seeking, barriers and facilitators of help-seeking and treatment access, and recommendations for mental health agencies and providers.

Results: Qualitative data analysis yielded the following themes: understanding of mental health and help-seeking; barriers to accessing care; mental health treatment facilitators; and recommendations for agencies, providers, and researchers.

Conclusion: Findings from this study support the need for innovative mental health engagement strategies to reduce stigma, increase understanding of mental health, foster support systems, reduce individual and systemic barriers to seeking and accessing care, and to continue to engage communities in mental health outreach and research.

KEYWORDS

Hispanic, Latino, mental health, help-seeking, barriers, stigma, U.S.-Mexico border region

1. Introduction

In 2020, only 35.1% of Hispanic[1] adults with mental health conditions in the United States received professional treatment, compared to 51.8% of non-Hispanic white adults (1). Less frequent treatment utilization, shorter episodes of care, inadequate care, and fewer referrals to psychotherapy characterize Hispanic adults' experience with mental health services (2). Less frequent service utilization is associated with a range of deleterious outcomes, including poorer physical health (3), co-occurring substance use (4), higher rates of unemployment (1), homelessness (5), and incarceration (6). Given the disproportionate prevalence of unresolved mental health conditions for Hispanic adults in the United States and the associated adverse outcomes, it is critical that researchers study pathways to care that potentially reduce barriers and increase access to services.

A growing body of literature provides broad insights into mental health treatment barriers. Poverty and lack of insurance (7), linguistic and transportation barriers (8), and disproportional access to care (9) are some well documented systemic barriers. Stigma-related factors like cultural beliefs around mental illness and help-seeking further reduce the likelihood of Hispanic adults seeking and engaging in professional mental health treatment (10–12). For Hispanic adults, lower socioeconomic status, and an inability to meet basic needs are associated with less frequent patterns of help-seeking and lower rates of mental health treatment utilization (13, 14). Food insecurity is associated with poorer mental health outcomes, including increased rates of depression and stress (15), impaired mental health status (16), and increased mental health diagnoses (17).

One shortcoming of existing research on help-seeking and treatment engagement for Hispanic adults is that studies frequently collapse groups from various backgrounds and nationalities together, or exclude Spanish-speaking clients altogether (13). In order for intervention efforts to more effectively reduce disparities for Hispanic populations, research is needed that illuminates the unique experiences and perspectives of subgroups within Hispanic communities. While valuable research is emerging on mental health care for Hispanic adults of Mexican descent on the U.S.-Mexico border (18, 19), the border itself reflects a vast range of diversity along its 1,954 miles. As such, interventions that are tailored to regional perspectives and needs may be more effective at reducing mental health disparities at the community level. This study aims to fill the identified gaps by eliciting the perspectives of Hispanic adults primarily of Mexican descent located in the Paso del Norte region of the U.S.-Mexico border through community-engaged, culturally responsive, and linguistically appropriate qualitative research.

Recognizing the association between the inability to meet basic needs and less frequent mental health help-seeking, as well as the relationship between food insecurity and poorer mental health outcomes, this study recruited participants from one of the largest food pantries in the Paso del Norte region. The specific aims of this study were to: (1) better understand regional perspectives on mental health and mental illness, (2) identify regional and cultural barriers to mental health help-seeking and treatment engagement from the perspective of community members who may be experiencing unresolved mental health conditions, and (3) to elicit community member recommendations for mental health agencies and providers. This study is situated within a larger research program aimed at reducing mental health disparities for Hispanic adults living in the Paso del Norte U.S.-Mexico border region. Findings from this study will inform the development of a community-grounded mental health engagement program, which will next be pilot tested for acceptability, feasibility, and preliminary efficacy.

2. Materials and methods

For this qualitative exploratory study, data were collected from four focus groups conducted during April 2022 with 25 participants. Researchers aimed for focus groups consisting of five to eight participants each (20), although remained flexible. The focus groups consisted consecutively of nine participants, eight participants, five participants, and three participants. The first three focus groups were conducted entirely in Spanish, and the final focus group was conducted in both Spanish and English simultaneously. The primary moderator for this group was able to present questions in both English and Spanish and translate participant contributions in real time given the small size of the focus group. All screening interviews and focus groups were conducted by trained graduate research assistants under the guidance of the lead investigator, a doctoral prepared licensed clinical social worker with expertise in clinical interviewing and interventions.

Participants were recruited through convenience sampling at one of the region's largest food pantries. Agency staff assisted in recruitment efforts by distributing a paper flyer in both English and Spanish with the study information to individuals receiving services at the food pantry. To be eligible to participate in this study, individuals had to be 18 years or older, identify as Hispanic, and live in El Paso County, Texas. Those who were interested in participating were tracked using a participant interest log that was provided to the research team. Research team members and agency staff contacted interested participants by phone or in person to schedule the screening interviews and focus groups. Focus groups for participants who met selection criteria and provided informed consent were conducted directly after their screening interviews. All individuals who expressed an interest in participating in the focus groups met the inclusion criteria detailed above; therefore, no individuals were excluded based on not meeting study eligibility criteria.

For the first focus group, three scheduled participants arrived at the scheduled time, with one bringing an additional person interested in participating. As this focus group took place during busy hours at the agency, five additional participants expressed interest that day, and after screening all of these potential participants for eligibility, all nine were included in the focus group. For the second group, eight of the nine scheduled participants arrived at the scheduled time, screened eligible to participate, and were included in the focus group. For the third focus group, five of the seven scheduled participants arrived at the scheduled time, screened eligible to participate, and were included

---

[1] The term Hispanic as an ethnonym was chosen by the research team to encompass anyone of Latin American descent who may be living in the border region and participating in this research. The research team recognizes the limitation of using this as an umbrella term and therefore asked participants to provide further information about their ethnicity in an open-ended question.

in the focus group. For the fourth focus group, four of the eight scheduled participants arrived at the scheduled time and screened eligible to participate. One of these participants decided not to participate, so three were included in this focus group. Research team members reached out to all who were not present at the scheduled time of their screening interview and focus group to attempt to reschedule, but all were either no longer interested or not reachable by phone.

Once a participant was screened eligible to participate and provided informed consent, sociodemographic data and information related to mental health treatment history were collected through a self-administered paper survey. Upon all focus group members' completion of this survey, focus groups were facilitated by a primary moderator while a secondary moderator took notes. All focus groups were recorded using two audio recording devices in case one device malfunctioned. Focus groups were conducted using a semi-structured focus group guide developed by the research team in collaboration with agency staff and in consultation with cultural content experts. Question domains included (1) perceptions of mental health and mental illness, (2) help-seeking behaviors, (3) barriers and facilitators of help-seeking and treatment access, and (4) recommendations for mental health agencies and providers. Questions were structured in the focus group guide to move from general to specific (20), with optional follow-up prompts the moderator could use to help guide the conversation. Snacks, beverages, and a notepad with pen were provided to all focus group participants. Focus groups began with introductions and establishment of community agreements prior to engaging in dialogue around study subject matter. Focus groups ranged from 62 to 89 min in duration.

The Institutional Review Board at The University of Texas at El Paso approved the research protocol. All participants provided their written informed consent to participate in this study.

2.1. Data analysis

Descriptive statistics were utilized to present study sample characteristics and previous experience with mental health help-seeking and treatment utilization. Qualitative data analysis reflected Marshall and Rossman's (21) seven-step process, including (1) organization of the data, (2) immersion in the data, (3) generation of themes and subthemes, (4) coding of the data, (5) interpretation of data through analytic memos, (6) consideration of alternate understandings, and (7) dissemination of study findings. Data from focus groups were transcribed and translated into English prior to analysis. Focus group data were then placed into a Word document with minor revisions to correct spelling and other typos. Transcripts were organized both by focus group and by the following question clusters: (1) perceptions of mental health and mental illness, (2) help-seeking behaviors, (3) barriers and facilitators of help-seeking and treatment access, and (4) recommendations for mental health agencies and providers. Although organizing the data conceptually by question cluster can be viewed as a form of deductive coding (22), researchers were encouraged to explore and examine the raw data more naturalistically utilizing an inductive process to determine actual themes and subthemes. Given some overlap between question cluster organization and overarching themes in this study's findings, the data analysis process reflects more of a mixed deductive-inductive approach, which is common in thematic analysis (22). A secondary content analysis was conducted to determine the number of participants speaking to each theme and subtheme (23).

In order to identify salient themes and subthemes, two researchers independently read and reread the transcripts as organized by focus group. They then read and reread the transcripts organized by question cluster, using open coding to identify patterns and themes throughout the transcripts (24). This resulted in each researcher independently developing a set of themes and subthemes. These two researchers negotiated a coding framework utilizing Padgett's (23) process of "consensual validation" (p. 250), an iterative and flexible process where researchers present, compare, and collaboratively revise the coding framework to reach consensus, all while grounding the process in the data. One researcher coded the transcripts using this agreed upon coding framework. To triangulate the data and minimize researcher bias, two additional researchers – one an expert in the content area and the other a community provider – reviewed the raw data and coding and suggested additional considerations and revisions. All four researchers participated in the writing and interpretation of findings. All analysis was conducted in Microsoft Word and Excel. As part of participant checking, findings were reviewed with agency leadership where participants were recruited from. Feedback was provided throughout the analysis, and a member of agency leadership collaborated on study design, data analysis, and drafting of this manuscript.

2.2. Participant characteristics

All participants identified as Hispanic and were provided with an option to elaborate on their ethnicity and heritage. Most participants indicated they were of Mexican descent (68%), with two participants (8%) indicating a mixed ethnicity – one as Mexican American/American Indian and the second as Mexican/Irish. One participant (4%) identified as "Chicano." Seven participants (28%) chose not to expand on their ethnicity and heritage. Roughly two-thirds (64%) of participants identified as female, with the remaining identifying as male (32%) or preferred not to answer (4%). Participants ranged from 32 to 75 years of age, with a mean age of 40.04 (SD = 11.17 years). Forty percent were married, and the remainder were either single (28%), separated or divorced (20%), widowed (4%), or declined to answer (8%). Participants reflected a range of education levels, with the last schooling completed as elementary school (12%), middle school (12%), high school (32%), general educational development (GED) (16%), some college (4%), a bachelor's degree (4%), and a master's degree (8%). Three participants (12%) declined to provide information on their educational background. Household annual income ranged from $0 (20%), $1–$9,999 (20%), $10,000–$24,999 (20%), $25,000–$49,999 (8%), and $50,000–$74,999 (8%). Six participants (24%) declined to provide information related to family income. Roughly half (48%) reported needing mental/behavioral health services in the past; 10 participants (40%) reported utilizing services, including counseling for mental health, depression, and anxiety, while two (8%) reported using psychiatric medication services. Seven of the 10 participants who had previously utilized services were satisfied with the quality of services they received.

3. Results

The specific aims of this study were to: (1) better understand regional perspectives on mental health and mental illness, (2) identify regional and cultural barriers to mental health help-seeking and treatment engagement from the perspective of community members who may be experiencing unresolved mental health conditions, and (3) to elicit community member recommendations for mental health agencies and providers. Qualitative data analysis yielded the following themes and subthemes as they relate to these aims: (1) understanding of mental health and help-seeking ($n = 16$) with subthemes of beliefs and viewpoints ($n = 13$), lived experience ($n = 7$), and helping yourself and others ($n = 10$) (aim 1); (2) barriers to accessing care ($n = 19$) with subthemes of stigma ($n = 12$), individual factors ($n = 10$), and systemic challenges ($n = 12$) (aim 2); (3) mental health treatment facilitators ($n = 7$) with subthemes of motivation ($n = 3$) and natural supports ($n = 4$) (aim 2); and (4) recommendations for agencies, providers, and researchers ($n = 16$) with subthemes of outreach and education ($n = 5$), improving mental health services ($n = 13$), and community engagement and research ($n = 7$) (aim 3). Please see Figure 1 below for a visualization of these themes and subthemes. Figure 2 provides some representative quotes for each theme and accompanying subthemes.

3.1. Theme: understanding of mental health and help-seeking (n=16)

Participant responses reflected a broad range of views on mental health and help-seeking, with cultural attitudes, values, and stigma around mental health influencing perceptions of mental health and treatment as a common thread across groups. Many participants shared strategies for dealing with mental health conditions rooted in their own experiences and observations. Others shared their evolution in thinking around mental health and their distrust of mental health service delivery systems. These perspectives are reflected in the following subthemes.

3.1.1. Subtheme: beliefs and viewpoints (n=13)

Cultural beliefs were prominent throughout the focus group discussions. One participant spoke directly of gender role expectations in Mexican culture, describing needing mental health treatment as "something very taboo, something that is not needed if you are a man. You are a man and you do not need help so they can control your mind." This participant elaborated that as men age, they begin to see mental health as "something that is required because we are not always strong." Others spoke more broadly about cultural stigma, with one participant sharing:

> My experience was that I was in Mexico and never heard the word psychologist and then I come to the United States and… this one goes to the psychologist, and what is that and why do they go then, because they are crazy and I'm not crazy… [in] the Latino community, everyone refuses to see a psychologist because they are not crazy… I have to admit I went once and I'm embarrassed to tell my friends for the same reason the community is closed to that.

Stigma, fear of being negatively perceived by others, and judgment permeated participants' conceptualization of mental health, mental illness, and substance use. One participant shared, "the culture of Mexico and the one here is very different… I'm telling you about values… if they teach you good values, you are not going to grasp that

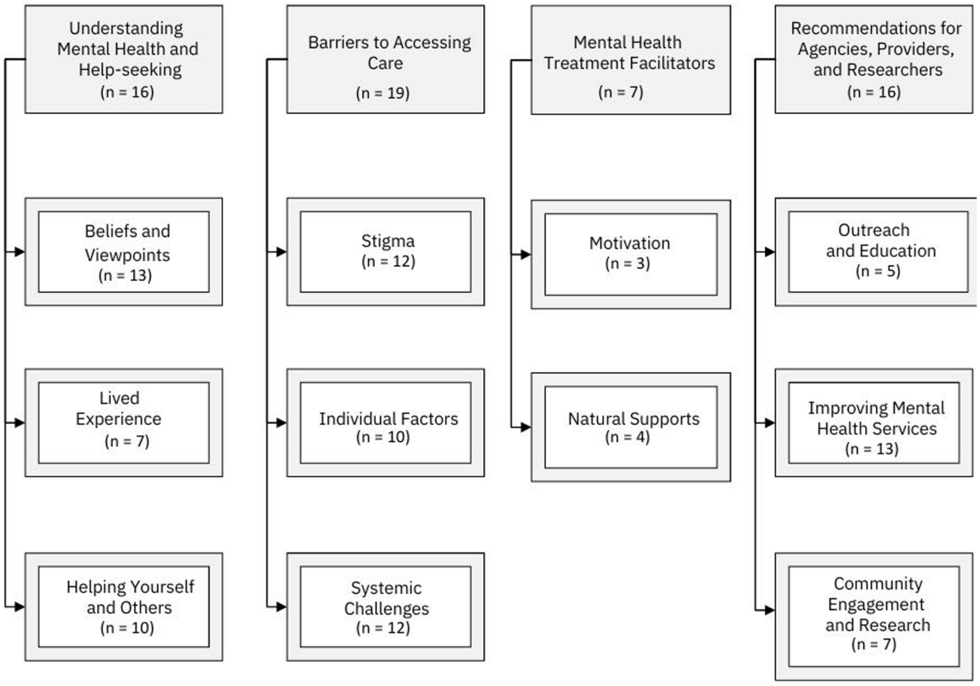
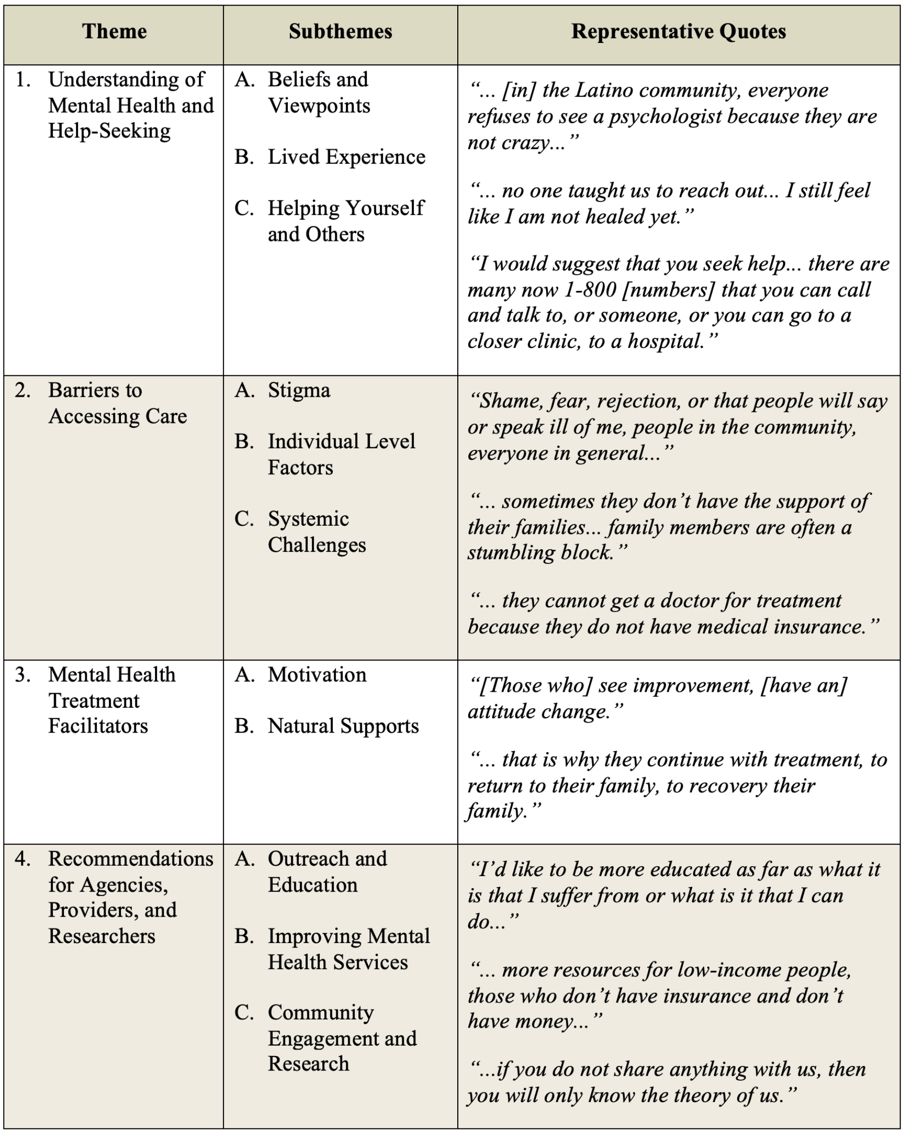


FIGURE 1
Themes and subthemes.



Theme	Subthemes	Representative Quotes
1. Understanding of Mental Health and Help-Seeking	A. Beliefs and Viewpoints B. Lived Experience C. Helping Yourself and Others	*"... [in] the Latino community, everyone refuses to see a psychologist because they are not crazy..."* *"... no one taught us to reach out... I still feel like I am not healed yet."* *"I would suggest that you seek help... there are many now 1-800 [numbers] that you can call and talk to, or someone, or you can go to a closer clinic, to a hospital."*
2. Barriers to Accessing Care	A. Stigma B. Individual Level Factors C. Systemic Challenges	*"Shame, fear, rejection, or that people will say or speak ill of me, people in the community, everyone in general..."* *"... sometimes they don't have the support of their families... family members are often a stumbling block."* *"... they cannot get a doctor for treatment because they do not have medical insurance."*
3. Mental Health Treatment Facilitators	A. Motivation B. Natural Supports	*"[Those who] see improvement, [have an] attitude change."* *"... that is why they continue with treatment, to return to their family, to recovery their family."*
4. Recommendations for Agencies, Providers, and Researchers	A. Outreach and Education B. Improving Mental Health Services C. Community Engagement and Research	*"I'd like to be more educated as far as what it is that I suffer from or what is it that I can do..."* *"... more resources for low-income people, those who don't have insurance and don't have money..."* *"...if you do not share anything with us, then you will only know the theory of us."*

FIGURE 2
Representative quotes.

[drugs]." Another participant shared, "When they hear mental illness, they already think they have a bad brain. So mental health is crazy. Already because one has nerves it is already mental. No… no… no… that's why I do not say anything to doctors." One participant described mental illness as "something is not right inside you," while another observed:

> Back then it was mental retardation, so that is politically incorrect now… the whole mental health was, you know, you are a retard. In my family it was really a no-no, you really didn't suffer from that kind of stuff. If you did, go figure it out… Nowadays, people are starting to understand that it's a broad range of things… there's a lot of things we suffer from.

Some participants viewed mental health conditions as something they have observed happen to other people. In reflecting on knowing people with depression, Alzheimer's, and schizophrenia, one participant stated, "what comes to mind is someone who needs help." Another participant shared, "these people need a lot of help… because many times we judge people, this person is sick in his mind… they are not bad because they are people who are in a bad mind." This participant continued, "we should not be afraid because we should help our neighbor because the biggest thing can be for that person and tomorrow it can be us."

Several participants compared mental health conditions with physical health. One participant shared, "When you are very depressed, they say that if you do not talk to someone or a psychologist to help you understand what is happening, that's when illnesses come out, you start to get sick, with this or that." Another participant shared, "Depression is like cancer that eats away little by little." This participant stressed the importance of treating mental health problems, "if you have mental problems, do not be embarrassed, it's a disease that you should seek treatment for." Another participant similarly shared the importance of seeking help early, "before the problem gets longer or complicated… I think there are consequences if they do not go, well, they will struggle more." One participant shared:

> I think of [mental health treatment] as a great wasted tool… you have a fever, you go to the doctor, and you go to a normal doctor, but if you have a [mental health] problem, there are doctors who can help you or specialized people like psychologists or psychiatrists… most of the people I've dealt with do think that it's useless and I came to think that too until I found out that it's not.

3.1.2. Subtheme: lived experience (n=7)

In addition to a broader understanding of mental health and mental illness, several participants shared their personal experiences with mental health. One participant shared:

> Depression is very ugly, only those who have been through it know this and sometimes one doesn't talk about it either. High blood pressure, multiple illnesses, it brought asthma to me… You feel you are inside a glass and here you stay there and there is no way to let go, there is no way to say that you feel bad… nothing matters… does not matter your life, you do not care about the lives of others.

Another participant validated the potential severity of mental health challenges, "It makes me very sad to know when someone commits suicide and… there was no one to help him, because that's what depression will lead to, suicide… he/she did not find someone quickly."

Some participants shared the impact of their own traumatic experiences, with one sharing, "I suffer from past experiences, whether it be doping up or getting beat up by my parents. It's the trauma that I went through." This participant shared frustration with professional treatment responses, "It is what it is nowadays, they can give you a tic tac for anything, that is all they want to do is keep you on some meds." He continued, "I myself for a long time did not want to admit that I suffered from mental health because obviously the stigma behind it, but now it is a little more accepted… I do take part in my therapy." This participant also shared about his recovery journey, "I've been suffering from mental health for obviously quite some time… I started self-medicating, so I have been in active addiction… for like 30 some odd years. I am in recovery now."

Other participants shared fears about talking about their experience with mental health. One stated, "I did not tell my friends because they thought I was crazy." Another shared, "Before people would not talk about it, your dad drinks, okay shut up, do not say nothing, leave it, go to sleep, tomorrow is another day." This participant continued:

> That is where the abuse is at, and the whole family just want to wait, don't say nothing… no one taught us to reach out… I still feel like I am not healed yet. I do not think I will ever be healed. I feel like with my past trauma, and my trauma bag is so full, that sometimes I just break down, it's too much.

Another participant shared, "My daughter has also seen me very bad when we have video calls, sometimes I am so very sad and I cry." This participant shared her own challenges with accessing services, "… my daughter tells me she's going to Juárez, mom, if they cannot get help there, go to Juárez, look for a psychologist… but I'm afraid to go to Juárez."

For some, the conversation about mental health elicited experiences observed in friends and family. One participant described, "I also know another person who was in the army when he was very young and everything that happened to him… he has problems because he remembers everything he lived through." Another shared, "I learned a lot with my daughter… she went to therapy and recovered a lot, to the psychiatrist and she is very well… but she was not out of her mind." These personal and shared experiences reflected a shift in thinking about mental health for focus group participants, which was also reflected in their discussion on how they might help themselves or someone else who may be suffering from a mental health condition.

3.1.3. Subtheme: helping yourself and others (n=10)

Several participants shared strategies for helping others address their mental health. One shared, "I would try to sit down and talk with him and listen to him. What is his problem? What does he feel? … and maybe with that talk, he can release a little bit of the pressure he feels." Another participant responded:

> It is about helping to provide them with a tool, to give them a little punch so that they go to help their family member or themselves if they are going through that situation… that they do not let these things pass lightly because over time everything gets worse. I would suggest that you seek help, because it is very sad to see them lock themselves in their world of… not asking a friend for advice… or seeking help for the simple fact of fear that they will be judged.

One participant described a nuanced approach to helping others:

> I have helped people by guiding them to therapy, but what I have seen is that you cannot arrive and say you don't know what you need is therapy, listening to see how his point of view is going and at some point, looking for a way to guide him.

Another participant shared, "I would suggest you seek help… also help you find help, a center or find a place where you can," continuing, "there are many now 1–800 [numbers] that you can call and talk to someone or you can go to a closer clinic, to a hospital."

Several participants described the importance of having support of family, friends, and a spiritual connection. One shared, "I think that first of all, one should put God in the first place and then… counseling that person, talk to them, give him love, give him support." He continued, "… you have to have a good friend or a good person… with whom to talk." Another shared, "There are many people who call mental problems that the only thing they need is affection, attention from relatives." One participant shared the challenges with trying to help others:

> I realize that you can't make someone do something you do not want to do… I suggest it to my friends but I can't force them to, I want them to but I can't force them to do something… That is the choice they have to make.

One participant shared the power of being a living example, "… with my own family and relatives… whoever knows my story, I tell them, if I can do it, you can do it, I am living proof right here, okay I am not perfect, but I did it." This sense of a collectivist orientation toward helping yourself and others was clearly reflected in the personal stories that participants shared.

3.2. Theme: barriers to accessing care (*n*=19)

Although some of the barriers to accessing care experienced by focus group participants were alluded to when describing their understandings of mental health and help-seeking, including stigma and difficulty accessing care, these were elaborated upon during directed dialogue around barriers to help-seeking and accessing care.

3.2.1. Subtheme: stigma (*n*=12)

Stigma, shame, and fear of how they might be perceived were prominent themes in discussions of barriers to accessing care. In one focus group, multiple participants spoke collectively about this barrier, "Shame, fear, rejection or that people will say or speak ill of me, people in the community, everyone in general." This reflection came up at the individual level in all focus groups. One participant shared, "…the other [barrier] is shame… they feel like they are going to be told they are crazy." Another added, "We ourselves judge what we hear in the community… she may be mentally ill, we do not know… when you say she is crazy… that is why they are afraid to… ask for help." This participant later clarified, "It is not that fear is so much, his brain at that moment is blocked, that is, he is not thinking, that is why we need the help of the other friends and relatives." One participant shared, "They say the man is crazy. He went to ask for help, and there are about 27 places where they can help him, but it is the pride and shame that one does not want." Another participant shared:

> We know where they can help you and we keep quiet, for the simple fact that no, they will say that I am nosy or maybe they will judge me badly… it is the fear of being judged or fear of the family itself that is the first to judge, without knowing the reasons why… because the family is the first to judge.

Another described this as "the fear, the rejection of the family that he is crazy, mentally ill and oh, we have to separate from him." One participant shared a similar sentiment:

> The ego is also a very strong barrier… because of the way we are, how we developed in Mexico, that way, yes, what will they say and what is the neighbor going to say, what is he going to say? … what do you think, that her son went to a psychologist or I knew that so and so's girlfriend brings problems and there is a lot of talk in society.

A different participant concurred:

> I think the number one [barrier] would be bullying. He's going to that; it means he's crazy and the community is already starting to make fun of him. To the person who needs help and goes to a mental health center, the other people later describe him as crazy and that is why he is going there, and they bully him.

Although shame and stigma were prominent themes in the discussion of barriers, one participant offered a glimmer of hope in how people think of those with mental health conditions:

> There was something obviously wrong, you are not all there, you are not playing with the full deck, right, so that is the stigma. Nowadays, obviously people become more educated about and know that… you suffer from a lot of illnesses, anxiety being one of the main ones.

3.2.2. Subtheme: individual factors (*n*=10)

Participants identified various individual factors that shape help-seeking or the ability to access mental health services. Some of these were related to the individual's circumstances. One participant identified poverty as "the number one reason" for their inability to access services. Another added, "[a] lack of time, single mothers cannot go because they have to work. That is also lack of time… work schedules… well-being, living in poverty." Another similarly shared:

> They make the excuse of time. It's just that I don't have time, it's that right now I have another more important appointment and I'll attend to that later. Time is its worst enemy… it is the most common excuse, that there is no time.

Other participants shared about low motivation, acceptance of having a mental health condition, and lack of progress as barriers. One shared, "… if you do not continue the treatment, it's because it's not helping you." Another stated:

> He went two or three times due to pressure from his family, due to pressure from his wife and he went, but he never had the intention of… never accepted that he had a problem. The internal reasons such as fear, especially fear of facing their own responsibility.

One participant identified "lack of support" as a barrier, while another shared, "sometimes they do not have the support of their families… family members are often a stumbling block."

A lack of awareness of mental health conditions was also understood as a significant barrier for many participants. One described this as "the lack of education… if we were well educated like the American culture, for example, that it is very normal that you pick up the child from school and take him to the psychologist." One participant described:

> What happens is there is a lack of information… people need to have help with a little information and a lot of it confuses their mind, that is why they do not seek help… there are many people who need help, and more so with this that COVID has just passed. A lot of stress, confusion, many attacks of hysteria, and it was all for the same reason that there is no information and that is why many people shut down and do not want to receive help, even if they need it.

Another participant shared:

> If he were educated by now, it would be another decision that it is for his own good and that they can help him… the person does not go because of fear, because [he] is not informed… the information is not made known to many people who do not have access to information like this, but the help does exist.

Some participants also identified their fear of treatments and providers as barriers. One described, "they do not feel good with the medicine… instead of helping, [they] make them feel worse. They do not want to follow treatment." Lastly, a participant described:

> Even if I felt half crazy, I still don't go to a psychiatrist. I don't go to a psychiatrist because I'm afraid of them… I just tell them that I was sad, that if I wanted to die, they already wanted to send me to the asylum, well forget it, no… I no longer tell them.

3.2.3. Subtheme: systemic challenges (n=12)

Participants identified barriers related to mental health service delivery systems, including financial and insurance-related challenges, provider shortage and turnover, system failures, and provider characteristics. One participant identified language as a potential barrier.

Insurance-related challenges and an inability to pay for services were cited as barriers in all focus groups. One described the primary barrier to treatment as "Economics, first for some… they do not help themselves because they do not have the financial means to do so." Another participant stated:

> Many do not have medical insurance or some help they do not accept; they cannot get a doctor for treatment because they do not have medical insurance or they cannot pay even half or according to their resources they would have to pay this and if they cannot pay even that, they can't help you.

One participant shared, "… those that do ask for insurance, if they do not have insurance, they do not take it now, anywhere, if you do not have insurance, you do not get it." Another identified as a barrier, "Money… Money and lack for those who have insurance there are no psychiatrists… they do not get this insurance or they do not get the other one and it's impossible." In reflecting upon why someone would not seek services, one participant shared:

> In our Latino community, the big barrier right now is money… That is very expensive, one has the mentality that it is going to be very expensive and yes, it's expensive, but that's one of the reasons, paying for the treatment.

Another described a friend who "came to therapy and got his whole family involved and started spending a lot of money, got excited… then the time came when he said 'I cannot anymore, it's too much money.'"

Provider shortage, turnover, and waiting times were frequent points of discussion. One participant shared, "There aren't that many therapists, there aren't that many people…" Another shared:

> There are not enough doctors for the people who need help and the doctors that there are… are overbooked or they do not take this insurance, we do not take the other one, they only send it to [clinic name omitted] … if you go over there, they lock you up there.

In reflecting upon turnover, one participant shared, "It's very difficult mentally because you have already opened up with one person, they leave in 2 years, and then you have to start over and then with another." One participant in the same focus group responded, "And then with another person it is to explain everything again, right? That's how it is at [clinic name omitted], they put you with one person for 6 or 8 months and then they change him with another." Another described it as:

> Or they have a lot of people, they say… I didn't get the insurance anymore, okay, they give me a referral to [clinic name omitted] for 2 years to go to this place to see a psychiatrist… the problem of when there are people with fewer resources who send us to places like this… it is very difficult to find help because not everyone can help us.

Focus group participants shared additional observations about broken referral systems and processes. One participant described, "They gave me three numbers here and then I tried and they did not answer me at all, if not, they came back about 2 months later… it's that they have not answered me in these numbers." Another stated,

> They gave them a number here for different doctors, and she calls and nobody answers, so why give her number if no one is going to answer. I could give you 100 numbers and nobody answers so what is the purpose?

A handful of participants mentioned provider characteristics as barriers. One participant described discrimination as a potential barrier with providers paying "attention more in the Americans, in the white male," causing a person to withdraw from treatment. Someone rebutted:

> I think it's not because of color, or how to say a religion or nationality, a doctor doesn't see that, he sees the patient and what the patient is suffering and I personally have been treated the same. I consider myself Mexican, but all the time they have treated me the same as other people.

It was clear that participants were also considering goodness of fit between themselves and mental health providers. One participant described a therapist not meeting her where she was at, "I do not understand why they have to corner you when I go to therapy, it's because I want to, so I go and drop everything, everything I bring to receive help, but that person saw it [a different] way." Another stated,

> I felt like pressure and she wanted me to. I felt like she was pushing me a little too much… she is not seeing, or she is not listening where am I at that she is pushing me to get the goal… I felt pressure.

Whether systemic, individual-level, or stigma-related, the barriers participants shared provide insight into the challenges Hispanic adults in the U.S.-Mexico border region experience when seeking and accessing mental health services.

3.3. Theme: mental health treatment facilitators (*n*=7)

Some participants identified factors that promote help-seeking and retention in mental health services. These primarily encompassed motivation and utilization of natural supports. Other treatment facilitators can be implied through previous sections on understanding mental health and barriers to seeking and receiving services.

3.3.1. Subtheme: motivation (*n*=3)

Three participants described motivation as a facilitator of mental health treatment utilization and retention, reflecting the importance of intrinsic motivation and self-determination. One participant shared, "The person who wants to regenerate, regenerates… the consistency of the person who wants to improve himself, who wants to get out of what he brings, of his problems." Another stated that people are more likely to stay in treatment if they "see improvement, [have an] attitude change." Lastly, a participant described "motivation towards something that works, to continue using it… use what works for you, if you already know what works for you, use it."

3.3.2. Subtheme: natural supports (*n*=4)

The importance of family support was similarly cited as a facilitator of treatment. One participant described "family support, more than anything" as critical to supporting someone's mental health recovery. Another participant shared,

> The support of the family is very helpful, because they see that the family is with them and the more the family is united, the faster they come out of what they go through because they see the family unit there is. On the other hand, if they leave them, then I won't go with you or I'll take you later. It helps a lot that the family is supporting them.

One participant shared, "The family too… if they are in treatment, and they think of their family, that is why they continue with treatment, to return to their family, to recover their family." In addition to family, another participant shared, "I go to support groups… there are a lot of support groups all around."

The mental health facilitators described by participants reflect intrinsic and extrinsic sources of motivation, and the cultural importance of family.

3.4. Theme: recommendations for agencies, providers, and researchers (*n*=16)

Participants made several recommendations to promote help-seeking and improve access to mental health services. These included increasing outreach, providing more direct education, engaging the community in awareness building and research, and improving aspects of mental health service delivery systems.

3.4.1. Subtheme: outreach and education (*n*=5)

Many participants stressed the importance of public awareness and educational campaigns to increase community knowledge of mental health and available resources. One participant suggested that providers "make more brochures, put up brochures, and go out into the community to make them understand that there are places… [that] can help them." Another participant agreed, "it is good that they put up little signs like that… do you need help? You can talk to this person." This participant continued:

> Let's go out like as a community that we are interested in the other neighbors so we are going to give a little pamphlet… it would be very interesting for people to see information about this wherever they go, so that they have knowledge that there are agencies that can help them.

Others similarly emphasized the importance of spreading the word about mental health conditions and potential treatment options. One stated:

> When you go to the hospitals or enter the bathrooms and they tell you, "do you feel safe at home?" And if you don't, you get an 800 number and call, right? Then why not put, "you feel drowned with your thoughts?" … you can call someone too.

Another participant shared about attending educational classes in Mexico for physical health conditions where "they also put a class, they did not say it at first. They said it was more for… those three [physical] problems… but they also included a psychologist and then they created a space without openly saying it."

One participant recommended more explicitly that mental health providers offer more education about mental health conditions, sharing, "I'd like to be more educated as far as what it is that I suffer from or what is it that I can do…" He continued:

> It needs to start earlier so that way obviously kids know [what] the symptoms are… show what exactly symptoms of the common anxiety, depression, PTSD… the ones a lot of people are dealing with. I would say educate them as far as what are these symptoms, what is it that you are feeling, so people can recognize it.

3.4.2. Subtheme: improving mental health services (*n*=13)

While participants emphasized providing more education, several participants also suggested specific improvements to mental health service delivery systems, including increasing resources and funding, integrating mental health services in other settings, providing more client-driven care, utilizing existing resources, and creating new treatment opportunities.

Given that financial and insurance-related challenges were prominent barriers identified by focus group members, it is understandable that participants had recommendations related to overcoming this challenge. One participant recommended ensuring "that insurance is not a problem to reach that [mental health] resource." Another identified a need for "more resources for low-income people, those who do not have insurance and do not have money…. And the government should provide money for these things that are very important… instead of going to build a better wall." This participant similarly noted the importance of increasing access through reducing extensive waitlist times. Another participant similarly recommended "being flexible in the schedule… their appointments are very full, then it is very difficult [to access services]." One participant suggested "free counseling services to those in need." A participant from a separate focus group similarly suggested, "Since this is something that concerns the entire country, I think it would be a good idea for the country to invest funds to make the visit to the therapist more accessible."

One participant recognized this as a need for more agencies, "more rehabilitation centers have to be opened so that all people with needs have access." Another participant shared, "… we need more of these community services so that in case they cannot afford one, or the insurance does not catch you here, then there should be extra help." One participant described this as, "help without so many requirements, because sometimes they ask for so many requirements that for this reason, many people cannot."

Other participants provided additional recommendations for improving mental health service delivery systems, with a handful touching on integrating mental health services in other settings. One participant shared, "My advice would be that those people who want to start doing this help… that they be integrated right now in clinics that are for the community." Another participant shared:

> Take advantage of the possible groups that already exist with other reasons that have to do not with mental health, that have to do with perhaps physical health. I think that already there are those groups and… focus on those groups that already exist and add that part to them.

Across focus groups, participants discussed rethinking how we engage people in mental health services. One participant recognized that individuals with mental health issues are "not going to approach you [providers]," making a case for more active engagement and outreach. This participant shared the importance of personally inviting people into services, "we can invite someone else and here it says here, we have this if you have any problem, you can call and it's something important." Another participant shared:

> …an agency or social worker… when they know of a person who has problems… call them or visit their home to find out how they are, or a simple greeting… are you okay, or what do you think if I give a little visit to see how you are doing? How does he feel?

Meeting clients where they are at, and treating them as individual human beings, was a common theme. One participant suggested, "not [seeing people] with dollar signs." Another responded, "that they see people as people, not as a patient… they have the heart of compassion for people." One participant reflected on negative interactions with providers, "many times when something is already negative, and you listen to something you do not like, you say it's over. But as long as it's being positive, that's what's going to continue." One participant shared frustration with providers prioritizing medication as the treatment option:

> …they just want to give you medication… how about I try something else before we resort to that, why don't you educate me about it, and figure out what we can do, so that way I learn other things to do.

One participant shared the importance of obtaining community endorsement for services, "look for people who were leaders in communities and neighborhoods" to bring more people into mental health services.

3.4.3. Subtheme: community engagement and research (*n*=7)

Participants shared openly about their experiences participating in studies like this and the importance of engaging communities in research to improve the community and individual access to mental health services. One participant shared, "The community really needs help, and thanks to you for these studies that you are doing… because we can focus on something that is going to change, that is going to come." Another participant observed through participating in this study, "that the people be concerned, what they are doing is very good, that they are worrying about us for everything, for the community, that is very good." Another shared:

> You don't just come to come, you come because you want to learn from us. And we don't know anything about you … we are going to need people like you to come here to open our eyes to continue moving forward, better than worse.

Another participant suggested involving others in this line of research:

> … look for information on whether there is someone else interested in the same topic so that it is… stronger on the subject… it would be better because the system was more complete and it would be of more help both for the person who is going to do it and for those who are going to receive the help.

Others similarly suggested expanding the scope of research and fostering dialogue between communities and researchers. One suggested that researchers "should try to do this, but with the same people who need the help, to see what their opinion is too." Another suggested:

> Why not do it with a wider community? If you speak with more groups, you share [with us] and so we know what is happening… if you do not share anything with us, then you will only know the theory of us.

4. Discussion

Research explicitly focusing on the unmet mental health needs and mental health experiences of Hispanic populations is limited. The present study explored the unique and personal experiences of Hispanic adults, primarily of Mexican descent, living in the Paso del Norte U.S.-Mexico border region. A significant finding in this study is the relationship between cultural beliefs and values and mental health stigma as a barrier to talking about mental health and seeking mental health services. For some participants, seeking mental health treatment was seen as a weakness. These findings are consistent with previous literature on factors that broadly impact help-seeking behaviors in Hispanic populations (12, 25).

Participants shared specific nuances around how their perspectives and viewpoints evolved though living in a binational bicultural community. Many of our participants have lived experiences on both sides of the border, a unique contribution of this study. For some, the experience of crossing the U.S.-Mexico border provided exposure to different ways of thinking about mental health that then impacted their own thinking. Several participants shared their perspectives of mental health becoming less stigmatizing on the U.S. side of the border, carrying potential implications for an association between length of time in the U.S. and mental health stigma.

Our findings also align with previous research on general mental health treatment experiences and utilization for Hispanic populations. Language barriers, unfamiliarity with cultural beliefs, and an inability to obtain insurance or afford treatment were all cited as barriers for our study population, consistent with previous findings on mental health treatment utilization for Hispanic populations (26). Other barriers included a lack of time, competing priorities, and a lack of awareness and education. Throughout our conversations on barriers, prominent underlying factors included poverty, stigma, and shame. These frequently stem from systemic racism, sexism, and colonization (27), often resulting in collective oppression-based traumas that disproportionately impact communities of color (28) and shape how they view and seek professionalized services.

Participants expressed a wide range of views of mental health service systems and treatment providers, often reflecting a distrust of the system. The present thematic findings suggest mostly negative perceptions related to (1) feeling judged or pressured by providers, (2) being routed to restrictive services like involuntary commitments, (3) feeling that systems are focused more on money than helping, (4) working with providers who are quick to jump to medication when less restrictive options are preferred, (5) service delivery systems that are difficult to navigate, (6) long wait times to be seen, and (7) frequent provider turnover. Addressing these systemic barriers will be critical as we seek to improve service delivery systems for all populations.

Participants also identified factors that help people seek and stay in treatment. Experiencing a perceived positive benefit of treatment was cited by multiple participants in promoting treatment adherence and success. Natural supports, including the encouragement and assistance of friends, family, and support groups were also seen as critical to finding the motivation to seek treatment and being successful in treatment, consistent with existing literature (29). Participants shared many recommendations for encouraging help-seeking and improving mental health services, which are highlighted below.

4.1. Practice and policy recommendations

In addition to learning about participants' understanding and experiences with mental health and treatment, our next step is to use these findings to develop an innovative, culturally responsive mental health engagement program. Recognizing that evidence-based practices are often inadequate in meeting the needs of communities of color, we have adopted a "bottom-up" approach to program development and implementation (30). We know that no culture is homogenous, and treatment providers and program developers should engage potential recipients of services, as we did in this study, to better understand how program components may or may not align with cultural beliefs, values, and practices.

The cultural responsiveness of any intervention is critical to its success. Barrio (31) recommends that eliciting family support and providing group modalities may be most effective for cultures reflective of socio-centric thinking. In our study, this concept was evident in the sense of community belonging developed amongst focus group members, in the identification of family support as so critical to treatment success, and in the value gained through helping those in their lives with mental health challenges. A collectivist orientation was prominent throughout the conversations on help-seeking and should be emphasized in treatment approaches.

In honoring historical and present cultural trauma, program development and implementation should recognize the impacts of racism, sexism, and colonization on Hispanic adults' perceptions of professional help systems. This approach will better equip the mental health treatment community to incorporate culturally responsive practices into their treatment. Some practical strategies for achieving this include fostering interpersonal relationships, promoting a collaborative model of care, providing education on mental health and stigma, utilizing natural supports, including religion and spirituality, and ensuring culturally responsive providers (29). These strategies are all consistent with recommendations made by our focus group participants.

Above ensuring the cultural responsiveness of mental health programs, systemic barriers need to be addressed through policy and practice. While not unique to any one population, communities of color and those with lower socioeconomic statuses tend to be disproportionately affected by these barriers, as evidenced by less frequent help-seeking and treatment utilization (1). Focus group participants recommended the following strategies to improve mental health service delivery systems: addressing financial and insurance barriers, providing more client-centered care, growing mental health treatment resources, providing mental health care integrated within other settings, and providing more community engagement and outreach. These are all tangible improvements that can be made if supported by funding, policy, and practice guidelines.

4.2. Strengths and limitations

The methodological approaches taken in this study add to its overall strengths in three major ways. First, the involvement of a community agency in study development and research design increased the likelihood of methods and content being responsive to community needs. Second, help-seeking behaviors and treatment engagement often exclude Spanish-speaking participants altogether (13). All research was conducted in Spanish, English, or a mix of English and Spanish to honor participants' preferred language. Last, the research team shared similar ethnic characteristics and spoken language to the study population. Graduate research assistants who collected data were fully bilingual and from the same region as the participants. This approach helped foster trust and connection between researchers and participants throughout the study.

Despite these strengths, our study findings have limitations. Since all participants were recruited from a local food pantry, their perspectives may reflect only some of the larger community's perspectives on mental health and barriers to seeking and accessing care. Participants were also asked to share their views and predict the views of families, friends, and other community members. As such, some of the qualitative content may not reflect the participants' personal beliefs. Nevertheless, by requesting multiple perspectives and points of view, researchers collected rich data to reflect patterns and trends beyond just the focus group member experiences.

5. Conclusion

In this study, we strived to engage community providers and community members as active participants in this research, promoting a co-learning process and facilitating dialogue around the role that research can play in improving individual and community wellness (32). The rich conversations from these focus groups can be attributed mainly to the cultural congruence of focus group facilitators, meeting participants in a community-based agency, and providing the groups in participants' preferred language. Participants regularly shared gratitude for the research being conducted, sharing so openly about challenges they have experienced and providing strategies they believe will improve mental health help-seeking and treatment access for Hispanic adults in the Paso del Norte U.S.-Mexico border region. While there are several barriers to seeking help and accessing treatment, there is also a strong commitment to engaging in the work necessary to reduce stigma, improve access, and eliminate the mental health treatment disparities experienced by Hispanic populations.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The studies involving human participants were reviewed and approved by the Institutional Review Board at the University of Texas at El Paso. The patients/participants provided their written informed consent to participate in this study.

Author contributions

JM, RE, and CT contributed to the conception and design of the study. RE was the primary facilitator of the focus groups and translated and transcribed focus group content. JM organized all data and wrote the first draft of the manuscript. JM and RE performed initial independent data analysis. ER and CT cross-checked raw data with findings and provided recommendations for strengthening validity of coding framework. ER provided cultural content expertise during data analysis and manuscript preparation. CT provided community practice content expertise during data analysis and manuscript preparation. RE, ER, and CT contributed unique content to various sections of the manuscript. All authors contributed to manuscript revision, read, and approved the submitted version.

Funding

This work was partially funded through a University Research Institute grant from The University of Texas at El Paso and a Sobel-Duncan Health Disparities Research Award.

Acknowledgments

The research team would like to thank the staff, interns, volunteers, and program participants at the Kelly Center for Hunger Relief and food pantry in El Paso, Texas, for their contribution to this work.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

References

1. Substance Abuse and Mental Health Services Administration. Results from the 2020 National Survey on drug use and health. (2021). Available at: https://www.samhsa.gov/data/sites/default/files/reports/rpt35323/NSDUHDetailedTabs2020v25/NSDUHDetailedTabs2020v25/NSDUHDetTabsSect8pe2020.htm.

2. Cook BL, Zuvekas SH, Carson N, Wayne GF, Vesper A, McGuire TG. Assessing racial/ethnic disparities in treatment across episodes of mental health care. *Health Serv Res*. (2014) 49:206–29. doi: 10.1111/1475-6773.12095

3. Firth J, Siddiqi N, Koyanagi A, Siskind D, Rosenbaum S, Galletly C, et al. The lancet psychiatry commission: a blueprint for protecting physical health in people with mental illness. *Lancet Psychiatry*. (2019) 6:675–712. doi: 10.1016/S2215-0366(19)30132-4

4. Substance Abuse and Mental Health Services Administration. *Key substance use and mental health indicators in the United States: results from the 2020 national survey on drug use and health*. Department of Health and Human Services. (2021). Available at: https://www.samhsa.gov/data/sites/default/files/reports/rpt35325/NSDUHFFRPDFWHTMLFiles2020/2020NSDUHFFR1PDFW102121.pdf

5. U.S. Department of Housing and Urban Development. *HUD continuum of care homeless assistance programs homeless populations and subpopulations*. (2020). Available at: https://files.hudexchange.info/reports/published/CoC_PopSub_NatlTerrDC_2020.pdf

6. Bronson J., Berzofsky M. Indicators of mental health problems reported by prisoners and jail inmates, 2011–12. Bureau of Justice Statistics, 1–16. (2017). Available at: https://bjs.ojp.gov/content/pub/pdf/imhprpji1112.pdf.

7. Fortuna LR, Alegria M, Gao S. Retention in depression treatment among ethnic and racial minority groups in the United States. *Depress Anxiety*. (2010) 27:485–94. doi: 10.1002/da.20685

8. Falgas I, Ramos Z, Herrera L, Qureshi A, Chavez L, Bonal C, et al. Barriers to and correlates of retention in behavioral health treatment among Latinos in two different host countries: U.S. and Spain. *J Public Health Manag Pract*. (2017) 23:e20–7. doi: 10.1097/PHH.0000000000000391

9. Lady B., Henning-Smith C., Kunz S. Addressing health and health care needs in the United States-México border region: Executive summary. National Rural Health Association Policy Brief. (2017). Available at: https://www.ruralhealthweb.org/NRHA/media/Emerge_NRHA/Advocacy/Policy%20documents/05-11-18-NRHA-Policy-Border-Health.pdf

10. Cabassa LJ, Lester R, Zayas LH. "It's like being in a labyrinth:" Hispanic immigrants' perceptions of depression and attitudes toward treatments. *J Immigr Minor Health*. (2007) 9:1–16. doi: 10.1007/s10903-006-9010-1

11. Eghaneyan BH, Murphy ER. Measuring mental illness stigma among Hispanics: a systematic review. *Stigma and Health*. (2020) 5:351–63. doi: 10.1037/sah0000207

12. Mendoza H, Masuda A, Swartout K. Mental health stigma and self-concealment as predictors of help-seeking attitudes among Latina/o college students in the United States. *Int J Adv Couns*. (2015) 37:207–22. doi: 10.1007/s10447-015-9237-4

13. Cabassa LJ, Zayas LH, Hansen MC. Latino adults' access to mental health care: a review of epidemiological studies. *Adm Policy Ment Health Ment Health Serv Res*. (2006) 33:316–30. doi: 10.1007/s10488-006-0040-8

14. Polo AJ, Alegría M, Sirkin JT. Increasing the engagement of Latinos in services through community-derived programs: the right question project-mental health. *Prof Psychol Res Pract*. (2012) 43:208–16. doi: 10.1037/a0027730

15. Pourmotabbed A, Moradi S, Babaei A, Ghavami A, Mohammadi H, Jalili C, et al. Food insecurity and mental health: a systematic review and meta-analysis. *Public Health Nutr*. (2020) 23:1778–90. doi: 10.1017/S136898001900435X

16. Stuff JE, Casey PH, Szeto KL, Gossett JM, Robbins JM, Simpson PM, et al. Household food insecurity is associated with adult health status. *J Nutr*. (2004) 134:2330–5. doi: 10.1093/jn/134.9.2330

17. Muldoon KA, Duff PK, Fielden S, Anema A. Food insufficiency is associated with psychiatric morbidity in a nationally representative study of mental illness among food insecure Canadians. *Soc Psychiatry Psychiatr Epidemiol*. (2012) 48:795–803. doi: 10.1007/s00127-012-0597-3

18. Escobar R, Gonzalez JM, Longoria DA, Rodriguez N. Challenges faced by Mexican Americans when accessing mental health care service utilization along the South Texas-Mexico border. *JMHSB*. (2021) 3:128. doi: 10.33790/jmhsb1100128

19. Escobar R, Barrera I, Longoria DA, Gonzalez J, Melgoza I. Remedios: coping with mental distress among Mexican Americans in the Rio Grande Valley. *J Ment Health Soc Behav*. (2022) 4:162. doi: 10.33790/jmhsb1100162

20. Krueger RA, Casey MA. *Focus groups: a practical guide for applied research*. *5th* ed. Thousand Oaks, CA: SAGE Publications, Inc (2015).

21. Marshall C, Rossman GB. *Designing qualitative research*. *5th* ed. Thousand Oaks, CA: SAGE Publications, Inc (2011).

22. Nowell LS, Norris JM, White DE, Moules NJ. Thematic analysis: striving to meet the trustworthiness criteria. *Int J Qual Methods*. (2017) 16:1–13. doi: 10.1177/1609406917733847

23. Padgett DK. *Qualitative methods in social work research*. *3rd* ed. Thousand Oaks, CA: SAGE Publications, Inc (2017).

24. Marshall C, Rossman GB. *Designing qualitative research*. *6th* ed. Thousand Oaks, CA: SAGE Publications, Inc (2016).

25. Interian AA, Martinez IE, Guarnaccia PJ, Vega WA, Escobar JI. A qualitative analysis of the perception of stigma among Latinos receiving antidepressants. *Psychiatr Serv*. (2007) 58:1591–4. doi: 10.1176/appi.ps.58.12.1591

26. Blanco C, Patel SR, Liu L, Jiang H, Lewis-Fernández R, Schmidt AB, et al. National trends in ethnic disparities in mental health care. *Med Care*. (2007) 45:1012–9. doi: 10.1097/MLR.0b013e3180ca95d3

27. Ida DJ. Cultural competency and recovery within diverse populations. *Psychiatr Rehabil J*. (2007) 31:49–53. doi: 10.2975/31.1.2007.49.53

28. Nelson AN. *Introducing critical trauma theory for black, indigenous and Latine/Afro-Latine students studying social work: a phenomenology of cultural capital in the U.S. Southwest*. Ann Arbor, MI: ProQuest Dissertations Publishing (2022).

29. Maura J, Weisman de Mamani A. Mental health disparities, treatment engagement, and attrition among racial/ethnic minorities with severe mental illness: a review. *J Clin Psychol Med Settings*. (2017) 24:187–210. doi: 10.1007/s10880-017-9510-2

30. Martinez K., Callejas L., Hernandez M. Community-defined evidence: a bottom-up behavioral health approach to measure what works in communities of color. Emotional and Behavioral Disorders in Youth, Winter 2010, 11–16. (2010). Available at: https://www.engagelivinglab.org/wp-content/uploads/2021/04/Community-Defined-Evidence-Martinez-et-al-2010.pdf.

31. Barrio C. The cultural relevance of community support programs. *Psychiatr Serv*. (2000) 51:879–84. doi: 10.1176/appi.ps.51.7.879

32. Patel KK, Koegel P, Booker T, Jones L, Wells K. Innovative approaches to obtaining community feedback in the witness for wellness experience. *Ethn Dis*. (2006) 16:S35–42.

frontiers | Frontiers in Public Health

TYPE Community Case Study
PUBLISHED 01 September 2023
DOI 10.3389/fpubh.2023.1020723

EDITED BY
April Joy Damian,
Weitzman Institute, United States

REVIEWED BY
Farzin Bagheri Sheykhangafshe,
Tarbiat Modares University, Iran
Joseph Gallo,
Johns Hopkins University, United States

*CORRESPONDENCE
Senait Ghebrehiwet
✉ senaitg@bu.edu

†PRESENT ADDRESS
Kimberly Hook,
Department of Epidemiology, Harvard T.H. Chan School of Public Health, Boston, MA, USA

RECEIVED 16 August 2022
ACCEPTED 17 August 2023
PUBLISHED 01 September 2023

CITATION
Ghebrehiwet S, Ogundare T, Owusu M, Harris BL, Ojediran B, Touma M, Durham MP, Hook K, Borba CPC and Henderson DC (2023) Building a postgraduate psychiatry training program in Liberia through cross-country collaborations: initiation stages, challenges, and opportunities.
Front. Public Health 11:1020723.
doi: 10.3389/fpubh.2023.1020723

Building a postgraduate psychiatry training program in Liberia through cross-country collaborations: initiation stages, challenges, and opportunities

Senait Ghebrehiwet[1]*, Temitope Ogundare[1,2], Micaela Owusu[1,2], Benjamin L. Harris[3], Babawale Ojediran[3], Mia Touma[2], Michelle P. Durham[1,2], Kimberly Hook[1,2†], Christina P. C. Borba[1,2] and David C. Henderson[1,2]

[1]Department of Psychiatry, Boston Medical Center, Boston, MA, United States, [2]Department of Psychiatry, Boston University School of Medicine, Boston, MA, United States, [3]A.M. Dogliotti College of Medicine, University of Liberia, Monrovia, Liberia

Background: About 80% of the nearly 2 billion people experiencing psychiatric conditions worldwide do not have access to quality, affordable mental health care. In Africa, there are 0.004 psychiatrists per 10,000 people, with the shortage exacerbated by a limited number of postgraduate psychiatry training opportunities. As of 2018, there were only two psychiatrists in Liberia.

Methods: This paper aims to offer a framework for developing postgraduate (i.e., residency) psychiatry training in resource-constrained settings to disseminate best practices and lessons learned. This article describes the approach to developing the formal global academic partnership that supported the initiation of Liberia's first postgraduate psychiatry training program in July 2019.

Results: Authors describe strengths, challenges, and opportunities for improvement in the planning and initiation stages of the postgraduate program. Key strengths of the program planning process include: (1) collaboration with a coalition of local and national stakeholders committed to improving mental health care in Liberia; (2) early procurement of quality video conferencing equipment and internet service to facilitate remote learning and broaden access to digital materials; and (3) leveraging of intra-continental partnerships for subspecialty training. Challenges experienced include: (1) navigating the intricacies of local political and administrative processes; (2) recruiting candidates to a medical specialty with historically lower salaries; and (3) the added burden placed on the limited number of local specialists. Identified opportunities include building a monitoring, evaluation, and learning (MEL) framework, further diversifying subspecialty areas of psychiatric and neurological training, and obtaining full accreditation of the postgraduate psychiatry program through the West African College of Physicians (WACP).

Conclusion: The successful launch of the postgraduate psychiatry training program in Liberia is attributed to several factors, including a long-standing academic collaboration of over 10 years and support for mental health capacity-building efforts at national and local levels.

KEYWORDS

psychiatry, medicine, postgraduate training, medical education, international health

1. Introduction

The World Health Organization (WHO) estimates that one in four people will be affected by neuropsychiatric disorders, such as anxiety, depression, addiction, etc., at some point in their lives (1, 2). Though neuropsychiatric disorders are the leading contributor to years lived with disability, 40% of all countries lack a mental health policy, and over 30% have no mental health program (1). Of the nearly 2 billion people experiencing mental health conditions worldwide, such as neuropsychiatric and substance use disorders, more than 80% are without any form of quality, affordable mental health care (3). Despite the WHO's recommendation of a minimum of one psychiatrist per 10,000 people, almost half of the world's population resides in a country with an average of only one psychiatrist serving 200,000^{+} people (4). In Africa, the distribution of psychiatrists is estimated to be 0.004 per 10,000 people (5). The shortage of psychiatrists is further stressed by a limited number of postgraduate psychiatry training opportunities; only 47% of African countries have postgraduate psychiatry programs compared to 94% of European countries (5). While many African countries have a mental health workforce consisting of psychiatric nurses, midwives, social workers, etc., there remains a distinct need for licensed psychiatrists with expertise who can provide adequate and quality supervision.

In the West African nation of Liberia, there has long been only one psychiatrist for a population of nearly 5 million. Though the country once had a healthcare system that was the envy of its neighbors, Liberia's devastating 14 years civil conflict buckled the entire healthcare system by its end in 2003. The country suffered mass destruction to its infrastructure, including its businesses, schools, health facilities, and government. Thousands faced extreme brutality, including shootings, beatings, or rape by soldiers. During the conflict, most perpetrators of gender-based sexual violence were fighting forces; however, after the conflict, perpetrators were ex-combatants, community or family members, teachers, and male partners (6). In 2007, 46% of reported rape cases to the Liberia National Police involved children under the age of 18 years (6). Since the war, substance use and risky sexual behaviors have become increasingly prevalent among young people (7, 8). It is also estimated that 40% of Liberian civilians experienced symptoms of major depression, and 44% noted symptoms of post-traumatic stress disorder (PTSD) post-war (9).

During the conflict, Liberia experienced a massive brain drain of health professionals, university faculty, and hospital and medical school administrators who fled the country (10). By 2014, 200 Liberian medical doctors were in the country, and only 12 of these physicians (6%) possessed specialty expertise beyond general adult medicine. The Ebola outbreak in 2014–2016 further debilitated a fragile health system, leaving Liberians with limited support services to cope with high levels of mental health issues. Although the Ebola epidemic significantly improved emergency response and preparedness in the region, support efforts did not work to sustain medical capacity in West Africa, resulting in continued health resource shortages (11). Moreover, initial evidence of the impacts of 2020's COVID-19 pandemic and physical isolation on individual mental health (12) stresses the urgent need to build the mental healthcare workforce capacity. Since 2010, The Carter Center, a non-governmental organization (NGO), has trained mental health clinicians and counselors to increase mental health services in Liberia. However, the training of physicians in psychiatry was non-existent.

A proven approach to building capacity for specialized mental health care in global settings involves partnerships between academic and/or health institutions in high-income countries (HICs) and similar organizations in low-and middle-income countries (LMICs), known as "twinning" relationships (13). In training and education, twinning partnerships accelerate the development of new psychiatric training programs by leveraging existing curricula and resources from HICs and adapting them to local sociocultural contexts in LMICs (14). In addition, HICs can often redistribute human resources to address personnel shortages in LMICs. These efforts mutually benefit HICs as they offer opportunities for system evaluation, development, and innovation (13), and improve understanding of cultural differences when caring for psychiatric patients in local contexts (15). For example, the Toronto Addis Ababa Psychiatry Program (TAAPP), jointly established by the University of Toronto and the University of Addis Ababa in 2003, utilizes bidirectional exchanges to build the capacity for indigenous health professionals sustainably (16). Between 2003 and 2019, TAAPP trained 80 new psychiatrists in Ethiopia, facilitating the integration of mental health services into all levels of care nationwide. Similarly, the University of Toronto psychiatry residents participate in TAAPP as an elective, providing unique opportunities for acquiring clinical, teaching, collaborative, leadership, and advocacy skills (17). In Liberia, LMIC and HIC collaborations have historically used task-shifting approaches to build capacity for mental health care among nurses, midwives, physician assistants, and other members of the mental health workforce (18, 19). However, there remains a dearth of indigenous physicians with highly specialized psychiatric expertise to provide care and supervision to local mental health clinicians with lower levels of training. While twinning partnerships have traditionally relied on the LMIC and HIC collaboration model to redistribute resources from Western settings, organizations such as the Africa Global Mental Health Institute (AGMHI) recommend leveraging intra-continental partnerships to build capacity for mental health care (14).

The Liberia Psychiatry Residency Program builds on the existing progress of the Government of Liberia in developing medical specialty training programs. In 2013, the national government coordinated efforts with the Ministry of Health to establish postgraduate medical training programs that aligned with the National Health Policy and Plan. The Liberia College of Physicians and Surgeons (LCPS) was thus created to train qualified physicians as specialists to improve and strengthen the health care delivery system across the country. In 2016, faculty from the LCPS and the Boston Medical Center (BMC)/Boston University School of Medicine (BUSM) Department of Psychiatry began a twinning partnership with the shared goal of expanding Liberia's capacity to provide specialized psychiatric and neurological care. Seven full-time medical specialties, including internal medicine, pediatrics, surgery, OB/GYN, ophthalmology, family medicine, and psychiatry, most of which are supported by donor programs, currently oversee postgraduate training at six teaching hospitals throughout Liberia. Since 2013, the LCPS has enrolled an average of 19 residents per year into their medical specialty programs, except for 2014 when enrollment was halted during the Ebola epidemic. There are currently 62 total residents enrolled in the LCPS' training programs. The first class of 13 residents graduated in June 2017. To date, 110 doctors have

TABLE 1 Strengths, challenges, and opportunities of the Liberia College of Physicians and Surgeons (LCPS) Psychiatry Residency Program.

Strengths	Challenges	Opportunities
• Full engagement and collaboration with local and national stakeholders • Early procurement of video teleconferencing equipment and stable internet package • Shared e-library access • Intra-continental collaborations and partnerships • Community ownership and engagement	• Frequent changes in national government • Recruitment of residents into the postgraduate psychiatry program • Administrative burden on limited local faculty	• Development of monitoring, evaluation, and learning framework to track residents' progress • Obtain full accreditation through West Africa College of Psychiatry

completed postgraduate training through the LCPS and become certified specialists in various disciplines.

This article describes the approach to developing the formal global academic partnership that supported the initiation of Liberia's first postgraduate psychiatry training program in 2019. In addition, we describe strengths, challenges, and opportunities for improvement in the planning and initiation stages of the postgraduate program (Table 1).

2. Program description

2.1. Establishing the collaboration

Faculty from the LCPS and the BMC/BUSM Department of Psychiatry have a long history of working together to build capacity for quality mental health care in Liberia. In 2009, the Government of Liberia's Ministry of Health & Social Welfare invited Dr. David C. Henderson and his Boston-based research team to consult on the country's first comprehensive national mental health policy, which aimed to address the unique needs of the people of Liberia due to the social disruptions, societal disorganization, and varied war-related traumatic experiences (20) commonly rooted in a history of colonialism. Together, these partners assessed the public's mental health needs and observed that post-conflict conditions had eroded the positive and nurturing parent-child, family-community, and community-society relationships that contribute to positive youth development (21, 22). Combined with a lack of infrastructure and high levels of unemployment and poverty, behaviors such as adultification, substance use, and perpetration of violence developed as survival mechanisms among youth (21, 23, 24).

Members of the Liberia-Boston collaboration applied findings from the needs assessment to develop the Liberia Mental Health Policy in 2009 (20) and played a significant role in advocacy efforts for the subsequent passage of the Mental Health Act in 2017. Furthermore, in 2016, the BMC/BUSM Department of Psychiatry provided funding for a second psychiatrist from Nigeria to relocate to Liberia to provide psychiatric care and teach the local medical community. Through the support of the Government of Liberia, the LCPS began funding this position in 2019, promoting the long-term sustainability of the role. The partnering institutions continue to work together to contribute to the evidence base of mental health research highlighting the country's urgent need for psychiatric services (7, 8, 21–26). The effectiveness of the Liberia-Boston collaboration is a testament to the strong foundation of mutual understanding, accountability, and respect shared between the two partners, values central to the ethos of global mental health given the harm of historical power differentials between LMICs and HICs (15, 27).

2.2. Situation analysis

In September 2018, members of the Boston-based research team visited partners in Monrovia, Liberia to conduct a situation analysis following significant changes in leadership in the country's government. The site visit consisted of meetings with a wide range of local stakeholders: the Ministries of Health and Education; leaders of the University of Liberia (UL) and the UL A.M. Dogliotti (AMD) College of Medicine; staff at E.S. Grant Mental Health Hospital, Liberia's only tertiary psychiatric hospital; and staff at Saint Benedict Menni Health Centre (commonly referred to as the Step Down Unit). Each meeting focused on understanding stakeholder practices, priorities, and commitment to mental health services. These discussions and tours of local resource-constrained mental health facilities led to a deeper understanding of the need for specialist mental health services, the availability of medications, the prevalence of mental health conditions, and potential challenges that would inform the development of Liberia's first postgraduate psychiatry training program.

2.3. Planning the postgraduate psychiatry training curriculum

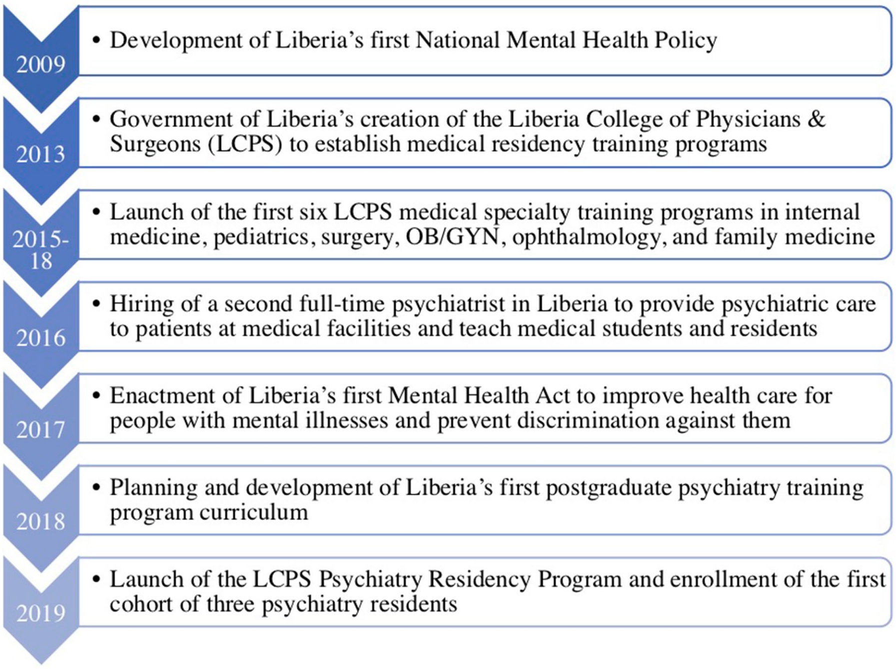
After completing the initial site visit and identifying collaborative goals between each institution, members of the Liberia-Boston collaboration set up a memorandum of understanding (MOU) in February 2019 that described the purpose and scope of the global partnership. The MOU delineated clear roles and responsibilities for each partner with specific short, medium, and long-term goals. Short-term goals for the first year of the program included: (1) development and approval of a postgraduate psychiatry program curriculum from the West African College of Physicians (WACP) (28); (2) program promotion, targeted recruitment of strong candidates, administration of entry exams, and interviews in accordance with the LCPS' postgraduate enrollment procedures; (3) facilitation of teaching, training, consultation, and case conferences both in-person, remotely via video conferencing, and through international site rotations; and (4) assessment of psychiatry residents and evaluation of teaching faculty for program improvement purposes. Mid-term goals for years 1–3 of the program included earning accreditation for the postgraduate program and involving additional international collaborators as the training program continued to develop and expand. Long-term goals for years 3–5 included developing a mentored fellowship program focused on faculty development and research to sustain the LCPS' postgraduate training programs. The first cohort of psychiatry residents matriculated in July 2019 (Figure 1).

3. Methods

The LCPS Psychiatry Residency Program curriculum was modeled after the WACP guidelines for postgraduate psychiatry training and is based on the progressive accomplishment of core competencies over 36 months. In addition to adult and public health psychiatry, the curriculum integrates strong clinical training in child and adolescent psychiatry (CAP). CAP skills are argued to be more generalizable to all ages compared to those of general psychiatrists (29), which is particularly relevant in Liberia where over 60% of the population is under the age of 25 years (30). The program includes eight clinical rotations through the major subspecialties of psychiatry and research methods training in statistical and epidemiological principles. Research training enables psychiatrists graduating from the program to refine theoretical and empirical models of psychiatric knowledge local to Liberia rather than simply adopting Western models of care. Psychiatry residents are also trained to liaise with other health professionals and provide leadership for multidisciplinary mental health care delivery.

Clinical training for the postgraduate psychiatry program takes place primarily at the E.S. Grant Mental Health Hospital—an 80-bed psychiatric hospital that also provides outpatient services (31)—and John F. Kennedy (JFK) Medical Center, both located in the capital city of Monrovia. Previously run by a NGO, E.S. Grant Mental Health Hospital was absorbed into Liberia's public health system in 2008 and placed under the administrative management of JFK Medical Center (31). The JFK Medical Center is a 500-bed health facility constructed in the late 1960s and started operations with the support of the U.S. in 1971 to provide premium tertiary medical and educational services to Liberia and other countries in West Africa. Equipped with specialized diagnostic equipment and staffed with more than forty specialist doctors, the Government of Liberia assumed full responsibility for operating the Center in 1972. The Center also includes the Tubman National Institute of Medical Arts (TNIMA), which offers medical education for paramedical students, and a 250-bed Liberian-Japanese Friendship Maternity Hospital constructed in the 1980s to provide maternal and child health services. JFK Medical Center serves as the teaching hospital for the UL and finances and manages E.S. Grant Mental Health Hospital.

The program is also conducted with support from the local Saint Benedict Menni Health Centre (i.e., Step Down Unit), which serves as a clinical training site specific to women's mental health to promote reintegration into the community post-treatment. Saint Benedict Menni Health Centre belongs to the Archdiocese of Monrovia and is managed by Sisters Hospitallers, located in Spain. Sisters Hospitallers originally arrived in Liberia in 1966 to offer services for orphaned and abandoned children, and has since grown to offer 24 h services in general outpatient care, maternal and child health, communicable diseases, pharmaceuticals, etc. Saint Benedict Menni Health Centre also collaborates with other health institutions in Liberia to optimize available health resources and reach the greatest number of people with mental illness. Among its priority objectives is training students



2009
- Development of Liberia's first National Mental Health Policy

2013
- Government of Liberia's creation of the Liberia College of Physicians & Surgeons (LCPS) to establish medical residency training programs

2015-18
- Launch of the first six LCPS medical specialty training programs in internal medicine, pediatrics, surgery, OB/GYN, ophthalmology, and family medicine

2016
- Hiring of a second full-time psychiatrist in Liberia to provide psychiatric care to patients at medical facilities and teach medical students and residents

2017
- Enactment of Liberia's first Mental Health Act to improve health care for people with mental illnesses and prevent discrimination against them

2018
- Planning and development of Liberia's first postgraduate psychiatry training program curriculum

2019
- Launch of the LCPS Psychiatry Residency Program and enrollment of the first cohort of three psychiatry residents

FIGURE 1
Timeline of major events and activities leading up to the launch of the Liberia College of Physicians and Surgeons (LCPS) Psychiatry Residency Program.

in managing mental pathologies through pharmacotherapy and occupational therapy, respecting each person's condition, and emphasizing the institutional values of Sisters Hospitallers.

Located in Durban, South Africa, the University of KwaZulu-Natal (UKZN) Nelson R. Mandela School of Clinical Medicine serves as an intra-continental partner and clinical rotation site for the residents to receive specialty training in child and adolescent and community psychiatry. Local Nigerian institutions including the University College Hospital (UCH) in Ibadan and the Neuropsychiatric Hospital in Aro also serve as intra-continental partner sites for specialty training in addiction, child and adolescent, forensic, and geriatric psychiatry. Additional partnerships critical to the success of the postgraduate program include international faculty based in Seattle, United States, who supplement supervisory and teaching responsibilities of the two Liberia-based psychiatry faculty. International teaching faculty offer expertise in neurology, child and adolescent psychiatry, and medical education, and are actively engaged in teaching in-country and remotely via weekly video conferencing. International faculty members also collaborate with local psychiatrists to supervise residents and provide training materials that may be adapted to the Liberian context.

Within the WACP, graduates of the postgraduate psychiatry program are required to sit for the LCPS examination to qualify as *members.* They may also choose to sit for the WACP examination at this time, though this is not a requirement. Members may subsequently complete an additional 24 months of specialized training along with the presentation of results from a major research study to qualify as *fellows. Members* demonstrate a high standard of psychiatric knowledge, clinical service, and leadership, while *fellows* have additional expertise in supervision, research, and specialist consultation capable of providing technical input at national and international levels. Completing the fellowship qualifies psychiatry residents to become teaching faculty at the UL AMD College of Medicine and to obtain subspecialty expertise as desired in child and adolescent, addiction, consultation-liaison, geriatric, or forensic psychiatry. As previously noted, the Liberia-Boston collaborative aims to develop a mentored fellowship program focused on faculty development and research to sustain the LCPS' postgraduate training programs.

4. Results

4.1. Strengths

We identified five major strengths of the LCPS Psychiatry Residency Program, which was launched in July 2019. First, full engagement of and collaboration with local and national stakeholders in pursuing a common goal: to improve mental health care in Liberia. This engagement required significant time investment and relationship-building over 10 years. In order to effectively advocate for resources, buy-in from all stakeholders—educational leaders and local partners alike—was essential (27). Second, the early procurement of quality video conferencing equipment and stable internet for the program. This facilitated residents' access to remote learning, including guest lectures, case conferences, and grand rounds. The addition of international guest lecturers with advanced expertise in the subspecialty areas of psychiatry widened the breadth of exposure to different faculty members despite the physical presence of only two Liberia-based psychiatry faculty. Graduates of the postgraduate psychiatry program will be the first in-country physicians to gain training in subspecialty areas of psychiatry such as neurology, which remains critical as the nation's largest hospital has an average stroke admission rate of two to three patients per day. Integrating neurology content into the program curriculum will positively impact psychiatry residents and the larger medical community (i.e., medical students, non-psychiatry residents, faculty members, etc.) who are invited to attend guest lectures. Third, the postgraduate program shared e-library access with residents to minimize dependence on Western partners to disseminate new publications and updates to mental health information. Fourth, the program's inclusion of intra-continental collaborations promotes partnerships and bi-directional learning between African-based medical schools. By doing so, we aimed to minimize the costs associated with overseas travel and, more importantly, avoid the brain drain that has historically depleted the continent's most skilled medical professionals (14). Fifth, the postgraduate psychiatry program is owned and administered entirely by the Liberia-based LCPS, consistent with other medical specialty training programs in Liberia. This ensures community ownership, engagement, and sustainability.

4.2. Challenges

There were several challenges leading up to the launch of the LCPS Psychiatry Residency Program. First, stakeholder engagement and collaboration was challenging due to frequent changes at different levels in the national government. This meant that relationships and connections needed to be rebuilt and trust reestablished before planning could continue. This process took 10 years. In addition to the frequent changes in national government officials and key stakeholders, navigating the intricacies of the local political and administrative process was difficult. The process underscored the importance of remaining flexible and tolerating ambiguity, which are key competencies when working in resource-constrained settings (27).

Second, program faculty faced difficulties in recruiting candidates for the postgraduate psychiatry program as university salaries are historically lower in the field of psychiatry relative to other medical specialties. Program faculty are working to improve the recruitment process by increasing early exposure to psychiatry in medical school to attract a strong pool of candidates to the postgraduate program.

Third, the program placed an added demand on the two in-country psychiatrists to balance providing their psychiatric expertise, educational leadership in curriculum development, and the administrative and advocacy work required to secure resources for the postgraduate program. Members of the Liberia-Boston collaboration continue to meet regularly to strategically maximize existing resources and reduce the administrative burden for the in-country teaching faculty.

4.3. Opportunities

As the LCPS Psychiatry Residency Program grows, we have identified short-and long-term opportunities for improvement and expansion. Short-term opportunities include the development of a monitoring, evaluation, and learning (MEL) framework with measurable indicators to track resident progress and ensure residents receive timely and valuable feedback regarding their clinical skills and knowledge. This aligns with the LCPS' historical culture of learning and adaptation of existing medical specialty training programs. The MEL framework will also include a program evaluation component that will evaluate resident experiences with didactics, clinics, and wards, as well as feedback from program faculty, staff, and other stakeholders. This evaluation will be used to assess and improve curricular offerings, supervision, working environments, and future program planning. Another short-term opportunity identified is diversifying subspecialty areas of psychiatric and neurological training by expanding international faculty collaborations and integrating research mentorship throughout the program.

In the long term, the Liberia-Boston collaboration aims to access the necessary equipment and resources to obtain full accreditation of the postgraduate psychiatry program through the WACP. As psychiatrists complete the postgraduate program and enter the workforce, we also aim to expand available clinical services to include psychotherapy and school-based interventions to improve access to and utilization of mental health care services.

5. Discussion

5.1. Key results

This paper outlined the strengths, challenges, and opportunities for improvement in developing and initiating Liberia's first postgraduate psychiatry program (Table 1). In doing so, we aimed to offer a framework for developing postgraduate psychiatry training in analogous settings where one does not exist and where there are limited mental health personnel and resources.

The successful launch of the postgraduate psychiatry training program in Liberia is attributed to several factors, including a long-standing partnership of over 10 years between faculty at the LCPS in Monrovia, Liberia and at BMC/BUSM in Boston, United States. In addition, mental health capacity-building efforts were supported on a national level and well underway before the postgraduate psychiatry training program launched. This is best demonstrated by the development of Liberia's first national mental health policy in 2009 and the ensuing 5 years Mental Health Policy and Strategic Plan for Liberia (2016–2021) by the Government of Liberia's Ministry of Health (20). This foundation laid the groundwork for collaboration and trust building between national leaders, the local medical school, and hospitals, which facilitated the following: (1) establishment of the Liberia-Boston collaboration; (2) conduct of a situational analysis of mental health stakeholder priorities, commitments, and needs; (3) development of a postgraduate psychiatry training curriculum that aligned with regional governing bodies and practices; (4) establishment of a core teaching faculty with specialized expertise in a broad range of areas within psychiatry; and (5) promotion and recruitment of strong candidates to the postgraduate psychiatry training program.

These steps culminated in successfully launching Liberia's first psychiatry postgraduate training program in July 2019, which enrolled three psychiatry residents. Authors continue to document the implementation and adaptation of the postgraduate psychiatry training program to disseminate best practices and lessons learned in a resource-constrained setting. Launching and sustaining the first postgraduate psychiatry training program Liberia has the potential to increase mental health care capacity exponentially over the next 5 years.

5.2. Strengths and limitations

One limitation of this paper is the lack of data on the situation analysis and needs assessment of the planning and implementation phase of the LCPS Psychiatry Residency Program. This is primarily due to the multipurpose nature of the Liberia-Boston collaboration, one of which was developing the country's national mental health policy and the mental health policy and strategic plan (2016–2021), where these data have been presented (20, 32). This paper aims to describe the process and offer a framework for partnership and collaboration that led to establishing a postgraduate training program in a resource-constrained setting. Subsequent publications will include data on the evaluation of the program, including process evaluation and outcome measures such as faculty evaluations, assessment of resident competencies in clinical skills, and standardized tests.

One major strength of the LCPS Psychiatry Residency Program is the curriculum development adapted from the WACP. This makes it possible for the postgraduate training program to seek accreditation from the regional accreditation body. An advantage of this is that graduates from the program may become involved in the WACP to improve postgraduate psychiatry training in the West African region and strengthen intra-continental collaboration and partnerships. The WACP curriculum is developed by a committee of specialists from all member countries to reflect the knowledge and competencies required of trainees to become effective mental health specialists with the capacity to work in any of its member countries. One of the core faculty of the LCPS Psychiatry Residency Program was trained in Nigeria and completed a fellowship in the WACP Faculty of Psychiatry. By leveraging these intra-continental partnerships, capacity building and knowledge sharing can be more effective and accessible.

5.3. Comparison with the literature

Academic medical centers in LMICs and HICs often form educational collaborations to improve healthcare delivery and health outcomes in resource-constrained settings (16). These partnerships accelerate capacity building through education, training, and distribution of resources that facilitate the exchange of knowledge, expertise, and best practices (16, 33). This is particularly important in African countries striving to overcome the effects of poverty and colonization, where resources are limited, infrastructure is often inadequate, and qualified faculty are in short supply (16). There have been several models of LMIC and HIC collaboration, including project-based, time-limited grant-funded collaborations; others have involved public sector funding, while others have involved the private sector, faith-based organizations, and NGOs (15, 16, 18, 34–37).

The Liberia-Boston collaboration is based on a relational model with funding from the Liberian government, similar to TAAPP and the Toronto Addis Ababa Academic Collaboration (TAAAC) (16, 34). Essential elements to successful collaboration include understanding contextual factors and clarity about funding, ownership, expertise, and control (16). From the onset of the LCPS Psychiatry Residency Program, the collaboration established clear roles of the partnering institutions and defined ownership and control of the program. Similar to TAAPP and TAAAC, the LCPS Psychiatry Residency Program's curriculum was collectively designed by faculty from the LCPS and the BMC/BUSM Department of Psychiatry. The curriculum was adapted from the WACP as the program aims to eventually gain accreditation through the regional accrediting body. An advantage of accrediting the program is the promotion of intra-continental partnerships with other psychiatry residency training programs in the West African region and beyond.

Similar to the challenges faced by the Liberia-Boston collaboration in launching the LCPS Psychiatry Residency Program, TAAAC reported administrative and bureaucratic challenges with local partners, making coordinating joint efforts taxing (16). Local TAAAC faculty also reported increased administrative burden despite high levels of motivation, similar to the challenges faced by the LCPS Psychiatry Residency Program faculty.

Finally, the allure of the West poses a challenge for the LCPS Psychiatry Residency Program that is well documented throughout the literature (16, 37). In its first year, one of the three matriculated psychiatry residents left Liberia for the United States. Consistent with progress made in Ethiopia, the LCPS hopes that the growing availability of quality in-country postgraduate training and mentorship in Liberia will retain ambitious trainees and graduates (16).

5.4. Implications of the findings for future practice and research

This paper presents the process leading up to the establishment of the first postgraduate psychiatry training program in Liberia. By outlining the strengths, challenges, and opportunities for improvement, we hope to provide a framework for other academic medical centers seeking to pursue similar LMIC and HIC collaborations to improve the capacity for mental health care in resource-constrained settings.

There are several aspirations for future collaborations and associated constraints to sustained implementation (Table 2). First, there is a need to continue to attract strong candidates to apply to psychiatry. Psychiatry as a specialty is not a top choice for many medical school graduates in African countries because of high levels of stigma associated with mental illness and low wages (15, 34). One possible solution is focusing more heavily on the undergraduate psychiatry curriculum (34). Other public health approaches such as developing strategies to change norms and beliefs about mental illness to reduce stigma may also be effective. This approach has proven to be impactful in reducing the stigma around HIV/AIDS in Africa (38–40). However, such an approach would require involvement of multiple partners, which may be viewed as beyond the scope of educational partnerships.

Second, reducing administrative burdens of local faculty must be considered. As part of program development, it is essential to include the role of program coordinators to manage the administrative tasks of running a psychiatry residency program. In fundraising for global mental health programs, donors and stakeholders have traditionally considered “overhead” or indirect costs to be wasteful. However, programs with robust infrastructure including strong leadership, essential administrative support, technology, fundraising processes, financial management, and skills training are more likely to succeed (41). Identifying these costs early on during the planning phase and stakeholder meetings and incorporating these costs into budget planning contributes to the success of postgraduate training programs.

TABLE 2 Implications for future practice and research.

Implications for future practice and research

- Implementing and engaging multiple partners to attract strong candidates
- Creating a funding mechanism to hire program coordinator to reduce administrative burden on local faculty
- Dedicating resources to early career faculty development to absorb resident graduates of the program
- Developing postgraduate subspecialty fellowship programs especially child and adolescent, and addiction psychiatry
- Strengthening research capacity

Third, as residents graduate from training programs, efforts need to be made to absorb them into the academic medical centers to increase the capacity of local faculty (15, 34). This includes dedicating resources to early career faculty development. In addition, non-faculty and community-based graduates of the program will be invited to provide lectures and supervision for residents in the program (34). Continuing education should also be a vital component of the residency training program, offering both faculty and graduates the opportunity to maintain and improve their medical skills and competencies (15, 34).

Fourth, subspecialty fellowship programs, particularly in child and adolescent and addiction psychiatry, are greatly needed. Like many African countries, Liberia consists predominantly of people under the age of 25 years, which makes training child and adolescent psychiatrists a desirable goal. There are only two countries in Africa with formal postgraduate training in child and adolescent psychiatry, which presents great potential for future collaborations and expansion of existing postgraduate psychiatry training programs (15, 42). Furthermore, the burden of substance use in Africa is enormous and projected to increase by 130% by 2050 (43, 44). Subspecialty training is essential for service provision and research, and it helps bolster evidence-based treatment (45, 46). A recent study found only six master's level programs offering courses in addiction studies, and only one was in addiction psychiatry (47). There is no formal subspecialty training in addiction psychiatry available in Africa, with general psychiatrists working in this area and acquiring competence through research and experience (45). A short-term solution to training subspecialists in these areas will be to create pathways for graduates of residency programs in LMICs to pursue fellowship training in HICs where these partnerships exist. These trained subspecialists would be expected to return to their home countries and, leveraging on existing relationships, build capacity in these subspecialty areas. Alternatively, current structures may be expanded to create a hybrid model of fellowship training. In this model, one fellow is admitted per year. The fellow would spend half the fellowship at their local site with weekly supervision and didactics from international faculty with subspecialty expertise, and the other half of the fellowship at the international training site. The fellowship would also involve the completion of a research project relevant to the subspecialty. Once the fellowship is complete, the fellow would become faculty and provide onsite supervision for the next generation of fellows.

Fifth, there is a dire need to strengthen research capacity in resource-constrained settings. For decades, increasing research capacity has been a global health priority as it helps to strengthen health systems (48, 49). Despite this, LMICs continue to experience inadequate funding, exclusion of local researchers in clinical trials carried out in their own countries, structural power imbalances, and a lack of training in research methods, amongst others (49, 50). In 2019, only 2% of publications in high-impact journals featured articles exclusively authored by researchers from LMICs, and about 8% featured collaborations between authors from LMICs and HICs (49). Publications led by local African authors were less than 2% of global research publications in 2014 (51). To address this, the WACP integrates training in research methods into the curriculum for psychiatry residents. In addition, the WACP requires completion and successful defense of independent research as a pre-requisite for conferment of fellowship status. The goal is to train clinician-scientists who are competent in conducting research to generate local data that informs both evidence-based treatments in the local population and mental health policies. The LCPS Psychiatry Residency Program offers didactics in research methods and monthly journal clubs to provide exposure to research methods, develop critical appraisal skills, and stimulate interest in mental health research. In the future, we hope to expand the curriculum to include the conduct of independent research through collaborations with regional and international partners. Most postgraduate training programs in Africa focus on producing clinicians with competencies in delivering effective and evidence-based treatment; however, it is crucial to incorporate research training and skills acquisition as these programs expand. New programs should consider incorporating research training and capacity building early on in postgraduate training. In addition, local faculty should be provided with opportunities for training in research methods, and partnerships with international academic medical centers may provide an avenue for securing grant funding to carry out local research in the partnering countries (52).

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Author contributions

All authors discussed and collaboratively agreed upon the design, results, analysis, and planning of the manuscript. SG wrote the original draft of the manuscript. MT contributed to the literature review. TO and MO significantly contributed to the writing and reviewing of the manuscript. BH, BO, MD, KH, CB, and DH provided critical revisions to the manuscript. All authors contributed to the article and approved the submitted version.

Funding

This work was supported by the National Institute of Mental Health (NIMH) Grant Numbers K01MH100428 and T32MH116140. The content is solely the authors' responsibility and does not necessarily represent the official views of the National Institute of Mental Health or the National Institutes of Health.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

References

1. Sayers J. The world health report 2001: mental health: New understanding, new hope. *Bull World Health Organ.* (2001) 79:1085.

2. World Health Organization. *Mental health action plan 2013–2020.* World Health Organization. (2013). Available at: https://apps.who.int/iris/handle/10665/89966

3. World Health Organization. *The WHO special initiative for mental health (2019–2023): universal health coverage for mental health.* World Health Organization (2019). Available at: https://apps.who.int/iris/handle/10665/310981

4. World Health Organization. *Mental health atlas 2011: Mozambique.* Geneva, Switzerland: World Health Organization (2011).

5. Alfonso CA, Summers RF, Kronfol Z, Jiménez X, Winanda RA, Tasman A. Psychiatry residency education in countries with low-and middle-income economies In: *Advances in psychiatry.* Cham: Springer (2019). 697–722.

6. Sarkar M, Syed S, Nzau M. *Strategic inquiry on prevention and response to gender based violence (GBV) in Liberia.* Monrovia, Liberia: Government of Liberia and United Nations GBV Joint programme (2009).

7. Harris BL, Levey EJ, Borba CP, Gray DA, Carney JR, Henderson DC. Substance use behaviors of secondary school students in post-conflict Liberia: a pilot study. *Int J Cult Ment Health.* (2012) 5:190–201. doi: 10.1080/17542863.2011.583737

8. Quiterio N, Harris B, Borba C, Henderson D. Substance use and sexual risk behaviours amongst in-school youth and young adults living in Liberia. *Afr J Drug Alcohol Stud.* (2013) 12.

9. Johnson K, Asher J, Rosborough S, Raja A, Panjabi R, Beadling C, et al. Association of combatant status and sexual violence with health and mental health outcomes in post-conflict Liberia. *JAMA.* (2008) 300:676–90. doi: 10.1001/jama.300.6.676

10. Challoner KR, Forget N. Effect of civil war on medical education in Liberia. *Int J Emerg Med.* (2011) 4:6. doi: 10.1186/1865-1380-4-6

11. Marston BJ, Dokubo EK, van Steelandt A, Martel L, Williams D, Hersey S, et al. Ebola response impact on public health programs, West Africa, 2014–2017. *Emerg Infect Dis.* (2017) 23:S25. doi: 10.3201/eid2313.170727

12. Galea S, Merchant RM, Lurie N. The mental health consequences of COVID-19 and physical distancing: the need for prevention and early intervention. *JAMA Intern Med.* (2020) 180:817. doi: 10.1001/jamainternmed.2020.1562

13. Fricchione GL, Borba CPC, Alem A, Shibre T, Carney JR, Henderson DC. Capacity building in global mental health: professional training. *Harv Rev Psychiatry.* (2012) 20:47–57. doi: 10.3109/10673229.2012.655211

14. Grillo AR, Ghebrehiwet S, Borba CP, Fricchione GL, Durham M, Chiliza B, et al. The African global mental health institute: increasing capacity, inclusivity and translation of psychiatric research and care. *Columbia J Glob Health*. (2019) 9. doi: 10.7916/2ve9-ah45

15. Natala N, Owusu-Antwi R, Donnir G, Kusi-Mensah K, Burns H, Mohiuddin S, et al. Building child and adolescent psychiatry expertise in Ghana through training and knowledge dissemination: a review of the initial collaboration stages, opportunities, and challenges. *Curr Psychiatry Rep*. (2018) 20:105. doi: 10.1007/s11920-018-0959-y

16. Wondimagegn D, Pain C, Baheretibeb Y, Hodges B, Wakma M, Rose M, et al. Toronto Addis Ababa Academic Collaboration: a relational, partnership model for building educational capacity between a high-and low-income university. *Acad Med*. (2018) 93:1795–801. doi: 10.1097/ACM.0000000000002352

17. Brook S, Robertson D, Makuwaza T, Hodges BD. Canadian residents teaching and learning psychiatry in Ethiopia: a grounded theory analysis focusing on their experiences. *Acad Psychiatry*. (2010) 34:433–7. doi: 10.1176/appi.ap.34.6.433

18. Katz CL, Washington FB, Sacco M, Schuetz-Mueller J. A resident-based telepsychiatry supervision pilot program in Liberia. *Psychiatr Serv*. (2019) 70:243–6. doi: 10.1176/appi.ps.201800363

19. Varpilah ST, Safer M, Frenkel E, Baba D, Massaquoi M, Barrow G. Rebuilding human resources for health: a case study from Liberia. *Hum Resour Health*. (2011) 9:11. doi: 10.1186/1478-4491-9-11

20. Republic of Liberia, Ministry of Health, *Mental health policy and strategic plan for Liberia (2016–2021)*. Africa: WHO. (2016–2021). Available at: https://www.afro.who.int/index.php?option=com_docman&task=doc_download&gid=10608&Itemid=2593

21. Dominguez S, Borba CP, Fatima B, Gray DA, Stinehart C, Murphy G, et al. Mental health and adaptation of young Liberians in post-conflict Liberia: a key informant's perspective. *Int J Cult Ment Health*. (2013) 6:208–24. doi: 10.1080/17542863.2012.683158

22. Levey EJ, Oppenheim CE, Lange BC, Plasky NS, Harris BL, Lekpeh GG, et al. A qualitative analysis of parental loss and family separation among youth in post-conflict Liberia. *Vulnerable Child Youth Stud*. (2017) 12:1–16. doi: 10.1080/17450128.2016.1262978

23. Borba CP, Ng LC, Stevenson A, Vesga-Lopez O, Harris BL, Parnarouskis L, et al. A mental health needs assessment of children and adolescents in post-conflict Liberia: results from a quantitative key-informant survey. *Int J Cult Ment Health*. (2016) 9:56–70. doi: 10.1080/17542863.2015.1106569

24. Parnarouskis L, Stevenson A, Lange BC, Pullen SJ, Petruzzi LJ, Dominguez S, et al. The impact of transactional sex with teachers on public school students in Monrovia, Liberia—a brief report. *Vulnerable Child Youth Stud*. (2017) 12:328–33. doi: 10.1080/17450128.2017.1300721

25. Ogundare T, Ghebrehiwet S, Harris BL, Ojediran B, Duncan AM, Syeda HS, et al. Risky sexual behaviors and substance use among youths in post-conflict Liberia. *J Public Health Epidemiol*. (2020) 12:114–27. doi: 10.5897/JPHE2020.1219

26. Ghebrehiwet S, Harris BL, Ojediran B, Owusu M, Augello LP, Durham MP, et al. Using local terminology to measure substance use behaviors among youth in post-conflict Liberia: a mixed methods study. *Vulnerable Child Youth Stud*. (2020) 16:279–91. doi: 10.1080/17450128.2020.1838681

27. Kohrt BA, Marienfeld CB, Panter-Brick C, Tsai AC, Wainberg ML. Global mental health: five areas for value-driven training innovation. *Acad Psychiatry*. (2016) 40:650–8. doi: 10.1007/s40596-016-0504-4

28. West African College of Physicians. Faculty of Psychiatry Curriculum, 2008 Edition. Lagos, Nigeria: West African College of Physicians Library. (2008).

29. Robertson B, Omigbodun O, Gaddour N. Child and adolescent psychiatry in Africa: luxury or necessity? *Afr J Psychiatry*. (2010) 13:329–31.

30. Central Intelligence Agency. Africa: Liberia. *The world factbook*. Available at: https://www.cia.gov/library/publications/the-world-factbook/geos/print_li.html (Accessed October 6, 2020).

31. World Health Organization. *Culture and mental health in Liberia: a primer*. World Health Organization (2017). Available at: https://apps.who.int/iris/handle/10665/255302

32. Republic of Liberia National Mental Health Policy. (2009). Available at: https://www.aita-menni.org/archivos/201504/national-mental-health-policy.pdf?1 (Accessed March 20, 2023).

33. Wainberg ML, Scorza P, Shultz JM, Helpman L, Mootz JJ, Johnson KA, et al. Challenges and opportunities in global mental health: a research-to-practice perspective. *Curr Psychiatry Rep*. (2017) 19:28. doi: 10.1007/s11920-017-0780-z

34. Alem A, Pain C, Araya M, Hodges BD. Co-creating a psychiatric resident program with Ethiopians, for Ethiopians, in Ethiopia: the Toronto Addis Ababa Psychiatry Project (TAAPP). *Acad Psychiatry*. (2010) 34:424–32. doi: 10.1176/appi.ap.34.6.424

35. Rabin TL, Mayanja-Kizza H, Rastegar A. Medical education capacity-building partnerships for health care systems development. *AMA J Ethics*. (2016) 18:710–7. doi: 10.1001/journalofethics.2016.18.7.medu2-1607

36. Turissini M, Mercer T, Baenziger J, Atwoli L, Einterz R, Gardner A, et al. Developing ethical and sustainable global health educational exchanges for clinical trainees: implementation and lessons learned from the 30-year Academic Model Providing Access to Healthcare (AMPATH) partnership. *Ann Glob Health*. (2020) 86. doi: 10.5334/aogh.2782

37. Gordon G, Vongvichit E, Hansana V, Torjesen K. A model for improving physician performance in developing countries: a three-year postgraduate training program in Laos. *Acad Med*. (2006) 81:399–404. doi: 10.1097/00001888-200604000-00016

38. Banerjee A, La Ferrara E, Orozco-Olvera VH. *The entertaining way to behavioral change: Fighting HIV with MTV*. National Bureau of Economic Research (2019).

39. Nwaolikpe ON. Communicating HIV/AIDS to adolescents in South-West Nigeria: the case of MTV Shuga series. *IOSR J Humanit Soc Sci*. (2018) 23:2279. doi: 10.9790/0837-2301013645

40. Taggart T, Ritchwood TD, Nyhan K, Ransome Y. Messaging matters: achieving equity in the HIV response through public health communication. *Lancet HIV*. (2021) 8:e376–86. doi: 10.1016/S2352-3018(21)00078-3

41. Gregory AG, Howard D. The nonprofit starvation cycle. *Stanf Soc Innov Rev*. (2009) 7:49–53.

42. Omigbodun OO, Belfer ML. Building research capacity for child and adolescent mental health in Africa. *Child Adolesc Psychiatry Ment Health*. (2016) 10:27. doi: 10.1186/s13034-016-0119-2

43. Charlson FJ, Diminic S, Lund C, Degenhardt L, Whiteford HA. Mental and substance use disorders in sub-Saharan Africa: predictions of epidemiological changes and mental health workforce requirements for the next 40 years. *PLoS One*. (2014) 9:e110208. doi: 10.1371/journal.pone.0110208

44. Balhara YP, Sharma P, Chawla N. Education and training on addiction psychiatry in low and middle income countries: observations from existing literature and recommendations going ahead. *Asia Pac Psychiatry*. (2021) 13:e12492. doi: 10.1111/appy.12492

45. Stein DJ, Betancourt OA, Emsley RA, Jeenah Y, Mkize D, Pretorius J, et al. Sub-specialties in psychiatry: towards parity in mental health training and services. *S Afr Med J*. (2009) 99:38–9.

46. Stein DJ, Szabo CP, Moussaoui D, Gureje O. Psychiatric sub-specialization in Africa-introduction to a series. *Afr J Psychiatry*. (2010) 13:157–9.

47. Lososová A, Johnson KA, Sinkele W, Obot IS, Miovský M. Overview of university-based academic programs in addiction studies in Africa. *J Subst Abus*. (2021) 26:102–6. doi: 10.1080/14659891.2020.1779830

48. Franzen SR, Chandler C, Lang T. Health research capacity development in low and middle income countries: reality or rhetoric? A systematic meta-narrative review of the qualitative literature. *BMJ Open*. (2017) 7:e012332. doi: 10.1136/bmjopen-2016-012332

49. El Khoury J, Kanj R, Adam L, Kanj R, Hajaig AJ, Haddad F, et al. The contribution of authors from low-and middle-income countries to top-tier mental health journals. *Eur Sci Ed*. (2021) 47:e72187. doi: 10.3897/ese.2021.e72187

50. Haque M, Kamal Z. Challenges of publishing in high impact medical journals from lower-and middle-income countries. *Bangladesh J Med Sci*. (2019) 18:671–4. doi: 10.3329/bjms.v18i4.42868

51. Uthman OA, Wiysonge CS, Ota MO, Nicol M, Hussey GD, Ndumbe PM, et al. Increasing the value of health research in the WHO African region beyond 2015—reflecting on the past, celebrating the present and building the future: a bibliometric analysis. *BMJ Open*. (2015) 5:e006340. doi: 10.1136/bmjopen-2014-006340

52. Busse CE, Anderson EW, Endale T, Smith YR, Kaniecki M, Shannon C, et al. Strengthening research capacity: a systematic review of manuscript writing and publishing interventions for researchers in low-income and middle-income countries. *BMJ Glob Health*. (2022) 7:e008059. doi: 10.1136/bmjgh-2021-008059

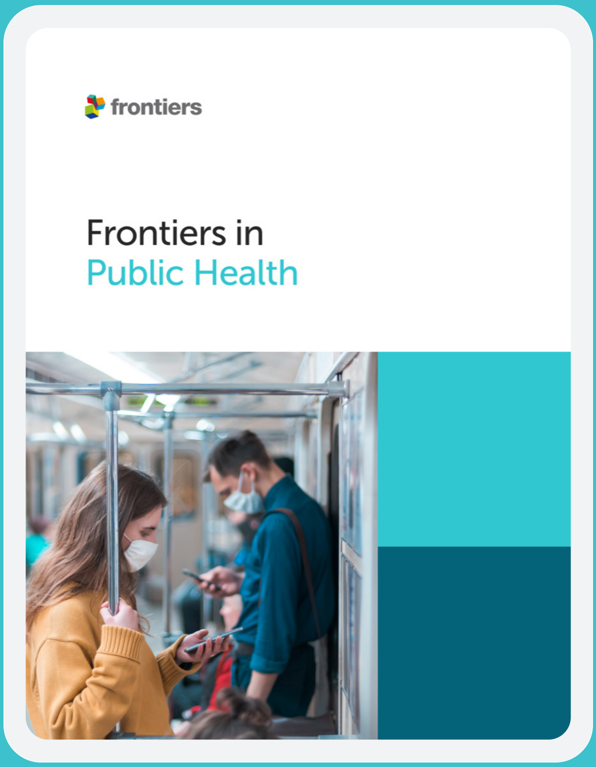
Frontiers in
Public Health

Explores and addresses today's fast-moving healthcare challenges

One of the most cited journals in its field, which promotes discussion around inter-sectoral public health challenges spanning health promotion to climate change, transportation, environmental change and even species diversity.

Discover the latest Research Topics

See more →



frontiers

Frontiers in
Public Health

Frontiers

Avenue du Tribunal-Fédéral 34
1005 Lausanne, Switzerland
frontiersin.org

Contact us

+41 (0)21 510 17 00
frontiersin.org/about/contact