



## OPEN ACCESS

EDITED BY  
Nicola Mucci,  
University of Florence, Italy

REVIEWED BY  
Nurka Pranjic,  
University of Tuzla, Bosnia and Herzegovina

\*CORRESPONDENCE  
José Antonio Llosa  
✉ llosajose@uniovi.es

RECEIVED 06 September 2023  
ACCEPTED 10 October 2023  
PUBLISHED 19 October 2023

CITATION  
Llosa JA, Agulló-Tomás E,  
Menéndez-Espina S and Oliveros B (2023)  
Revisiting the work-suicide link: renewed  
evidence and models of analysis in workplace  
contexts.  
*Front. Psychol.* 14:1290079.  
doi: 10.3389/fpsyg.2023.1290079

COPYRIGHT  
© 2023 Llosa, Agulló-Tomás, Menéndez-Espina  
and Oliveros. This is an open-access article  
distributed under the terms of the [Creative Commons Attribution License \(CC BY\)](https://creativecommons.org/licenses/by/4.0/). The  
use, distribution or reproduction in other  
forums is permitted, provided the original  
author(s) and the copyright owner(s) are  
credited and that the original publication in this  
journal is cited, in accordance with accepted  
academic practice. No use, distribution or  
reproduction is permitted which does not  
comply with these terms.

# Revisiting the work-suicide link: renewed evidence and models of analysis in workplace contexts

José Antonio Llosa<sup>1\*</sup>, Esteban Agulló-Tomás<sup>2</sup>,  
Sara Menéndez-Espina<sup>1</sup> and Beatriz Oliveros<sup>1</sup>

<sup>1</sup>Faculty of P. Ossó, Department of Social Education, University of Oviedo, Oviedo, Spain, <sup>2</sup>Faculty of Psychology, Department of Psychology, University of Oviedo, Oviedo, Spain

Suicide is a priority public health problem for the World Health Organization. It is a multifactorial phenomenon, for which there is no effective strategy for prevention and reduction. The scientific knowledge generated has not paid much attention to the differentiating role of work and employment on the phenomenon of suicide. This article first presents Abrutyn's recent conceptual model of suicide, which has a psychosocial, holistic and integrated approach. Based on this model, it examines the most recent and solid evidence and trends linking working conditions and phenomenon of suicide, identifying the most relevant findings in work stress theories. It concludes by pointing out avenues of development for a more holistic and ecological understanding of suicide.

## KEYWORDS

suicide, suicidal ideation, precarious work, job insecurity, psychosocial model, prevention

## 1. Introduction

Suicide has become a major global public health concern (WHO, 2021). In 2019, the World Health Organization (WHO) reported that 1 in 100 deaths worldwide were caused by suicide, with men's rate double that of women. In Europe, suicide affected 11.5 people out of every 100,000 in 2019 (WHO, 2021), increasing in recent years in mid-western and south-western regions of the continent. The same has occurred in the United States, with an increase of between 2 and 5% year-on-year since 1999 (Trust for America's Health, 2021). This problem is particularly significant in Asian countries, with the significance reflected in the Japanese, Chinese and Korean scientific literature (Kim et al., 2017, 2022; Tsuno and Tabuchi, 2022; Lin et al., 2023).

The study of suicide in the psychological sciences has progressed along two lines that tend to be disconnected, if not incoherent. The first of these, the most developed in the scientific literature, involves exploring the phenomenon in individual terms (Rodríguez-Otero et al., 2022): from approaches that follow genetic patterns (Sokolowski and Wasserman, 2021) to cognitive and/or personality elements, as an effect of the postpartum situation (Amiri and Behnezhad, 2021) through traits such as impulsiveness (Beach et al., 2022; Brokke et al., 2022), emotional intelligence (Korkmaz et al., 2020) or cognitive rigidity (Brokke et al., 2020). Suicide, from this perspective, has been understood as a phenomenon closely linked to personal or family causes. Its preponderance implies that the preventive approach focuses on individual causes without the possibility of formulating an ecological perspective (understood as the natural context of the person) in terms of prevention (Rodríguez-Otero et al., 2022). The second perspective, which is heir to Durkheim's (1913) understanding of suicide as a social fact, has tried to explore the social causes of a structural nature that explain the prevalence of suicide at

different times and in different contexts, because of the high cultural influence that is attributed to the phenomenon (Abrutyn and Mueller, 2018; Abrutyn, 2019).

The limits of the first approach mean that suicide is inevitably a phenomenon of such complexity that to seek a theoretical explanation and a reliable measure of it is a difficult task (Large et al., 2022). This position prevents the creation of a solid contextual framework to try to understand suicide as a psychosocial phenomenon, limiting it only to a merely clinical one (Rodríguez-Otero et al., 2022). In turn, the structural perspective has tended to situate the level of analysis at which it is difficult to understand the variability between individuals with regard to this phenomenon (Abrutyn and Mueller, 2018; Mueller et al., 2021).

Abrutyn (2019), through Social Psychology, makes an effort to generate a psycho-sociological approach, which tries to reconcile both levels of analysis. He tries to renew Durkheim's concept of deregulation, endowing it with an interconnected structural, personal and psychosocial dimension. Deregulation, in this context, means the process of losing the nexus with others, and with the contexts of relating to others (Mueller et al., 2021). Abrutyn (2019) approach goes further than Joiner's (2005) interpersonal theory of suicide, which argues that suicidal ideation emerges in the face of circumstances that are undesirable for the person, over which they perceive no capacity for action. Joiner thus focuses on the perception of social situations (Mueller et al., 2021). However, Abrutyn's (2019) approach allows for a holistic understanding of suicide with the capacity to explain not only a person's individual circumstances in the face of suicide, but the way in which contextual and interpersonal elements are linked to each other.

In putting forward these approaches, the starting point should be that suicide is understood as a personal and intentional process, which takes place in a deregulated, disaffiliative framework. This results in a rupture and/or weakening of social bonds, a loss of collective identity, and a social disruption of the person. It situates the subject in what Durkheim (2018) calls a state of anomie as a consequence of disintegration, which can lead to suicidal behavior (Abrutyn and Mueller, 2018; Abrutyn, 2019; Mueller et al., 2021).

Disruption involves an interconnected process of dissolution, disjunction and dislocation. Dissolution, as the loss of bonds or anchors with others. A loss of mutual recognition. Disjunction, as the disappearance of the expectation of stability, and dislocation, as a disconnection from the physical and material space in which to develop socially (Abrutyn, 2019). This complex process of interconnectedness generates a psychosocial framework for the understanding of suicide risk (Perry and Pescosolido, 2015), which in this article allows an analysis from the perspective of the relationship between suicide and working conditions or trajectories through recent literature in the framework of psychology.

A longitudinal analysis of 84,389 suicide cases carried out in the US population concluded that 12.1% of them were directly linked to work-related issues (Peek-Asa et al., 2021). Understanding the phenomenon of suicide as multi-causal (Abrutyn and Mueller, 2018; Mueller et al., 2021), we have compiled international literature from the last 4 years that explores the relationship between suicide and precarious working conditions. In this regard, the work of Aberg et al. (2022) examines a Scandinavian working population panel data composed of almost 1.5 million workers, and controls for variables such as gender, income and mental health diagnosis for the established

relationship between working conditions and suicidal behavior (fatal or non-fatal outcome). It found that the impact of working conditions on suicide remains a relevant element in isolation from other elements. Lin et al. (2023) reached similar conclusions in a Chinese population controlling for gender. In descriptive terms, in contrast to general mental health problems (Bezerra et al., 2021), suicide-related phenomena among the working population are more prevalent among middle-aged men (35–54 years) (Peek-Asa et al., 2021; Ishikawa, 2022; Tsuno and Tabuchi, 2022). The scientific literature also points to occupational sectors at higher risk: health-related professions (The Lancet, 2017; Ishikawa, 2022), construction (Tyler et al., 2022a,b), law enforcement (Genest et al., 2021), or particularly precarious sectors (Son and Lee, 2021; Greiner and Arensman, 2022).

One thing that the literature seems to indicate is that sustaining risky working conditions over time leads to a higher incidence of the phenomenon. It is not common to observe that the trigger for work-related suicide is explosive, but rather the result of an accumulation of risks (Tsuno and Tabuchi, 2022; Lin et al., 2023). There is, however, a paucity of longitudinal studies that allow for a more in-depth analysis of this issue.

With a general view of the relationship between suicide and employment, the relevant contribution of this paper is to try to draw empirical evidence from the scientific literature, the dynamics of the deregulatory process of the labor framework, and the approaches of Abrutyn's (2019) theoretical model. The aim is to generate a coherent and integrated understanding of occupational risks for suicide, and also to explore the limits of the recent literature studying the phenomenon.

## 2. Work and suicide evidence: a psychosocial model

### 2.1. Disjunction: expectations, stress and stability

The disjunction component appeals directly to stability (Allan et al., 2021) and expectations (Agnew, 1992; Joiner, 2005). Employment is a central axis as a framework of stability for individuals, not only on a material axis, but also on a psychological and relational level (Agulló Tomás, 1998; Llosa et al., 2018). However, the dynamics of the labor market in the Western context and the framework of globalization are fundamentally changing, precarious, mobile, in what has been called a deregulated labor context (Pacheco, 2020; Cardenas del Rey and Arribas Camara, 2022; Peters, 2022). Employment rates in the European Union as a whole show that temporary employment or part-time work, as symptomatic axes of stability, have experienced a sharp increase (Agulló-Tomás et al., 2018). This is taking place in a decidedly flexible legal framework for employment (Seccareccia, 2021). This structural framework gives rise of a phenomenon that is of growing interest: job insecurity specifically, and the study of phenomena linked to job stress in general. The concept of job insecurity takes root as the fear of losing a job that one wishes to keep, and at the same time the fear of losing the status that comes with a job that one has (Greenhalgh and Rosenblatt, 1984; Hellgren et al., 1999). It is therefore a construct centered on expectations, and thus closely linked to the idea of disjunction. The scientific literature provides evidence of a direct impact of job

insecurity on mental health in general terms (Llosa et al., 2018; Russo and Terraneo, 2020), and in specific terms also related to phenomena related to suicide or suicidal ideation (Milner et al., 2014; Kim et al., 2017; Howard et al., 2022).

The approach that Social Psychology has taken to the phenomenon of suicide has mainly been based on theoretical models of work-related stress, achieving relevant results of great practical applicability, as shown in the recently published meta-analysis of 22 studies (Milner et al., 2018). This directly links the knowledge that social psychology is currently generating with the idea of disjunction in Abrutyn's (2019) model. Thus, constructs related to work-related stress models and linked to suicide such as burn-out, observed in veterinarians, have been frequently examined (Andela, 2021); the aforementioned job insecurity linked to suicidal ideation (Kim et al., 2017; Blomqvist et al., 2022), and especially to the Job Demand-Control Model (JDC) (Andela, 2021; Son and Lee, 2021; Aberg et al., 2022; Almroth et al., 2022; Nishimura et al., 2022). The JDC model shows a congruence in the results of contemporary studies in observing that jobs with high demand, but high control, are a protective factor against suicidal ideation. This has been detected in Europe with work carried out in the Swedish context (Almroth et al., 2022), and the conclusion gains cross-cultural validity as the phenomenon has also been observed in Japan (Nishimura et al., 2022). The literature concludes that jobs with low control have a higher risk of suicide, which is accentuated by high demand. This explains why low-skilled jobs, with less control over the task, tend to be at higher risk of suicide-related phenomena, both suicidal ideation and attempts (Peek-Asa et al., 2021; Wild et al., 2021; Aberg et al., 2022; Nishimura et al., 2022). It is relevant that when low job control coexists with overqualification of the employee, the risk is accentuated, as it implies a rupture of expectations (Almroth et al., 2022). The study by Nishimura et al. (2022) links the high demand model with objective conditions of precariousness, as he observes in Japan that in highly qualified jobs (white collar), with the ability to control the task performed, the protective effect against the risk of suicide that might exist disappears in the case of overtime.

## 2.2. Dislocation and rupture of times

In the second component of disruption, labor deregulation implies a framework of possible dislocation (Abrutyn, 2019). Labor mobility means the possibility of people losing their ties with the physical spaces they occupy, in a sequence of uprooting with a psychological impact (Fuller, 2011). On the other hand, the poor quality of employment or its absence also generates a limitation in terms of wages, which means the inability to exert power in physical social environments.

The analysis of power over spaces is not an area explored by work psychology, but that of spaces and time frames is. The balance between work time and time dedicated to all other spheres of life is a key mechanism for the construction of solid life projects. This is reflected in the fact that there is solid evidence that work overload is linked to the phenomenon of suicide, both in the form of excessive working hours (Son and Lee, 2021; Wild et al., 2021; Ishikawa, 2022; Kim et al., 2022), and of rotating work shifts and sleep disturbances derived from it (Son and Lee, 2021; Kim et al., 2022). Son and Lee (2021) relate the effect of rotating shifts to stress and suicidal ideation, concluding that the risk of rotating shifts is moderated by the work stress experienced.

Gender studies have tended to focus on work-life balance issues, in particular with part-time employment (Wild et al., 2021). Part-time work entails greater precariousness in terms of income, as well as a tendency towards more elementary employment, and affects mainly women, being a cluster of factors clearly related to the phenomenon of suicide (Wild et al., 2021; Kim et al., 2022).

## 2.3. Dissolution: employment, rupture of social bonds and phenomenon of suicide

The third element has to do with dissolution, which relates to the loss of social anchors (Abrutyn, 2019). Returning to the idea of the centrality of employment, work is undergoing a mutation of meaning. Once understood as an element of identity, we assumed that employment generated solid identities that offered a protective factor for the development of social relations in the form of collective identities (Agulló-Tomás, 1997). Labor deregulation prevents the development of these solid identities, leading to the genesis of volatile and liquid identities. This is a psychosocial risk in itself, also generating a relational deterioration (Bauman, 2000; Andrade Jaramillo, 2014).

As can be seen, when analyzing the relationship between the suicidal phenomenon and employment, the most important scientific literature in social psychology is situated on the disjunction axis of Abrutyn's (2019) model. Fewer studies attempt a more holistic view of the phenomenon of suicide, but there is a line that tries to reflect on the interconnection of phenomena such as social support and work-family balance (Genest et al., 2021), which have to do with bonds, hence with the dimension of dissolution (Abrutyn, 2019). In this sense, Zarate et al. (2022) examines the work sector in the entertainment industry in Australia, which presents a tendency towards isolation. In this context, social support emerges as a highly relevant protective factor against suicidal ideation. However, and in exposing the findings, it is apparent that the research trend does not seek a broad and interconnected understanding of suicide. This is an aspect that we will vindicate with this analytical contribution.

## 3. Discussion: criticisms and future perspectives

Abrutyn's (2019) model, on which this analysis is based, allows for a coherent and interconnected understanding of suicide, linking occupational, relational and social aspects which, as Rodríguez-Otero et al. (2022) contend, would allow progress to be made towards more efficient and effective preventive models. This responds to a historically claimed priority in the scientific literature on suicide (Goldney, 2003). The ultimate conclusion of this analysis of the state of the issue encourages a change of perspective in labor studies, looking at employment as an integrated and multidimensional element of people's lives. An analysis that does not allow these different levels of understanding to be interconnected tends to generate a partial and reductionist knowledge about suicide, which does not enable contextualisation in the complexity necessary for the phenomenon studied (Lin et al., 2023). It neglects core factors for suicide such as material conditions, those related to income or housing security, which the literature also indicates are elements of enormous importance for the phenomenon of suicide and intimately linked to

the possibilities of employment (Mueller et al., 2021; Peek-Asa et al., 2021). There is also a need to explore the study of racial discrimination, gender, sexual orientation and others in work and non-work contexts in relation to the phenomenon of suicide (Silva and Van Orden, 2018; Sun et al., 2022). There is, therefore, little ability to link social support outside of work, with that which takes place in the work context, and the phenomenon of suicide (Endo et al., 2014). Ultimately, important and relevant evidence is collected to look at employment as a consubstantial element in the understanding of suicide, but studies of employment and suicide lack the holistic view that the phenomenon requires. The reductionism observed highlights an important need to strengthen knowledge about the phenomenon of suicide, opening up a field of study that can be explored in depth on two levels: taking into account the dimensions of disjunction, dislocation and dissolution (Abrutyn, 2019) when understanding work-related phenomena in relation to suicide, and inserting variables of a work-related nature as cross-cutting issues for a complete understanding of the phenomenon of suicide. The psychosocial approach is, therefore, relevant, allowing for the incorporation of a vision and conceptual and theoretical resources that are better suited to offer clarity on this intrinsically complex phenomenon.

## 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.

## References

- Aberg, M., Staats, E., Robertson, J., Schioler, L., Toren, K., LaMontagne, A. D., et al. (2022). Psychosocial job stressors and risk of suicidal behavior - an observational study among Swedish men. *Scand. J. Work Environ. Health* 48, 435–445. doi: 10.5271/sjweh.4039
- Abrutyn, S. (2019). Toward a general theory of anomie the social psychology of disintegration. *Eur. Sociol. Rev.* 60, 109–136. doi: 10.1017/S0003975619000043
- Abrutyn, S., and Mueller, A. S. (2018). Toward a cultural-structural theory of suicide: examining excessive regulation and its discontents. *Sociol Theory* 36, 48–66. doi: 10.1177/0735275118759150
- Agnew, R. (1992). Foundation for a General Strain Theory of crime and delinquency\*. *Criminology* 30, 47–88. doi: 10.1111/j.1745-9125.1992.tb01093.x
- Agulló Tomás, E. (1998). La centralidad del trabajo en el proceso de construcción de la identidad de los jóvenes: una aproximación psicosocial [the centrality of work in the process of construction of the identity of young people: a psychosocial approach]. *Psicothema* 10, 153–165.
- Agulló-Tomás, E. (1997). *Jóvenes, trabajo e identidad [youth, work and identity]*. Oviedo: Servicio de Publicaciones de la Universidad de Oviedo.
- Agulló-Tomás, E., Llosa, J. A., and Agulló-Tomás, M. S. (2018). “Trabajo indecente, contexto actual e implicaciones [decent work, actual context and implications]” in *La interacción Social (Homenaje a José Ramón Torregrosa)*. ed. J. L. Á. Estramiana (Madrid: Centro de Investigaciones Sociológicas (CIS)), 75–93.
- Allan, N. P., Volarov, M., Koscinski, B., Pizzonia, K. L., Potter, K., Accorso, C., et al. (2021). Lonely, anxious, and uncertain: critical risk factors for suicidal desire during the COVID-19 pandemic. *Psychiatry Res.* 304:114144. doi: 10.1016/j.psychres.2021.114144
- Almroth, M., Hemmingsson, T., Kjellberg, K., Sorberg Wallin, A., Andersson, T., van der Westhuizen, A., et al. (2022). Job control, job demands and job strain and suicidal behaviour among three million workers in Sweden. *Occup. Environ. Med.* 79, 681–689. doi: 10.1136/oemed-2022-108268
- Amiri, S., and Behnezhad, S. (2021). The global prevalence of postpartum suicidal ideation, suicide attempts, and suicide mortality: a systematic review and meta-analysis. *Int. J. Ment. Health* 50, 311–336. doi: 10.1080/00207411.2021.1959814
- Andela, M. (2021). Work-related stressors and suicidal ideation: the mediating role of burnout. *J. Workplace Behav. Health* 36, 125–145. doi: 10.1080/15555240.2021.1897605
- Andrade Jaramillo, V. (2014). Professional identity and the world of comporary work. Reflections from an abstract of case. *Athenea digital. Rev. Pensam. Investig. Soc.* 14, 117–145. doi: 10.5565/rev/athenea.1143
- Bauman, Z. (2000). *Liquid Modernity*. Cambridge: Polity Press.
- Beach, V. L., Gissandauer, T. D., and Schmidt, A. T. (2022). The UPPS model of impulsivity and suicide: a systematic literature review. *Arch. Suicide Res.* 26, 985–1006. doi: 10.1080/13811118.2021.1892002
- Bezerra, H. D. S., Alves, R. M. M., Nunes, A. D. D., and Barbosa, I. R. R. (2021). Prevalence and associated factors of common mental disorders in women: a systematic review. *Public Health Rev.* 42:1604234. doi: 10.3389/phrs.2021.1604234
- Blomqvist, S., Virtanen, M., LaMontagne, A. D., and Hanson, L. L. M. (2022). Perceived job insecurity and risk of suicide and suicide attempts: a study of men and women in the Swedish working population. *Scand. J. Work Environ. Health* 48, 293–301. doi: 10.5271/sjweh.4015
- Brokke, S. S., Landro, N. I., and Haaland, V. (2020). Cognitive control in suicide Ideators and suicide attempters. *Front. Psychol.* 11:595673. doi: 10.3389/fpsyg.2020.595673
- Brokke, S. S., Landro, N. I., and Haaland, V. O. (2022). Impulsivity and aggression in suicide ideators and suicide attempters of high and low lethality. *BMC Psychiatry* 22:753. doi: 10.1186/s12888-022-04398-w
- Cardenas del Rey, L., and Arribas Camara, J. (2022). Flexibilization, deregulation and dualization: institutional change and trajectories of labor market liberalization. *Rev. Esp. Sociol.* 31:a102. doi: 10.22325/fes/res.2022.102
- Durkheim, E. (2018). *Suicide, a study in sociology*. Franklin Classics. Minneapolis, MN
- Endo, G., Tachikawa, H., Fukuoka, Y., Aiba, M., Nemoto, K., Shiratori, Y., et al. (2014). How perceived social support relates to suicidal ideation: a Japanese social resident survey. *Int. J. Soc. Psychiatry* 60, 290–298. doi: 10.1177/0020764013486777
- Fuller, S. (2011). Up and on or down and out? Gender, immigration and the consequences of temporary employment in Canada. *Res. Soc. Stratif. Mobil.* 29, 155–180. doi: 10.1016/j.rssm.2010.09.001
- Genest, C., Ricciardelli, R., and Carleton, R. N. (2021). Correctional work: reflections regarding suicide. *Int. J. Environ. Res. Public Health* 18:4280. doi: 10.3390/ijerph18084280

## Author contributions

JL: Conceptualization, Writing – original draft. EA-T: Conceptualization, Project administration, Writing – review & editing. SM-E: Conceptualization, Writing – review & editing. BO: Writing – review & editing.

## 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 they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

## Publisher's note

All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers. Any product that may be evaluated in this article, or claim that may be made by its manufacturer, is not guaranteed or endorsed by the publisher.

- Goldney, R. D. (2003). A novel integrated knowledge explanation of factors leading to suicide. *New Ideas Psychol.* 21, 141–146. doi: 10.1016/S0732-118X(03)00016-3
- Greenhalgh, L., and Rosenblatt, Z. (1984). Job insecurity: toward conceptual clarity. *Acad. Manag. Rev.* 9, 438–448. doi: 10.2307/258284
- Greiner, B. A., and Arensman, E. (2022). The role of work in suicidal behavior - uncovering priorities for research and prevention. *Scand. J. Work Environ. Health* 48, 419–424. doi: 10.5271/sjweh.4051
- Hellgren, J., Sverke, M., and Isaksson, K. (1999). A two-dimensional approach to job insecurity: consequences for employee attitudes and well-being. *Eur. J. Work Organ. Psy.* 8, 179–195. doi: 10.1080/135943299398311
- Howard, M. C., Follmer, K. B., Smith, M. B., Tucker, R. P., and Van Zandt, E. C. (2022). Work and suicide: an interdisciplinary systematic literature review. *J. Organ. Behav.* 43, 260–285. doi: 10.1002/job.2519
- Ishikawa, M. (2022). Long working hours, depression and suicidality among OB/GYNs in Japan. *Occup. Med. -Oxf.* 72, 200–206. doi: 10.1093/occmed/kqab191
- Joiner, T. (2005). *Why people die by suicide*. Harvard University Press. Cambridge, MA
- Kim, M.-S., Hong, Y.-C., Yook, J.-H., and Kang, M.-Y. (2017). Effects of perceived job insecurity on depression, suicide ideation, and decline in self-rated health in Korea: a population-based panel study. *Int. Arch. Occup. Environ. Health* 90, 663–671. doi: 10.1007/s00420-017-1229-8
- Kim, S.-Y., Lee, M. Y., Kim, S. I., and Lim, W.-J. (2022). The mediating effects of working hours, sleep duration, and depressive mood on the association between shift work and the risk of suicidal ideation in Korean workers. *Sleep Med.* 93, 49–55. doi: 10.1016/j.sleep.2022.03.016
- Korkmaz, S., Keles, D. D., Kazgan, A., Baykara, S., Gurok, M. G., Demir, C. F., et al. (2020). Emotional intelligence and problem solving skills in individuals who attempted suicide. *J. Clin. Neurosci.* 74, 120–123. doi: 10.1016/j.jocn.2020.02.023
- Large, M. M., Soper, C. A., and Ryan, C. J. (2022). Suicide risk assessment. *Lancet Psychiatry* 9, 938–939. doi: 10.1016/S2215-0366(22)00314-5
- Lin, X., Lin, S., Zhang, H., Zhang, R., and Gong, J. (2023). Longitudinal association between cumulative work risks and suicidal ideation among Chinese employees during the COVID-19 pandemic: a moderated mediation model. *Curr. Psychol.* doi: 10.1007/s12144-023-04848-y
- Llosa, J. A., Menéndez-Espina, S., Agulló-Tomás, E., and Rodríguez-Suárez, J. (2018). Job insecurity and mental health: a meta-analytical review of the consequences of precarious work in clinical disorders. *Anales de Psicología* 34, 211–221. doi: 10.6018/analesps.34.2.281651
- Milner, A. J., Page, A., and LaMontagne, A. D. (2014). Cause and effect in studies on unemployment, mental health and suicide: a meta-analytic and conceptual review. *Psychol. Med.* 44, 909–917. doi: 10.1017/S0033291713001621
- Milner, A. J., Witt, K., LaMontagne, A. D., and Niedhammer, I. (2018). Psychosocial job stressors and suicidality: a meta-analysis and systematic review. *Occup. Environ. Med.* 75, 245–253. doi: 10.1136/oemed-2017-104531
- Mueller, A. S., Abrutyn, S., Pescosolido, B., and Diefendorf, S. (2021). The social roots of suicide: theorizing how the external social world matters to suicide and suicide prevention. *Front. Psychol.* 12:621569. doi: 10.3389/fpsyg.2021.621569
- Nishimura, Y., Yamauchi, T., Sasaki, T., Yoshikawa, T., and Takahashi, M. (2022). Overtime working patterns and adverse events in work-related suicide cases: hierarchical cluster analysis of national compensation data in Japan (fiscal year 2015–2016). *Int. Arch. Occup. Environ. Health* 95, 887–895. doi: 10.1007/s00420-021-01760-5
- Pacheco, E.-M. (2020). Culture learning theory and globalization: reconceptualizing culture shock for modern cross-cultural sojourners. *New Ideas Psychol.* 58:100801. doi: 10.1016/j.newideapsych.2020.100801
- Peek-Asa, C., Zhang, L., Hamann, C., Davis, J., and Schwab-Reese, L. (2021). Characteristics and circumstances associated with work-related suicides from the National Violent Death Reporting System, 2013–2017. *Int. J. Environ. Res. Public Health* 18:9538. doi: 10.3390/ijerph18189538
- Perry, B. L., and Pescosolido, B. A. (2015). Social network activation: the role of health discussion partners in recovery from mental illness. *Soc. Sci. Med.* 125, 116–128. doi: 10.1016/j.socscimed.2013.12.033
- Peters, J. (2022) in *Globalization, work, and labor market deregulation*. eds. J. Peters and D. W. Vancouver (Vancouver, BC: University of British Columbia Press)
- Rodríguez-Otero, J. E., Campos-Mourino, X., Meilan-Fernandez, D., Pintos-Bailon, S., and Cabo-Escribano, G. (2022). Where is the social in the biopsychosocial model of suicide prevention? *Int. J. Soc. Psychiatr.* 68, 1403–1410. doi: 10.1177/00207640211027210
- Russo, C., and Terraneo, M. (2020). Mental well-being among workers: a cross-national analysis of job insecurity impact on the workforce. *Soc. Indic. Res.* 152, 421–442. doi: 10.1007/s11205-020-02441-5
- Seccareccia, M. (2021). What is full employment? A historical-institutional analysis of a changing concept and its policy relevance for the twenty-first century post-COVID-19 economies. *J. Econ. Issues* 55, 539–551. doi: 10.1080/00213624.2021.1915082
- Silva, C., and Van Orden, K. A. (2018). Suicide among Hispanics in the United States. *Curr. Opin. Psychol.* 22, 44–49. doi: 10.1016/j.copsyc.2017.07.013
- Sokolowski, M., and Wasserman, D. (2021). A candidate biological network formed by genes from genomic and hypothesis-free scans of suicide. *Prev. Med.* 152:106604. doi: 10.1016/j.ypmed.2021.106604
- Son, J., and Lee, S. (2021). Effects of work stress, sleep, and shift work on suicidal ideation among female workers in an electronics company. *Am. J. Ind. Med.* 64, 519–527. doi: 10.1002/ajim.23243
- Sun, Y., Wang, P., and Tang, J. (2022). Impact of mental health, job insecurity, and COVID-19 symptoms on protective behavior changes among white, black, and other minorities in the US. *Front. Psychol.* 13:1040413. doi: 10.3389/fpsyg.2022.1040413
- The Lancet (2017). Suicide among health-care workers: time to act. *Lancet (London, England)* 389:2. doi: 10.1016/S0140-6736(17)30005-3
- Trust for America's Health (2021). *Trust for America's health. Pain in the nation: Alcohol, suicide, and drug epidemics*. Washington DC: Trust for America's Health.
- Tsuno, K., and Tabuchi, T. (2022). Risk factors for workplace bullying, severe psychological distress and suicidal ideation during the COVID-19 pandemic among the general working population in Japan: a large-scale cross-sectional study. *BMJ Open* 12:e059860. doi: 10.1136/bmjopen-2021-059860
- Tyler, S., Gunn, K., Esterman, A., Clifford, B., and Procter, N. (2022a). Suicidal ideation in the Australian construction industry: prevalence and the associations of psychosocial job adversity and adherence to traditional masculine norms. *Int. J. Environ. Res. Public Health* 19:15760. doi: 10.3390/ijerph192315760
- Tyler, S., Hunkin, H., Pusey, K., Gunn, K., Clifford, B., and Procter, N. (2022b). Suicide in the construction industry: a targeted meta-analysis. *Arch. Suicide Res.* 1–13. doi: 10.1080/13811118.2022.2131488
- WHO (2021). *Suicide worldwide in 2019*. WHO. Geneva
- Wild, P., Bovio, N., and Guseva Canu, I. (2021). Part-time work and other occupational risk factors for suicide among working women in the Swiss National Cohort. *Int. Arch. Occup. Environ. Health* 94, 981–990. doi: 10.1007/s00420-020-01629-z
- Zarate, D., Sonn, C., Fisher, A., and Stavropoulos, V. (2022). Suicidal behaviors in the entertainment industry: a preliminary exploration of the interplay between work scheduling, social support, and wellbeing in Australia. *BMC Psychiatry* 22:754. doi: 10.1186/s12888-022-04376-2