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Student mental health wellness

Mental health among high school students in South Africa: Roles of childhood adversity, bullying behaviour, peer pressure, and self-esteem

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We explored the relationship between childhood adversity, bullying, peer pressure, self-esteem, and mental health among South African high school students. Adolescents ($n = 769$, mean age = 15.83 years, $SD = 1.85$ years, range = 12–22 years) completed a cross-sectional survey. Based on descriptive analyses, 31.3% of participants experienced no distress, 65.1% experienced mild distress, and 3.5% experienced severe distress. Results indicated significant positive correlations between childhood adversity and bullying with mental health challenges, while peer pressure served as a mediator in these relationships. No significant indirect effects involving self-esteem were observed. Both sex and grade level demonstrated positive correlations with mental health issues, suggesting specific demographic influences on these outcomes. The study's findings underscore the intricate interplay of factors affecting adolescents' mental health, emphasising the necessity of targeted interventions to address these complex dynamics effectively.

Keywords: psychological resilience, mental well-being, psychological distress, depression, anxiety, adolescents

Introduction

Globally, the increasing prevalence of mental health issues among adolescents has drawn attention, emphasising the importance of addressing these concerns (Ghazal, 2022; Grové et al., 2023; Rajkumar et al., 2022). Adolescence, characterised by rapid physical, psychological, and social changes, presents a critical period where the adolescents are vulnerable to various mental health complexities (Kuyken et al., 2023; Pillay, 2023). High school students in South Africa encounter a multitude of stressors, including academic pressures and identity formation, impacting their mental well-being (Pascoe et al., 2020; Wider et al., 2023). Addressing these evolving challenges requires novel perspectives and methodologies, emphasising a critical examination of their impacts.

The significant concern regarding mental health issues among South African high school students is underscored by the country's unique socio-cultural context (Patel, 2024; Varela, Savahl, Adams, & Reyes, 2020; Harrison, 2020). Studies reveal prevalent mental health problems among adolescents, including inappropriate emotional regulation and engagement in risky behaviours (Mfidi, 2017; Nzima & Ngubane, 2023). Additionally, childhood and adolescent mental health problems pose a significant public health threat, affecting a substantial portion of South Africa's youth (Jacobs & Lekganyane, 2022; Nzima & Ngubane, 2023). Despite the urgency of these challenges, comprehensive studies on mental health in South African high schools remain scarce, highlighting the need for further exploration.

Childhood adversity, encompassing experiences like parental divorce and physical abuse, significantly impacts

adolescent mental health outcomes (Amorim et al., 2023; Qiao et al., 2023). Negative experiences during childhood and adolescence contribute to various adverse effects, including psychiatric symptoms and unhealthy behaviours (Lam-Hine et al., 2023; Polmann et al., 2022). Adversities before age 18, such as abuse and social adversities, particularly detrimentally affect adolescent mental health (Pollmann et al., 2022). Early adversity is associated with an elevated risk of risky health behaviours and psychiatric symptoms, highlighting the importance of identifying and addressing these challenges.

Bullying behaviour significantly impacts the mental health of high school adolescents, leading to depression, anxiety, and suicidal ideation (Dela Aprilia et al., 2023; Pascual-Sanchez & Nicholls, 2023). Socioeconomic disadvantage exacerbates the negative effects of bullying, further compromising mental well-being (Hamal et al., 2023; Yokoji et al., 2023). Recurrent pain, such as headaches and stomach-aches, is associated with bullying exposure and low socioeconomic status, which is particularly evident in individuals experiencing both (Madsen et al., 2023). Involvement in bullying, either as a perpetrator or victim, is linked to internalising symptoms and low life satisfaction (Siennick & Turanovic, 2023; Vrijen et al., 2023).

Peer pressure plays a crucial role in adolescent mental well-being, influencing behaviours such as substance abuse and violence (Bhattacharyya et al., 2020; Oladiji, 2023). It mediates the relationship between numerous factors and bullying behaviour, highlighting its significant influence (Sun et al., 2017). Self-esteem also emerges as a critical factor,

moderating the impact of childhood adversity and bullying on mental health outcomes (Zhong et al., 2021).

Goal of the study

Adopting the ecological systems theory framework (Bronfenbrenner, 1979), we sought a deeper comprehension of the multifaceted interrelations affecting adolescent mental health in South Africa. It focuses on both environmental factors, like family and school dynamics, and individual characteristics, such as self-esteem. Building on the ecological analysis approach used in previous studies, such as those by Smith and colleagues (2021) and Johnson and colleagues (2022), which explored similar dynamics in different cultural contexts, we aimed to extend this discourse an examination within the South African setting. We also explored the mental health determinants among South African high school adolescents. The sample's age range (12–22 years) reflects the inclusion of high school students who may be older due to grade repetition, late enrolment, or other socio-economic factors common in South Africa. Including these participants ensures a comprehensive understanding of mental health across the high school population and avoids sampling bias, considering the interconnectedness of childhood adversity, bullying, peer pressure, and self-esteem. Specifically, we sought to answer the following research questions:

- (i) How do these factors contribute to mental health outcomes among adolescents?
- (ii) What roles do peer pressure and self-esteem play in mediating or moderating the effects of childhood adversity and bullying on mental health?

Methods

Participants and setting

The participants were 769 of 11 702 public high school students from the Ngaka Modiri Molema district in the North-West Province. The sample comprised Grade 11 and 12 students from five secondary schools, chosen to represent a broad spectrum of adolescent experiences while minimising potential biases related to reading skills. The demographic composition was 356 females (46.3%) and 413 males (53.7%), with ages ranging from 12 to 22 years (mean age = 15.83 years, SD = 1.85 years). The broader age range accommodates older high school students present in the system due to late enrolment, grade repetition, or socio-economic factors, ensuring inclusivity and a representative sample.

Measures

The students self-reported their sex (0 = female, 1 = male) and age (recorded in years and months).

Mental health

The General Health Questionnaire (GHQ-12: Goldberg & Hiller, 1979) is a 12-item measure on a 4-point Likert scale ranging from 1 = not at all, to 4 = much more than usual. Scores range from 0 to 36, with higher scores indicating poorer mental health. The GHQ-12 utilised cut points of 0–12 = without distress, 13–24 = moderate distress, and 25–36 = severe distress. Previous studies reported high Cronbach's alphas ranging from 0.70 (Centofanti et al., 2019) to 0.89 (Zhong et al., 2022), with notable test–retest reliability of 0.843 (Zhong et al., 2022). In the present study, we observed a Cronbach's α of 0.753 (see Table 1).

Childhood adversity

The Child Abuse and Trauma Scale (CATS: Sanders & Becker-Lausen, 1995) is a 38-item scale on a 5-point Likert format ranging from 0 = never, to 5 = always. Higher scores indicate increased adverse childhood experiences. Previous studies reported high internal consistency reliabilities of up to 0.91 (Morishita et al., 2021). In this study, scores from the CATS yielded a Cronbach's α of 0.886 (see Table 1).

Bullying

The Illinois Bullying Behaviour Scale (IBBS: Espelage & Holt, 2001) comprises 18-items on bullying, victimisation, and fighting in a school setting on a 5-point scale ranging from 0 = never, to 5 = always. For this study, only the bullying subscale (e.g., “I upset other students for the fun of it” and “I helped harass other students”) was used. Higher scores indicated greater victimisation and perpetration of bullying. A previous study reported a high Cronbach's α of 0.88 for scores from the IBBS (Eid et al., 2023). In the present study, the Cronbach's α was 0.896 (see Table 1).

Peer pressure

The Peer Pressure Scale (PPS: (Santor et al., 2000), consists of 11 items and was used to assess peer pressure. Participants rated their responses on a 5-point Likert scale ranging from 1 = strongly disagree, to 5 = strongly agree. Example items include: “I give into peer pressure easily” and “My friends could push me into doing just about anything.” This scale has demonstrated robust internal consistency, with reported Cronbach's alphas of 0.83 and 0.78, respectively (Iwamoto & Smiler, 2013; Zulkifly et al., 2022). The reliability statistics for the current sample were also strong, with Cronbach's α = 0.859, indicating good internal consistency.

Self-esteem

The Rosenberg Self-esteem Scale (RSS: Rosenberg, 1965), was utilised to assess global self-esteem. This is a widely used 10-item uni-dimensional scale that measures global self-worth by gauging both positive and negative feelings about oneself. Example items include: “On the whole, I am satisfied with myself” and “At times I think I am no good at all.” Responses are recorded on a 4-point scale ranging from 1 = strongly disagree, to 4 = strongly agree. The scale has shown robust internal consistency, with previously reported Cronbach's α of 0.70 (Park & Park, 2019). In this study, a Cronbach's α of 0.733 was observed (see Table 1).

Table 1: Psychometric properties and model fit

Construct	CA	CR	AVE
Bullying behaviour	0.896	0.906	0.601
Childhood adversity	0.886	0.895	0.604
Self-esteem	0.733	0.807	0.556
Mental health	0.753	0.812	0.575

Table 2. The correlations among the bullying behaviour, childhood adversity, peer pressure, self-esteem, and mental health variables.

Construct	M	SD	1	2	3	4	5	6	7	8
1. Age	15.83	1.85	–							
2. Sex			–0.14**	–						
3. Grade at school	9.65	1.29	0.65**	0.01	–					
4. Peer pressure	23.35	8.56	0.04	–0.11**	–0.04	–				
5. Self-esteem	26.53	4.14	–0.01	0.10**	0.06	0.08*	–			
6. Childhood adversity	46.32	20.22	0.15**	–0.03	0.00	0.40**	0.05	–		
7. Bullying behaviour	16.61	13.22	0.03	–0.16**	–0.06	0.48**	0.04	0.35**	–	
8. Mental health	17.58	3.93	0.03	0.16**	0.07*	0.05	0.18**	0.08*	0.04	–

Note. Sex: 0 = female, 1 = male * $p < 0.01$; ** $p < 0.05$

Procedure

The Health Research Ethics Committee (HREC) at North-West University approved the study (NWU-00359-9-20-A1). The school authorities, parents, and guardians granted informed consent for the students to participate in this study. The survey was administered face-to-face during regular class hours to ensure that all participants had equal access and could complete the questionnaire with minimal disruption to their academic schedule. The survey was administered exclusively in English to ensure consistency in responses across the study population.

Data analysis

Structural Equation Modelling (SEM) was conducted using SmartPLS version 4.0.9.8, and additional statistical analyses were performed with IBM/SPSS Version 28.0, employing maximum likelihood estimation for model construction. These tools facilitated the application of techniques such as frequency counts, mean, standard deviation, Pearson's multiple correlation, and mediated moderation. Thus, it enabled a detailed examination of the relationships among study variables.

Results

As indicated in Table 2, age was significantly correlated with grade at school ($r = 0.65$, $p < 0.05$), indicating a natural progression where students' age increases with their grade level. However, age demonstrated minimal direct correlations with the other constructs, suggesting that the influence of peer pressure, self-esteem, childhood adversity, and bullying behaviour on mental health may not be strongly age-dependent within the adolescent age range sampled.

Sex (coded as 0 = female, and 1 = males) had a negative correlation with bullying behaviour ($r = -0.16$, $p < 0.05$) and a positive correlation with mental health ($r = 0.16$, $p < 0.05$). These findings suggest sex differences in experiences related to bullying and mental health, with males reporting better mental health outcomes compared to females.

Peer pressure exhibited strong correlations with both childhood adversity ($r = 0.40$, $p < 0.05$) and bullying behaviour ($r = 0.48$, $p < 0.05$), highlighting that students experiencing higher levels of adversity or bullying were also more likely to face peer pressure. This underscores the complex interaction of social experiences and their collective impact on adolescents' mental well-being.

Self-esteem was positively correlated with mental health ($r = 0.18$, $p < 0.05$), reinforcing the critical role of self-esteem

in influencing mental health outcomes. Higher levels of self-esteem were associated with better mental health.

Childhood adversity and bullying behaviour were significantly correlated ($r = 0.35$, $p < 0.05$), indicating a potential overlap in the experiences or effects of these adversities on individuals. Additionally, both constructs showed significant correlations with peer pressure, further emphasising the intertwined nature of adverse experiences and social dynamics among adolescents. Mental health's correlations with sex ($r = 0.16$, $p < 0.05$), self-esteem ($r = 0.18$, $p < 0.05$), and childhood adversity ($r = 0.08$, $p < 0.05$) elucidate the multifaceted influences on mental health.

Structural model assessment

Our structural model's fit was evaluated using several indices, as summarised in our analysis. Despite the chi-square statistic's sensitivity to our large sample size ($n = 769$), the chi-square to degrees of freedom ratio ($\chi^2/df = 2.404$) falls within the acceptable range, indicating a good fit. Furthermore, the root mean square error of approximation (RMSEA = 0.043) and the Goodness of Fit Index (GFI = 0.951) further attest to the model's adequacy. These fit indices, along with the Adjusted Goodness of Fit Index (AGFI = 0.939) and the Comparative Fit Index (CFI = 0.993), exceed commonly accepted thresholds, denoting a well-fitting model as illustrated in Figure 1.

Table 3 offers a descriptive analysis of the prevalence of mental health conditions among high school adolescents in South Africa, categorised into three groups based on the severity of distress: without distress, mild distress, and severe distress.

Almost a third (31.3%) of the sample ($n = 241$) were categorised as without distress (scores ranging from 0 to 15), with females ($n = 128$) and males ($n = 113$) reporting mean scores of 1.66 (SD = 0.519) and 1.77 (SD = 0.518), respectively. Most of the sample, 65.1% ($n = 501$), fell into the mild distress category (scores ranging from 16 to 25), with a higher prevalence among males ($n = 281$) compared to females ($n = 220$). The severe distress category (scores ranging from 26 to 30) encompassed 3.5% of the sample ($n = 27$), with males ($n = 19$) more frequently represented than females ($n = 8$). Mean scores for females and males in the severe distress category were 1.61 (SD = 1.72) and 1.72 (SD = 1.82), respectively. These findings highlight significant sex differences in the prevalence of mental health conditions among adolescents, with males showing a higher tendency towards mild and severe distress categories.

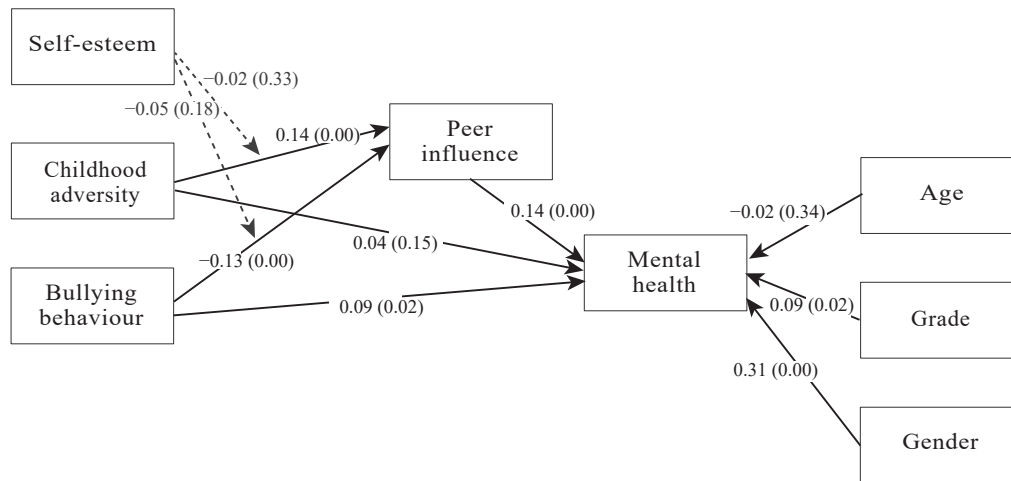


Figure 1. Path analysis of the relationships among childhood adversity, bullying behaviour, peer pressure, self-esteem, and mental health outcomes. Dashed arrows indicate non-significant pathways, with standardised path coefficients; *p*-values are shown in parentheses

Table 3. Summary of descriptive analysis of mental health conditions across distress levels (*n* = 769)

Groups	Score range	Frequencies	Female				Male			
			<i>n</i>	<i>M</i>	<i>SD</i>	95% CI LL UL	<i>n</i>	<i>M</i>	<i>SD</i>	95% CI LL UL
Without distress ^a	0–15	241 (31.3%)	128				113			
Mild distress	16–25	501 (65.1%)	220	1.66	0.519	1.61 (1.72)	281	1.77	0.0518	1.72 (1.82)
Severe distress ^b	26–30	27 (3.5%)	8				19			

Notes. **p* < 0.05, ***p* < 0.001; *M* = mean *SD* = standard deviation

CI = confidence interval LL = lower limit UL = upper limit (figures in parentheses represent confidence interval limits for CI)

^a Without distress: the 95% CI for females is 1.61–1.72, and for males is 1.72–1.82

^b Severe distress: The 95% CI for females is 1.61–1.72, and for males is 1.72–1.82

Table 4: Regression path coefficient

Path	Coefficient	<i>t</i>	<i>p</i> -values	CI	
				5.00%	95.00%
Age → mental health	−0.02	0.42	0.336	−0.091	0.057
Bullying behaviour → peer pressure	−0.13	3.16	0.001	−0.205	−0.065
Bullying behaviour → mental health	0.09	2.18	0.015	0.02	0.158
Childhood adversity → peer pressure	0.14	3.62	0.001	0.076	0.205
Childhood adversity → mental health	0.04	1.03	0.151	−0.023	0.105
Sex → mental health	0.31	4.29	0.001	0.197	0.434
Grade → mental health	0.09	2.15	0.016	0.021	0.161
Peer influence → mental health	0.14	3.72	0.001	0.074	0.196
Self-esteem → peer pressure	−0.01	0.29	0.386	−0.077	0.056
Self-esteem × childhood adversity → peer pressure	−0.02	0.45	0.326	−0.104	0.058
Self-esteem × bullying behaviour → peer pressure	0.05	0.91	0.181	−0.039	0.123

The distribution of distress levels underscores the need for sex-responsive mental health interventions and further research into the underlying factors contributing to these differences.

Table 4 presented the path analysis that uncovers insights into how age, bullying behaviour, childhood adversity, sex, grade, peer influence, and self-esteem interacted to affect mental health among South African high school students. The revealed relationship between age and mental health was minimal ($\beta = -0.02, p = 0.336$), indicating that age alone does not significantly influence mental health within the studied adolescent range. This small effect size signals the

need to explore other impactful factors on adolescent mental well-being.

Bullying behaviour had a dual impact: it reduced peer pressure ($\beta = -0.13, p < 0.05$) while showing a slight positive correlation with mental health ($\beta = 0.09, p = 0.015$). This suggests that bullying's negative social effects were juxtaposed with a potential for resilience or coping, albeit subtly, in personal mental health contexts. Childhood adversity was linked to increased peer pressure ($\beta = 0.14, p < 0.05$), yet its direct effect on mental health was not significant ($\beta = 0.04, p = 0.151$). This points to the complex influence of early adversities, implying that their impact on mental

health may be mediated by additional factors. Significant sex differences emerged, with males reporting better mental health outcomes ($\beta = 0.31, p < 0.05$). This pronounced effect size highlights critical sex disparities in mental health, underscoring the necessity for interventions that are sensitive to these differences. Grade level ($\beta = 0.09, p < 0.05$) and peer influence ($\beta = 0.14, p < 0.05$) both positively correlated with mental health, with peer influence exhibiting a stronger relationship. These findings stress the importance of social ties and educational progression in shaping adolescent mental health.

Table 5 provides insights into the conditional indirect effects of bullying behaviour and childhood adversity on mental health through peer influence, moderated by self-esteem levels. This nuanced examination considers the role of self-esteem at different standard deviations (SD) from the mean, offering a deeper understanding of its interplay with other variables.

When self-esteem was one SD above the mean, the indirect effect of bullying behaviour on mental health through peer influence was minimal and not statistically significant ($\beta = -0.01, p = 0.112$), suggesting that higher self-esteem may buffer the adverse effects of bullying. Conversely, childhood adversity showed a slight but not statistically significant positive impact on mental health through peer influence at this level of self-esteem ($\beta = 0.02, p < 0.05$), indicating a nuanced relationship between adversity, peer dynamics, and well-being.

At one SD below the mean for self-esteem, bullying behaviour's negative impact on mental health through peer influence became significant ($\beta = -0.03, p < 0.05$), highlighting the vulnerability of individuals with lower self-esteem to the adverse effects of bullying. Similarly, childhood adversity's positive effect on mental health through peer influence was more pronounced and significant ($\beta = 0.023, p < 0.05$) at lower self-esteem levels, suggesting that adversity might, in some contexts, lead to peer interactions that could positively influence mental health among those with lower self-esteem.

When considering self-esteem at the mean, both bullying behaviour and childhood adversity exhibited significant conditional indirect effects on mental health through peer influence. Bullying behaviour showed a negative impact ($\beta = -0.02, p < 0.05$), while childhood adversity presented

a positive effect ($\beta = 0.02, p = 0.005$), emphasising the critical role of average self-esteem levels in mediating these relationships.

Discussion

This investigation into the mental health dynamics among South African high school students revealed the multifaceted impact of childhood adversity, bullying behaviour, peer pressure, and self-esteem. Our research enriches the existing dialogue by elucidating the complex interactions of these factors within South Africa's distinctive socio-cultural milieu (Qiao et al., 2023; Amorim et al., 2023). Consistent with prior studies, our results affirmed the profound influence of childhood adversities on adolescent mental health, compounded by the region's historical, economic, and cultural complexities (Essel-Gaisey et al., 2023; Venn, 2010). This alignment with earlier findings (Kwok et al., 2023; Lam-Hine et al., 2023; Polmann et al., 2022) underscores the necessity for interventions tailored to mitigate these early adverse experiences.

The associations found between early adversities and an array of risky behaviours and mental health outcomes (Villanueva et al., 2023; Wang et al., 2022) highlight the critical need for holistic strategies aimed at supporting this demographic. Our study's insights into bullying's extensive detrimental effects resonate with previous research, indicating both direct and socio-economically modulated impacts on adolescents' mental well-being (Dela Aprilia et al., 2023; Hamal et al., 2023; Pascual-Sanchez & Nicholls, 2023; Yokoji et al., 2023).

Furthermore, the examination of the role of peer pressure not only builds on the understanding of its influence on risky behaviours but also introduces a nuanced view of its mediation between childhood adversity, bullying, and mental health. This sheds light on the critical influence of peer dynamics, suggesting a need for contextually nuanced interventions (Bhattacharyya et al., 2020; Copeland et al., 2021; Walters, 2014). Our findings, suggesting that the impact of peer pressure varies across different circumstances, echo the call for further exploration into the relationships between family dynamics, bullying, and peer influence (Du et al., 2018).

Self-esteem stands out as a pivotal element affecting mental health outcomes, acting both as a mediator and

Table 5: Conditional indirect effect

Path	Co-efficient	<i>t</i>	<i>p</i> -values	CI 5.00%	Path
Bullying behaviour → peer influence → mental health conditional on self-esteem at +1 SD	-0.01	1.22	0.112	-3.20	0.10
Childhood adversity → peer influence → mental health conditional on self-esteem at +1 SD	0.02	1.50	0.067	0.002	0.038
Bullying behaviour → peer influence → mental health conditional on self-esteem at -1 SD	-0.03	2.15	0.016	-0.048	-0.01
Childhood adversity → peer influence → mental health conditional on self-esteem at -1 SD	0.023	2.36	0.009	0.01	0.042
Bullying behaviour → peer influence → mental health conditional on self-esteem at Mean	-0.02	2.32	0.010	-0.034	-0.008
Childhood adversity → peer influence → mental health conditional on self-esteem at Mean	0.02	2.60	0.005	0.01	0.035

moderator in the interplay between childhood adversity and bullying (Choi & Park, 2018; Kreski et al., 2023; Yeo et al., 2023; Zhong et al., 2021). This highlights the importance of incorporating self-esteem-building measures into intervention strategies. Our study underlines the complex role of self-esteem, suggesting it as a promising focus for future research aimed at developing targeted mental health interventions (Henderson, 2016; Zilioli et al., 2018).

Implications for school counselling

We provided crucial insights for school counselling to address the needs of South African high school students. Early identification and targeted support for students experiencing childhood adversity are crucial to mitigate their negative impact on mental health. Comprehensive anti-bullying programmes are essential, not only to prevent bullying but also to support victims, enhancing their resilience and mental health. School counsellors should also establish peer support groups and educational workshops that empower students to resist negative peer pressure and foster positive interactions. Lastly, integrating self-esteem-boosting activities that promote self-acceptance, and personal strengths can help shield students from the effects of bullying and adversity. Targeted, culturally sensitive, and sex-responsive strategies are vital for effectively managing these complex factors, ensuring a supportive educational environment for all students.

Limitations and future recommendations

This study significantly contributed to the global discourse on adolescent mental health, emphasising the unique challenges faced by South African high school students. It highlights the critical role of subtle cultural and socio-economic stressors, providing a foundation for policy development and intervention strategies. Limitations of the study include a cross-sectional design that prevents causal inferences, a sample restricted to a single geographical area which may not represent all South African adolescents, and reliance on self-reported data that may introduce bias. Future research should further investigate the effectiveness of these interventions across different cultural contexts and explore the potential of peer support systems in enhancing outcomes.

Conclusion

We delineated the complex relationships between childhood adversity, bullying, peer pressure, self-esteem, and mental health among adolescents in South African high schools. Our findings showed that childhood adversity and bullying had a significant negative impact on mental health; peer pressure intensified the effects of bullying and adversity; and high self-esteem could mitigate these negative impacts. The findings advocate for the development of targeted and culturally attuned interventions, informed by a comprehensive understanding of these interconnected factors.

Ethics statement

All procedures performed in this study involving human participants were in accordance with the ethical standards of the Health Research Ethics Committee (HREC) at North-West

University and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. Ethical clearance for the study was granted under approval number (NWU-00359-9-20-A1). Informed consent was obtained from all participants, ensuring confidentiality and voluntary participation.

Data availability statement

The data that support the findings of this study are available from the corresponding author, Kenni Wojujutari Ajele, upon reasonable request. Access to the data will be provided in accordance with ethical guidelines and data-sharing policies, ensuring participant confidentiality is maintained.

Conflict of interests

The authors declare that there are no conflicts of interest regarding the publication of this manuscript.

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