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Well-being and academic attitudes among secondary school students living in a context of life-threatening collective violence in Northern Nigeria

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Collective violence limits well-being and academic achievement among the millions of young people in low- and middle-income countries who are exposed to armed conflict, terrorism, harassment, kidnapping, and other forms of communal violence. Most past research has focused on survivors or witnesses, neglecting the much larger number of young people who live under the prolonged threat of violence. This study addressed this gap by applying the Situated Expectancy-Value Model of adolescent academic achievement. This informed predictions about the relationship between well-being and adolescents' orientation to formal education in a context of collective violence in which schools are a special target. Over the past decade, Northern Nigeria has experienced recurring terrorist attacks and large-scale abductions of school students. Students attending public secondary schools in Northern Nigeria (n=371; male=45.6%, age range=16–17; mean age=16.7years) completed three questionnaires that assessed four domains of well-being (body image, self-esteem, a positive social orientation, and positive emotions), the perceived value of academic learning, and two behaviours strongly related to academic achievement (persistence and engagement). Multiple regression analyses found that the four domains of well-being accounted for 70.5%, 87.3%, and 88.3% of variance in the perceived value of academic learning, academic persistence, and academic engagement, respectively. Subsequent analyses revealed that the associations between multi-dimensional well-being and both persistence and engagement were partially mediated by the perceived value of academic learning. In summary, although the observational research design precluded conclusions about the direction of effect in associations between the variables, the results are consistent with the interpretation that psychological well-being allows students to appreciate the value of academic learning, and this contributes to higher academic engagement and greater persistence on academic tasks.

KEYWORDS

adolescents, terrorism, Boko Haram, collective violence, well-being, persistence, value of education, academic engagement

Introduction

Many school students in low- and middle-income countries are directly or indirectly exposed to one or more forms of collective violence. Notably, armed conflicts alone affect more than 10% of the global population of children (Kadir et al., 2019). Such conflicts include wars between nation-states (e.g., the current conflict between Ukraine and Russia) or between actors

within a nation-state (e.g., the current conflict in Yemen) (Guha Sapir et al., 2022). Many more school students are exposed to other forms of collective violence perpetrated by members of one group against another group or specific individuals to achieve political, economic, or social objectives (World Health Organization, 2002). These include contexts in which simmering tension between communities frequently flares into violence (e.g., between Israeli "settlers" and Palestinians) (Thallman, 2021); conflicts between heavily armed criminal factions (e.g., Mexican drug lords' territorial disputes) (Monteiro and Rocha, 2017); harassment of minority ethnic and religious groups (e.g., violence directed towards the Rohingya minority in Burma) (Office of International Religious Freedom, 2021); and banditry, terrorist attacks, bombings, or kidnappings targeting civilians, as witnessed in the Sahel (Global Terrorism Index, 2021), Northern Nigeria (Brenner, 2021), and Afghanistan (Felbab-Brown, 2017). Students' academic learning and psychological well-being appear to be particularly sensitive to collective violence.

Dodge et al. (2012) proposed that well-being is achieved when a person's psychological, physical, and social resources are adequate for the challenges they face, leading to a state of equilibrium and overall satisfaction with life. Most conventional conceptualizations of psychological well-being reflect either the perspective of positive psychology, which focuses on life satisfaction and happiness (Clausen and Barrantes, 2022), or a psychopathological perspective, which focuses on the mental health problems, such as post-traumatic stress disorder, depression, and anxiety (Gollub et al., 2019). Both perspectives agree that well-being has multiple conceptually distinct but related dimensions. Most measures of well-being designed for young people align with one of these perspectives (Makhoul et al., 2011; Piqueras et al., 2022). However, other perspectives, which seek to encompass domains of well-being that are especially salient for adolescents (e.g., positive body image, self-esteem, positive social orientation, and positive emotions) are also available (Bigot et al., 2017). These broader conceptions of well-being are likely to offer valuable insights into the resilience of adolescents facing adversity. Despite this, most research on the psycho-social well-being of adolescents exposed to collective violence has adopted a psychopathological perspective. Reviews of this research have concluded that young people exposed to collective violence are at elevated risk of mental health problems (e.g., Kadir et al., 2019). They also show that there is little research on domains of well-being that may be especially salient for resilience among adolescents.

Exposure to collective violence may also reduce adolescents' participation in schooling and their academic achievement when they attend (Chávez and Aguilar, 2021). Elevated rates of school absences and school drop-out have been reported among students exposed to armed conflict in sub-Saharan Africa (Poirier, 2012), Cambodia (Islam et al., 2016), and Tajikistan (Shemyakina, 2011); prolonged exposure to security threats in the Occupied Palestinian Territories (Di Maio and Nandi, 2013); and armed insurgency in Colombia (Rodriguez and Sanchez, 2012). In addition, students who continued to attend school despite exposure to gang conflicts in Brazil (Monteiro and Rocha, 2017) or armed insurgency in Colombia (Phelan, 2018) showed poorer performance than their unexposed peers on standardized mathematics exams, and secondary school exit examinations in mathematics and language, respectively. Several mechanisms have been proposed to explain these outcomes.

Collective violence can cause parents, students, and educators to prioritize safety over learning, leading to reduced instruction time due to teacher and student absences and school closures. In addition, Barrera-Osorio and Ibáñez-Londoño (2004) proposed that collective violence can alter the economics of families' investments in their children's education in three ways. It can directly change the balance between household income and education costs; it can produce specific economic shocks due to the destruction of physical capital (e.g., housing, crops) resulting in an increased demand for children's labour; and it may reduce the rate of return on education. All three paths increase absenteeism and drop-out. The third path also leads to a reduction in the perceived value of education among students who continue to attend school. While absenteeism and drop-out have been a focus of research, little attention has been given to the effect of collective violence on the perceived value of schooling. In addition, recurrent violence is often associated with poor concentration and persistence in academic tasks due to intrusive thoughts (Cooley-Strickland et al., 2009). The current research seeks to identify factors that contribute to adolescents' continued engagement in academic learning despite exposure to collective violence.

A useful conceptual framework for research on this topic is the Expectancy-Value Model of adolescents' academic achievement (Eccles-Parsons et al., 1983). It predicts that the characteristics of students and their social milieu influence students' perception of the value of academic learning ("subjective task value"). This, in turn, influences students' motivation for behaviours that support academic achievement, such as their persistence on academic tasks and their academic engagement. In 2020, the model was renamed the Situated Expectancy-Value Model to highlight the influence of culture and context on students' academic motivations and behaviour (Eccles and Wigfield, 2020). Over the past 50 years, this model has received broad empirical support in research involving diverse populations of students (Eccles and Wigfield, 2020). The current study observed that the model will also apply in contexts of collective violence. Thus, it predicts that in a situation of prolonged insecurity (one domain of students' life "situation"), the relationship between aspects of students' multidimensional well-being ("student characteristics") and their academic engagement and persistence in academic learning (two domains of "achievement-related choices and performance") will be partially mediated by the value students ascribe to academic learning ("subjective task value"). Both student engagement in academic work (i.e., their active behavioural and cognitive commitment, and purposeful effort in learning activities) (Boulton et al., 2019), and their persistence in academic tasks, are positively associated with academic performance across diverse populations and life circumstances (e.g., Ainley et al., 2002; National Research Council and Institute of Medicine, 2004).

The impact of collective violence on well-being and academic behaviours may vary depending on student characteristics. In particular, gender disparities in outcomes may arise due to cultural norms, the ideology of combatants, and the unique risks faced by girls (e.g., forced marriage, pregnancy). For example, Afghani schoolgirls became a special target of violence and denial of educational opportunities both during and after the armed conflict that led to the Taliban taking power (e.g., Hinds, 2013). Research by Panter-Brick

et al. (2009) found that Afghani girls showed a two-fold higher risk for psychopathology and more symptoms of depression than their male peers. Even when girls are not targeted, they are often more vulnerable than boys to school drop-out in contexts of collective violence (e.g., Shemyakina, 2011), although this pattern is not observed in all contexts (e.g., Islam et al., 2016). Research examining whether there are gender differences in the perceived value of academic learning, persistence on academic tasks, or academic engagement in contexts of collective violence is lacking. However, this could provide important insights into the factors that influence students' resilience.

Most prior research on well-being and education among young people exposed to collective violence has focused on survivors or first-hand witnesses (Chávez and Aguilar, 2021). Although this is valuable, it provides limited insights into the outcomes for the millions of young people who are exposed to terrorism. Such insights are needed because terrorism affects a large number of students in Africa and other world regions. The primary goal of terrorists is to produce fear and anxiety far beyond their immediate victims and the witnesses to their actions (Breckenridge and Zimbardo, 2007). Terrorists use violence, or the threat of violence, to inculcate widespread high levels of fear to coerce or intimidate governments or communities to comply with their goals, which are usually political, religious, or ideological (Burgess, 2003).

Terrorism presents two threats to young people (Pine et al., 2005). First, it may intentionally target the child's community, or those community members who engage in activities (including attending school) that are inconsistent with the terrorists' ideology. Second, it may cause random harm to children and their families, through acts such as marketplace bombings. Terrorist groups have targeted schools in many countries, including Russia, Israel, Afghanistan, and Pakistan (Scrimin et al., 2009; Biberman and Zahid, 2019). A sample of 75 countries using the Global Terrorism Database indicated that in 2013, there were 307 attacks on educational institutions, mainly primary and secondary schools (Fahey and Asal, 2020). The effect of terrorism on the well-being of students, their families, teachers, and other community members is influenced by their inability to effectively predict or prevent it, and its underlying malevolent intent (Beutler et al., 2007). Although instilling terror among a civilian population is the primary strategy used by terrorists, it is also a strategy adopted by many other perpetrators of collective violence.

Northern Nigeria is a useful setting for investigating the relationships between well-being and academic outcomes among students exposed to collective violence, as well as possible gender differences in well-being and academic outcomes. By 2020, attacks by the Islamic jihadist group Boko Haram (and its offshoot Islamic State West Africa Province) had caused 2.1 million Nigerians to become internally displaced, and an additional 150,000 Nigerians to seek refuge in neighboring countries (UNHCR, 2020). Boko Haram's objective is to establish an Islamic caliphate in Nigeria. A key element in its ideology is that secular education contradicts the teachings of the Koran (Amusan and Ejoke, 2017). Schools have been burned and teachers have been murdered. However, the most distinctive form of collective violence directed toward schools is the kidnapping of students. Although some raids have targeted boys (Amusan and Ejoke, 2017), most have targeted girls (Maiangwa and Agbiboa, 2014; Zenn and Pearson, 2014). Perhaps the most widely known instance occurred in 2014, when Boko Haram kidnapped 276 mostly Christian girls, aged 16 to 18, from the Government Girls Secondary School in Chibok, Borno State. These young women endured forced sexual exploitation, marriage, religious conversion, and forced labor. Almost nine years later, over 100 of the girls remain missing (Aljazeera, 2022).

Such abductions continue across Northern Nigeria. In 2021, there were 25 attacks on Nigerian schools: 1,440 children were kidnapped, and 16 children were killed (UNICEF, 2022). Initially, such raids were almost exclusively instigated by jihadists. Recently, armed bandit groups seeking ransom payments are responsible for most students' abductions (Verjee and Kwaja, 2021). For example, in July 2021, bandits kidnapped 140 students from Bethel Baptist High School in Kaduna State (Akinwotu and Uangbaoje, 2021). For kidnapped students and their families, the stakes are high. In April 2021, bandits killed 5 of the 20 students they kidnapped from Greenfield University in Kaduna State when their ransom was not paid on time (Aremu and Aremu, 2022). Thus, school students are viewed as a valuable commodity by both jihadists and bandits (Aremu and Aremu, 2022). Across large areas of Northern Nigeria, attacks on schools have reduced both school enrolments and years of completed education (Bertoni et al., 2019). At the beginning of the 2021–2022 school year, UNICEF estimated that at least one million Nigerian children failed to enroll in school due to the threat of targeted violence (Lebowitz, 2021). The current study focused on resilient students who defy the threat of violence by continuing their education.

Students in Northern Nigeria are also exposed to other forms of collective violence perpetrated due to ongoing competition for land and water between farmers and pastoralists. These groups typically differ in ethnicity and religion. The result is a developmental context in which acts of collective violence resulting in fatalities occur, on average, more than once per week (Table 1). Many more events result in non-fatal injuries.

The current study aimed to gain insights into factors that support resilience among young people exposed to prolonged collective violence by identifying relationships between aspects of their well-being and behaviours that support academic learning. It focuses on young people in Northern Nigeria who are continuing their education in the face of targeted attacks on students by both terrorists and bandits. The study tested two hypotheses informed by value-related components in the Situated Expectancy Value Model of students' academic achievement:

1. Four domains of multi-dimensional well-being (body image, self-esteem, positive social orientation, and positive emotions) will have a direct positive association with students':
   a. Perception of the value of academic learning
   b. Academic persistence
   c. Academic engagement.
2. Students' perception of the value of academic learning will partially mediate the relationship between domains of well-being and
   a. Academic persistence
   b. Academic engagement.

It also explored gender differences in students' ratings of

a. Four domains of multi-dimensional well-being.
b. Perception of the value of academic learning.
c. Academic persistence.
d. Academic engagement.

TABLE 1 Incidents in which one or more fatalities occurred during collective violence in Kaduna and Plateau States in the six months between January 1 and June 30, 2022.

	Kaduna State		Plateau State	
Context in which the fatality occurred	Incidents	Deaths	Incidents	Deaths
Attacks by bandits	44	199	6	166
Conflict between bandits and security forces, police or vigilantes	16	174	0	0
During a kidnapping	3	4	6	9
Attacks by terrorists or unidentified gunmen	7	120	19	50
Other communal violence perpetrated by, or targeting, communities or ethnic/religious groups	4	30	5	33

Data extracted on 9 February 2023 from databases provided by Nigeria Watch (http://www.nigeriawatch.org).

Materials and methods

Participants

A total of 449 adolescents attending public secondary schools (male = 47.5%; mean age = 16.4 years) in two states in Northern Nigeria were recruited using proportional stratified and cluster sampling techniques. However, only 371 students (45.6% male, overall mean age = 16.7) provided complete data: Plateau State (3 schools; 132 students) and Kaduna State (5 schools; 239 students). The participants were in their third ($n = 107$, mean age 16.2), fourth ($n = 121$, mean age = 16.8), and fifth ($n = 143$, mean age = 17.1) year of secondary schooling. Class sizes varied between 20 and 56 students. All schools were located in areas characterized by a high level of communal violence, including kidnapping, banditry, and bombing.

Ethics approval for the research was obtained from the University of Jos, and permission to conduct the research was granted by the Plateau State and Kaduna State Zonal Ministries of Education. The researchers briefed each school's principal and obtained permission to recruit student volunteers as participants and to employ one teacher as the research assistant. Because unfamiliar adults' arrival at schools in these areas provokes anxiety among students, a teacher familiar to them was employed to distribute participant information sheets and to distribute and collect questionnaires. Students were asked to complete the questionnaires during their break periods and to return these within 1 day. Permission from students' parents or guardians was sought through a consent form. All parents or guardians who completed the form granted permission for their children to participate in the study.

Measures

Predictor: multi-dimensional well-being

The *Short Multidimensional Well-being Questionnaire* (SMWQ) (Bigot et al., 2017) was designed to assess domains of well-being that are particularly relevant for adolescents. This 23-item questionnaire had four dimensions of psychological well-being: physical perception, which assesses body image (6 items, e.g., "I am satisfied with my body"); self-esteem (6 items, e.g., Sometimes I think I am useless" (reverse scored), "Whatever happens, I can adjust myself"); positive social orientation (6 items, e.g., "I am not an easy person to get along with" (reverse scored); "I enjoy meeting people for socializing"); and positive emotions (5 items, e.g., "I am often unhappy, sad or depressed" (reverse scored), "I am easy-going"). Participants rate their agreement with statements using a 5-point Likert-type scale ranging from 1 = disagree to 5 = completely agree.

Mediator variable: value of academic learning

Students' perception of the value of academic learning was measured using a 7-item scale that assessed students' perceptions of the interest (3 items), importance (1 item), and utility (3 items) of academic learning. The measure consisted of three items from the *Motivated Strategies for Learning Questionnaire* (MSLQ) (Pintrich et al., 1993) and 4 items from the *Science Learning Inventory: Conceptual Ecology and Cognitive Engagement (SLI-A)* (Seyedmonir, 2000). This combination of items has previously been used by Bircan (2015). Sample items included "I am very interested in the content area of this course" (interest), "Understanding the concepts is more important to me than the grade I get" (importance), "I do not expect myself using much of the concepts covered in classes other than recalling them for exams" (utility: reverse scored). Participants rated their agreement with items on a 5-point scale: "strongly disagree" = 1, to "strongly agree" = 5.

Outcomes: positive academic behaviors

An abbreviated form of the *Academic Persistence Scale* (APS) (Thalib et al., 2018) was created to assess persistence. The original 45-item scale, which was specifically designed for adolescent students living in a low-income country, assessed three aspects of persistence (sustained involvement, renewal of commitment, and intensification of activity when facing obstacles) in three time periods (long-term, current, and recurrent unattained aims). To reduce participant burden, a 20-item brief form was custom-designed for this study. It retained the original structure (e.g., long term: "I already have a target at what age I will be a successful person"; current: "Every time I have a school assignment, I finish it immediately"). The brief form also retained the original 5-point Likert-type scale.

Academic engagement was assessed using the two subscales from the Student Engagement in School Four-Dimensional Scale (SES-4DS) (Veiga, 2016) that are most relevant to learning: cognitive engagement (5 items, e.g., "I spend a lot of my free time looking for more information on topics discussed in class"); and behavioural engagement [5 items, e.g., "I am absent from classes while in school" (reverse scored)]. Participants rated the extent of their agreement with each statement on a 5-point scale: "strongly disagree" = 1, to "strongly agree" = 5.

The cultural and contextual relevance of the measures was assessed. Items from the measures were given to two experts in Educational Psychology employed by a university in Northern Nigeria. The experts' task was to identify instructions and item wording that secondary school students may find difficult to understand and to refine these. They were also asked to judge whether, taken together, the items in the measures of well-being, perceived value of academic learning, academic persistence, and engagement were relevant to each of these concepts for secondary students and in the cultural context in Northern Nigeria. Overall, the experts judged that the items were developmentally and culturally appropriate and that they had face validity. The internal consistency of all measures was also adequate in the current sample (α = 0.70–0.76) (Table 2).

Data analysis

The distribution of data was examined using descriptive statistics. ANCOVA analyses that covaried for age differences, tested for gender differences in mean ratings for the four domains of well-being and the three academic variables (perceived value of academic learning, academic persistence, and academic engagement). Hierarchical linear regression analyses examined the direct relationship between domains of multi-dimensional well-being and each of the three academic variables after entering participants' age and gender in Step 1. In all regression analyses, the variance inflation factor (VIF) was examined to identify any instances of multicollinearity. The prediction that the students' perception of the value of academic learning would mediate the relationship between multi-dimensional well-being and the academic outcome variables was tested using (Hayes, 2013) PROCESS Model 4, which provides estimates of the magnitude of direct and indirect effects in simple and mediated regression models. The mediation analysis was conducted using a 95% bootstrap confidence interval in 5,000 samples.

TABLE 2 Internal consistency of measures among secondary students in Northern Nigeria.

Measure	Cronbach alpha
Short multi-dimensional well-being questionnaire	
Scale as a whole	0.73
Physical perception subscale	0.76
Self-esteem subscale	0.72
Positive social orientation subscale	0.71
Positive emotions subscale	0.70
Value of academic learning	0.73
Academic Persistence Scale (APS)	0.72
Student Engagement in School Four-Dimensional Scale (SES-4DS)	
Scale as a whole	0.74
Cognitive engagement subscale	0.76
Behavioural engagement subscale	0.70

Results

Descriptive statistics

Both male and female students provided moderate ratings for four domains of multi-dimensional well-being and the three academic variables. All means were close to the mid-point on the scale (Table 3). An examination of gender differences found that ratings of one domain of well-being, positive emotions, were higher for female students (Table 3). However, the effect size was small and accounted for less than 0.1 points on a 5-point scale. There were no gender differences in other domains of well-being or any of the academic variables.

Simple bivariate associations between variables

There were significant associations among the four domains of multi-dimensional well-being (physical perception, self-esteem, social orientation, and positive emotion) and academic variables ($r = 0.183$–0.458, $p < 0.001$) (Table 4). While this finding is evidence of the internal consistency of the measure of multi-dimensional well-being, the strength of several correlation coefficients raised the possibility

TABLE 3 Multi-dimensional well-being, perceived value of academic learning, and academic engagement and persistence among male and female secondary students in Northern Nigeria who are exposed to the threat of collective violence, controlling for differences in child age ($n = 371$).

Variable	Male ($n = 169$)		Female ($n = 202$)		F	Effect size (η_p^2)
	Mean	SD	Mean	SD		
Well-being						
Physical perception	2.65	0.32	2.59	0.45	1.80	0.005
Self-esteem	2.42	0.33	2.43	0.44	0.02	0.000
Social orientation	2.65	0.33	2.59	0.45	1.91	0.005
Positive emotions	3.13	0.50	3.22	0.43	3.06*	0.090
Academic						
Value of academic learning	2.78	0.39	2.81	0.43	0.74	0.001
Academic persistence	2.70	0.29	2.72	0.34	0.51	0.001
Academic engagement	2.55	0.35	2.58	0.39	0.59	0.001

Possible range of scores 1–5. *$p < 0.05$.

TABLE 4 Pearson correlation coefficients for associations between aspects of multi-dimensional well-being, perceived value of academic learning, and academic engagement and persistence among secondary students in Northern Nigeria who are exposed to the threat of collective violence ($n = 371$).

	Variable	2	3	4	5	6	7
	Well-being						
1	Physical perception	0.242**	0.458**	0.201**	0.639**	0.716**	0.279**
2	Self-esteem		0.252**	0.183**	0.657**	0.255**	0.901**
3	Social orientation			0.195**	0.645**	0.716**	0.289**
4	Positive emotions				0.624**	0.571**	0.421**
	Academic						
5	Academic persistence					0.868**	0.732**
6	Value of academic learning						0.315**
7	Academic engagement						

**$p < 0.001$.

that collinearity between these scores could violate the assumptions underlying the planned regression analyses. This warranted scrutiny of the variance inflation factor scores in these analyses.

The three academic variables (value of academic learning, academic persistence, and engagement in learning) were positively associated with each of the domains of well-being (Table 4). In addition, the mediator variable (the perceived value of academic learning) was positively associated with both the predictor variables (the four well-being domains) and the two academic outcomes (academic persistence and academic engagement). The strength of the associations between the three academic variables raised the possibility that these variables partially share an underlying latent variable reflecting a general positive orientation towards academic learning.

Direct associations between domains of well-being and the three academic variables

In all regression analyses examining the direct relationships between well-being and academic variables, the variance inflation factor scores were close to one, indicating that collinearity was well within the limits of tolerance of the regression analyses. Age and gender were entered in Step 1 of all regression analyses, but neither was significantly related to any of the academic variables ($p > 0.05$) (Tables 5–7).

Only two domains of well-being (social orientation and positive emotion) explained independent variance in the value of academic learning (Table 5). Both effects reflected moderate to strong positive associations ($\eta_p^2 = 0.216$ and 0.571). Together, the four domains of well-being accounted for 70.5% of the variance in the perceived value of academic learning.

In contrast, all four domains of well-being explained independent variance in both academic persistence and academic engagement (Tables 6, 7). However, the association between academic persistence and the self-esteem, social orientation, and positive emotion domains of well-being had effect sizes that were more than 3 times as great as that for the physical perception domain of well-being. Overall, the four well-being domains accounted for 87.3% of the variance in academic persistence and 88.3% of the variance in academic engagement. These results supported Hypotheses 1a, b, and c.

Mediator role for the perceived value of academic learning

Subsequent analyses showed that the perceived value of academic learning partially mediated the relationship between the overall multi-dimensional well-being score and both academic persistence and academic engagement (Table 8). None of the 95% confidence intervals for direct or indirect effects included zero. Although the magnitude of the competitive mediation for academic learning was smaller for academic engagement than for academic persistence, the results supported Hypotheses 2a and 2b.

Discussion

This research sought to gain insight into the factors that contribute to the resilience of young people who continue their education in defiance of collective violence that often specifically targets schools and students. It applied value-related concepts from the Situated Expectancy-Value Model of adolescent academic achievement to identify factors that may contribute to the maintenance of persistence and engagement in academic learning among these students. An atypical, but contextually and developmentally relevant measure of students' multi-dimensional well-being was used. There were no meaningful gender differences in students' ratings for any of the domains of well-being or academic variables. All four domains of well-being that were assessed showed positive associations with both academic persistence and academic engagement. Only two domains of well-being were associated with the perceived value of academic learning. Despite this, the perceived value of academic learning partially mediated the relationship between well-being and both academic persistence and academic engagement.

The findings are consistent with the hypotheses, which were based on predictions from the values-related components of the Situated Expectancy-Value model of adolescent academic achievement. That is, the positive association between domains of multi-dimensional

TABLE 5 Results from a multiple linear regression analysis examining the relationship between four domains of multidimensional well-being and the perceived value of academic learning among secondary students in Northern Nigeria who are exposed to the threat of collective violence ($n = 371$).

Step	Predictor	*B*	SE	*β*	*t*	Effect size	VIF
1	(Constant)	30.864	0.89		34.61		
	Gender	0.349	0.49	0.038	0.72	0.026	1.049
	Age	−0.327	0.31	−0.057	−1.07	−0.049	1.049
2	(Constant)	−2.430	1.29		−1.87		
	Gender	0.398	0.27	0.043	1.49	0.026	1.068
	Age	−0.151	0.17	−0.027	−0.91	−0.049	1.054
	Physical perception	0.588	0.86	0.305	0.68	0.061	1.029
	Self-esteem	0.021	0.05	0.012	0.41	0.055	1.122
	Social orientation	1.778	0.85	0.933	2.08*	0.216	1.885
	Positive emotion	0.872	0.06	0.445	15.08*	0.571	1.089
	Model summary: $R = 0.842$, R^2 change = 0.705, SE = 2.48, F change $_{(2, 368)} = 220.56$*						

5,000 bootstrap samples. VIF, Variance inflation factor. *$p < 0.05$.

TABLE 6 Results from a multiple linear regression analysis examining the relationship between four domains of multidimensional well-being and academic persistence among secondary students in Northern Nigeria who are exposed to the threat of collective violence ($n = 371$).

Step	Predictor	*B*	SE	*β*	*t*	Effect size	VIF
1	(Constant)	54.010	1.26		42.80		
	Gender	0.597	0.69	0.046	0.87	0.045	1.049
	Age	−0.335	0.43	−0.041	−0.78	−0.041	1.049
2	(Constant)	−0.876	1.19		−0.73		
	Gender	0.453	0.25	0.035	1.84	0.096	1.068
	Age	−0.136	0.15	−0.017	−0.89	−0.047	1.054
	Physical perception	0.778	0.79	0.220	3.49**	0.180	1.029
	Self-esteem	1.115	0.05	0.451	23.11**	0.771	1.122
	Social orientation	3.942	0.79	1.462	5.01**	0.754	1.885
	Positive emotion	1.271	0.05	0.458	23.80**	0.780	1.089
	Model summary: $R = 0.936$, R^2 change = 0.873, SE = 2.29, F change $_{(2, 368)} = 649.81$*						

5,000 bootstrap samples. VIF, Variance inflation factor. *$p < 0.05$; **$p \leq 0.001$.

well-being ("student characteristics") and behaviours that support academic learning (academic persistence and engagement) were partially mediated by the perceived value of academic learning ("subjective task value"). The findings are also consistent with previous research that reported positive associations between other domains of well-being and persistence (e.g., McKeering et al., 2021), academic engagement (Greenier et al., 2021; Ma et al., 2021) and students' pursuit of high academic performance (Ling et al., 2022). Thus, students in Northern Nigeria showed direct and indirect relationships between domains of well-being and academic persistence and engagement that are consistent with those of students of similar ages living in contexts that are not characterized by high levels of collective violence. This suggests that the Situated Expectancy-Value model has broad generalizability.

The observational research design used in the current study precludes conclusions about the direction of effect in the relationships between the variables. Nevertheless, the results are consistent with the proposition that a positive body image, high self-esteem, a positive social orientation, positive emotions, and a perception that academic learning is of continued value are personal assets that support the academic resilience of students who are exposed to collective violence. If the relationships identified in the current research are confirmed in research using an experimental design, they may provide direction for the development of interventions. It seems likely that interventions will be needed to prevent terrorism and banditry from depriving a generation of children living in Northern Nigeria (Bertoni et al., 2019; Verjee and Kwaja, 2021) and other contexts of prolonged collective violence, from an education, and the economic and personal benefits this allows.

Although female students have been a specific target for mass kidnappings in Northern Nigeria (Maiangwa and Agbiboa, 2014; Mantzikos, 2014) both male and female students are equally vulnerable to other forms of collective violence that occur with high frequency in their locations (Mantzikos, 2014). This may at least partly explain why female students in the current study did not report lower levels of overall well-being, perceived value of academic learning, persistence on academic tasks, or academic engagement than their male classmates.

TABLE 7 Results from a multiple linear regression analysis examining the relationship between four domains of multidimensional well-being and academic engagement among secondary students in Northern Nigeria who are exposed to the threat of collective violence ($n = 371$).

Step	Predictor	*B*	SE	*β*	*t*	Effect size	VIF
1	(Constant)	25.257	0.73		34.62		
	Gender	0.215	0.40	0.029	0.54	0.030	1.049
	Age	0.030	0.25	0.006	0.12	0.013	1.049
2	(Constant)	0.938	0.67		1.40		
	Gender	0.012	0.14	0.002	0.09	0.030	1.068
	Age	0.051	0.09	0.011	0.60	0.013	1.054
	Physical perception	0.686	0.44	0.582	3.12*	0.479	1.029
	Self-esteem	1.194	0.03	0.837	44.23**	0.501	1.122
	Social orientation	1.411	0.44	0.906	3.20**	0.592	1.885
	Positive emotion	0.430	0.03	0.268	14.38**	0.421	1.089
Model summary: $R = 0.940$, R^2 change = 0.883, SE = 1.28, F change $_{(2, 368)} = 690.99$*							

5,000 bootstrap samples. VIF, Variance inflation factor. *$p < 0.01$; **$p < 0.001$.

TABLE 8 Test of the prediction that the perceived value of academic learning mediated the relationship between four domains of well-being and both academic persistence and academic engagement for male and female secondary students in Northern Nigeria who are exposed to the threat of collective violence ($n = 371$).

Relationships	Total effect	Direct effect	Indirect effect	Bootstrap SE	Bootstrap LLCI	Bootstrap ULCI
Multidimensional well-being →Value of academic learning → Academic persistence	0.829**	0.923**	−0.094	0.034	−0.191	−0.038
Multidimensional well-being →Value of academic learning → Academic Engagement	0.301**	1.007**	−1.421	0.071	−1.569	−1.295

LLCI and ULCI: lower limit and upper limit of the 95% confidence interval, respectively; Number of bootstrap samples = 5000. *$p < 0.001$.

Limitations

The current research had several limitations that should be considered when its findings are interpreted. First, although the sampling strategy was designed to allow the recruitment of a representative sample, it is likely that the final sample under-represents students with low well-being, since these are less likely to volunteer to participate in research. Second, the absence of a common measure of academic achievement across states, schools, and grades prevented the inclusion of academic performance in the current research. Consequently, although research in other contexts suggests that there is a positive association between academic progress and students' academic persistence and engagement (e.g., Ainley et al., 2002; National Research Council and Institute of Medicine, 2004), the current study is unable to confirm that this pattern applies in contexts of collective violence. Third, the current study cannot provide insights into differences in student outcomes related to the type, severity, or duration of their exposure to collective violence. These data were not collected because providing details about the specific acts of collective violence they had survived, witnessed, or feared, and whether they had lost family members or friends to violence would have further increased students' stress. Fourth, the research design did not include a comparison group because it was not possible to identify schools that were not at risk of collective violence in the areas in Northern Nigeria on which this study focused. Therefore, it is unclear whether the low to moderate levels of well-being, perceived value of academic learning, academic persistence, and academic engagement reported by the students in the current study are lower than those of Nigerian secondary students who are not exposed to collective violence. Fifth, the generalizability of the current findings to other contexts in which young people are exposed to collective violence is likely to be limited by the unique forms of collective violence to which different populations are exposed, the contexts in which such violence takes place, cultural norms of behaviour for young people, and the level and type of resources available to support them. Understanding the boundaries for the generalizability of research on young people exposed to collective violence will require further research among diverse groups of young people who are exposed to diverse forms of violence. Finally, experimental and longitudinal research will be required to identify the theoretically and practically important direction of effect in the associations between the variables that were identified in this study.

The current study identified several potentially fruitful directions for future research. The current study's failure to find gender differences in the context of Northern Nigeria is intriguing. Because students were not observed while they completed the questionnaires, it is not possible to rule out the possibility that they discussed items and their answers. Indeed, it is not possible to eliminate the possibility that such behaviour contributed to the similarity between the

responses of male and female students. Future research might explore the extent, sources, and types of support for well-being and continued school attendance received by male and female students, and/or whether male and female students who drop out of school do so for different reasons. Research on the relationship between well-being and behaviours that support academic achievement in diverse populations and contexts of collective violence, and comparisons with matched peers who are not exposed to violence, would help to inform the development of robust theoretical models that could guide the development of interventions tailored to specific contexts.

Conclusion

The current study concluded that multidimensional well-being is a significant predictor of academic persistence and engagement among secondary school students in the context of collective violence. This pattern of results suggests that some of the findings and conceptual models generated by research conducted in other contexts also apply to students who are exposed to collective violence. If this is confirmed in subsequent research, such generalizability will greatly aid the development of interventions to support the well-being of the millions of young people who live in contexts of prolonged collective violence. The current research has identified several plausible targets for psychological and educational interventions to support such students. These include enhancing the perceived value of academic learning, which appears to serve as a mediator between well-being and academic behaviour, regardless of the direction of the relationship between these. If the findings are extended by experimental research that determines the direction of effect, they may serve as a foundation for recommendations for changes in government education policies, and teachers' and parents' practices. Such interventions to support students' adaptation in contexts of collective violence are likely to be needed for the foreseeable future. Nevertheless, it seems clear that young people would receive the greatest benefit from interventions that were effective in removing the threat of such violence.

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 study was carried out under the authority of the University of Jos, Nigeria. The authors have written an informed-consent letter for participation to the students, parents, and the school authorities. The study was allowed to proceed after the consent was granted by signing based on the agreement of the concerned individuals or institutions.

Author contributions

ES, BB, and JO contributed in different ways. ES set up the framework of the manuscript, searched the literature, wrote the draft of the literature, and analyzed the data. BB revised the manuscript and confirmed the content validity of the instruments. JO collected and coded part of the data for the study as well as provided some funds. All authors contributed to the article and approved the submitted version.

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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

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