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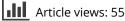


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Gender moderates the association between polyvictimization and suicidal ideation among adolescents in the United Arab Emirates

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ABSTRACT

The evidence about the impact of polyvictimization on suicidal ideation among adolescents in the Eastern Mediterranean region is limited. The purpose of this study was to explore the association between polyvictimization and suicidal ideation while considering the potential moderating effect of gender on that association among Emirati adolescents. Secondary data (N = 2520) from the Global School-based Student Health Survey were analyzed. Gender was found to be a significant effect modifier of the association between polyvictimization and suicidal ideation. Based on gender-specific multivariable logistic regression models, victimized females had higher odds of reporting suicidal ideation than their male counterparts after adjusting for known confounders such as risk behavior and factors related to mental health, peer relations, and lack of parental understanding. The results of this study could guide public health officials in recognizing the magnitude of victimization on the mental health of adolescents especially in females.

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KEYWORDS

Victimization; suicidal ideation; adolescents; student health

Introduction

Suicide is a significant public health problem as it is a major cause of global mortality particularly among adolescents (World Health Organization, 2015). Suicidal ideation, the serious thought about killing oneself, is a precursor to suicide attempts. It is considered a clinical emergency in psychiatry and hence is often studied in epidemiological studies (Kessler, Borges, & Walters, 1999; Yoon, Won, Lee, Jung, & Roh, 2014). A recent study showed that the pooled 12-month prevalence of suicidal ideation among adolescents aged 13–17 years in 32 low- and middle-income countries was 16.2% (McKinnon, Gariepy, Sentenac, & Elgar, 2016). Another study conducted among school adolescents (mean age 15 years) in ten developed European countries reported a prevalence of suicidal ideation in the past two weeks of 3.7% (Barzilay et al., 2017). Since these estimates were based on self-reported data, they need to be interpreted with caution and possibly corroborated with clinical examinations.

Previous studies have linked suicidal ideation in adolescents to victimization (being bullied and physically attacked) (Barzilay et al., 2017; Mahfoud, Afifi, Haddad, & DeJong, 2011; Oppong Asante, Kugbey, Osafo, Quarshie, & Sarfo, 2017), psychological factors (depressive symptoms, feeling lonely and worried) (Strandheim et al., 2014; Ziaei et al., 2017; Peltzer & Pengpid, 2012), peer relations (having no close friends) (Mahfoud et al., 2011), lack of parental understanding (Peltzer & Pengpid, 2012; Mahfoud et al., 2011), and behavioral factors (cigarette smoking and missing school without permission) (Peltzer & Pengpid, 2012; Mahfoud et al., 2011).

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Victimization in adolescents could be mainly categorized into bullying, sexual abuse, and physical abuse (Volk, Craig, Boyce, & King, 2006). According to a meta-analysis including 30 articles, the pooled lifetime prevalence of any of these self-reported types of victimization in low- and lower-middle-income countries was 76.8% (Le, Holton, Romero, & Fisher, 2016). In the United States, a national study indicated that 80% of adolescents suffered from at least one type of victimization in their lifetime (Turner, Finkelhor, & Ormrod, 2010).

From a public health perspective, victimization among adolescents within the school context is a relevant issue since it is considered a significant stressor to their mental wellbeing (McDougall & Vaillancourt, 2015) as well as a known contributor to suicidal ideation (Holt et al., 2015). The relationship between victimization and suicidal ideation could be explained by the General Strain Theory. This theory postulates that a strain (relationship or event) would lead adolescents to engage in internalizing forms of deviant behavior such as self-injurious thoughts to manage negative affect (Agnew, 2001; Nock, Prinstein, & Sterba, 2009).

Most of the previous studies considering the association between victimization and suicidal ideation have focused on a single form of victimization such as bullying or sexual abuse (Hong et al., 2016; Bedi et al., 2011). However, the literature notes that victimized youth are often exposed to different forms of victimization simultaneously. For that reason, it has been suggested to examine victimization in its coexisting forms and not as a stand-alone occurrence (Finkelhor, Ormrod, & Turner, 2007). Indeed, polyvictimization (exposure to multiple forms of victimization) has been associated with more pronounced adverse mental health outcomes including suicidal behaviors among adolescents (Finkelhor et al., 2007; Turner, Finkelhor, & Ormrod, 2006; Chan, 2013). Polyvictimization in adolescents could include exposure to bullying, sexual abuse, domestic violence, and community violence (Turner, Finkelhor, Shattuck, & Hamby, 2012).

Studies have argued that females exhibit higher rates of internalizing symptoms such as depression than males (Cohen et al., 1993; Hankin et al., 1998). Concurrently, the rates of exposures to victimization vary by gender based on the type of victimization (Gershon, Minor, & Hayward, 2008). However, only few studies have attempted to examine the gender differences in the association between victimization and psychological outcomes among adolescents and those studies have often shown mixed results. For instance, a meta-analysis which examined the association between childhood sexual abuse and psychological outcomes among college students found a moderating effect of gender indicating that males significantly suffered from worse psychological outcomes than females (Rind, Tromovitch, & Bauserman, 1998). On the other hand, a similar meta-analysis found no significant moderating effect of gender on the association between childhood sexual abuse and depression (Jumper, 1995). Given the scarcity of the evidence, there is a need to further examine the potential moderating effect of gender on the association between polyvictimization and suicidal ideation among adolescents.

There is a dearth of evidence about the impact of polyvictimzation on suicidal ideation among adolescents in the Eastern Mediterranean region. Existing studies in that region have either focused on violent behavior (Sibai, Tohme, Beydoun, Kanaan, & Sibai, 2009) or on suicidal ideation (Mahfoud et al., 2011; Itani, Jacobsen, & Kraemer, 2017) and have yet to examine the association between polyvictimization and suicidal ideation. The current study aims at bridging the gap in the literature by exploring the latter association in the United Arab Emirates (UAE).

The purpose of this study was to (1) estimate the prevalence and correlates of suicidal ideation and (2) to model the association between polyvictimization and suicidal association while considering the potential moderating effect of gender among Emirati adolescents.

Method

Study design

The study utilized secondary data from the Global School-based Student Health Survey (GSHS) that aims to examine the health and risk behaviors of adolescent students primarily aged 13–17 years. The GSHS

uses a standardized cross-sectional design, common sample selection process, and core questionnaire modules across different regions of the world (WHO, 2017).

The UAE GSHS 2010 was a school-based survey of students in grades 8, 9, and 10. A two-stage cluster sample design was used to produce nationally representative data of all students in those grades. At the first stage, schools were selected with probability proportional to enrollment size. At the second stage, classes were randomly selected and all students in selected classes were eligible to participate. The school response rate was 100%, the student response rate was 91%, and the overall response rate was 91%. A total of 2581 students participated in the UAE GSHS. Students self-reported their responses to each question on a computer-scannable answer sheet (World Health Organization, 2010). Students with missing information on suicidal ideation were excluded from the analyzes. Hence, data from 2520 students were analyzed.

Ethical considerations

Before data collection, ethical approval was obtained from the UAE Ministry of Education. Additionally, the school authorities from each sampled school were asked for permission for the study to be conducted in their schools. Participation in the survey was voluntary and anonymous.

Measures

The dependent variable for this study was suicide ideation, which was assessed with the yes/no question: 'During the past 12 months, did you ever seriously consider attempting suicide?'

Being bullied in the past 30 days and being physically attacked in past 12 months were considered as main independent variables. To avoid overestimating bullying rates, students who said they had been bullied on one or more days in the past month but then reported not being bullied in the follow-up question about the type of bullying experienced were considered not to have been bullied. The types of bullying included items such as being made fun of because of race, religion, and physical appearance. To capture the co-occurrence of being bullied and being physically attacked, a combined victimization variable was created with the following three categories: no victimization, bullied or physically attacked, and both forms of victimization.

In addition to demographic variables such as age and gender, variables related to mental health, peer relations, parental understanding, and risk behavior were considered. Regarding mental health, students answered questions about feeling lonely ('During the past 12 months, how often have you felt lonely?'; coded as most of the time or always = 1; never to sometimes = 0) and worry-induced insomnia ('During the past 12 months, how often have you been so worried about something that you could not sleep at night?'; coded as most of the time or always = 1; never to sometimes = 0). Peer relations were assessed by asking 'How many close friends do you have?' (coded as having no close friends = 1; one or more friends = 0) and 'During the past 30 days, how often were most of the students in your school kind and helpful?' (coded as never or rarely = 1; sometimes to always = 0). Parental understanding was captured by the question how often parents or guardians understand problems and worries in the past 30 days (coded as never or rarely = 1; sometimes to always = 0). Risk behavior was assessed by asking the students about any cigarette smoking in the last 30 days and whether they missed school at least once without permission in the past 30 days.

Statistical analysis

Descriptive statistics were used to present the sample characteristics. Cross-tabulations were performed to examine the proportion of students who reported suicidal ideation by the different independent variables; first for the overall sample and later stratified by gender. To formally examine whether the association between suicidal ideation and victimization among school adolescents differed depending on gender, a multivariable logistic regression model with an interaction term was fitted. Unadjusted

and adjusted odds ratios (OR) for the association between suicidal ideation and for each independent variable were reported separately for males and females. Data were analyzed using SPSS version 23 (IBM, Chicago, IL) with a significance level of α = .05. Sampling weights were applied to account for the multi-staged clustered sampling design.

Results

General characteristics of the sample

The study included 2520 Emirati students, with more females than males (58.5 vs. 41.5%). The overall prevalence of suicidal ideation was 16.5%, and around 41% of the students were exposed to a form of victimization. The prevalence of suicidal ideation was higher among females and those aged 16 years and older; however, this difference was not statistically significant (p = .075). Students who were exposed to two forms of victimization reported about three times more suicidal ideation as compared to students who were not victimized (32.9 vs. 11.7%, p < .001). Females exposed to two forms of victimization reported about three times more suicidal ideation as compared to students who were not victimized (32.9 vs. 11.7%, p < .001). Females exposed to two forms of victimization reported higher suicidal ideation than males with similar victimization exposure. Approximately 16% of adolescents reported feeling lonely and losing sleep over worries always or most of the time. One third of the sample reported lack of parental understanding. Females who reported that their parents never or rarely understood their problems suffered more suicidal ideation than males who also reported lack of parental understanding. Females more of suicidal ideation than males cigarette smokers reported higher burden of suicidal ideation than male cigarette smokers (Table 1).

The association between suicidal ideation and victimization among school adolescents significantly differed depending on gender (p for interaction = .012) (Table 2).

Associations between polyvictimization and suicidal ideation among male students

Male students who were exposed to two forms of victimization had twice the odds of reporting suicidal ideation as compared to those who were not victimized (OR: 1.97, 95% CI: 1.12–3.44). However, that association was no longer significant in the adjusted model (aOR: 1.37, 95% CI: .71–2.64). Feeling lonely had the strongest association with suicidal ideation at the bivariate level (OR: 4.30, 95% CI: 2.85–6.49) as well as in the adjusted model (aOR: 2.89, 95% CI: 1.69–4.95). Male smokers had twice the odds of reporting suicidal ideation than male non-smokers after adjusting for the other variables in the model (aOR: 2.08, 95% CI: 1.26–3.46) (Table 3).

Associations between polyvictimization and suicidal ideation among female students

Female students aged 16 years and older had twice the odds of reporting suicidal ideation that females aged 13 years and younger (OR: 2.03, 95% CI: 1.41–2.93). Being 16 years and older remained significantly associated with suicidal ideation in the adjusted model (aOR: 2.19, 95% CI: 1.20–4.00). Females who were exposed to two forms of victimization had about four times the odds of reporting suicidal ideation as compared to those who were not victimized (OR: 3.68, 95% CI: 2.65–5.11). That association remained significant in the adjusted model (aOR: 3.53, 95% CI: 2.13–5.87). Female smokers had three times the odds of reporting suicidal ideation than female non-smokers after adjusting for the other variables in the model (aOR: 3.25, 95% CI: 1.96–5.39) (Table 4).

Discussion

This is the first study in the Eastern Mediterranean region to explore the prevalence and correlates of suicidal ideation and estimate its association with polyvictimization while highlighting the moderating effect of gender among adolescents. The main findings show that 16.5% of the adolescents in this study reported seriously considering suicide in the past 12 months. This was comparable to other studies

Table 1. Gender-specific	percentage of reporting	g past-year suicidal ideation b	y sample characteristics.

			% reporting		% reporting	% reporting
Sample character-			past-year suicidal		past-year suicidal	past-year suicidal
istics	Ν	%	ideation	р	ideation (males)	ideation (females)
Total sample	2520	100	16.5			
Gender				.075		
Males	1042	41.5	14.7			
Females	1462	58.5	17.5			
Age in years				.001		
13 and younger	786	27.9	14.2		14.1	13.9
14	826	31.8	14.9		14.0	15.2
15	649	29.2	17.1		14.0	19.6
16 and older	249	11.0	25.3		18.7	34.0
Victimization				<.001		
No victimization	1437	58.7	11.7		11.4	11.8
One form of victimi- zation	733	30.8	18.9		15.9	21.6
Polyvictimization	261	10.5	32.9		20.2	42.9
Mental health						
Felt lonely				< 0.001		
Yes	413	16.8	36.0		34.7	36.7
No	2096	83.2	12.4		10.9	13.4
Worry-induced insomnia				<.001		
Yes	395	16.3	36.0		29.1	39.0
No	2107	83.7	12.4		12.2	12.3
Peer relations						
No close friends				.003		
Yes	148	6.1	25.2		25.0	25.8
No	2336	93.9	15.6		13.6	16.7
Students never or rarely helpful				<.001		
Yes	384	15.9	23.0		19.9	27.0
No	2062	84.1	15.0		12.1	16.4
Parental factor						
Lack of understanding				<.001		
Yes	825	34.5	25.4		19.7	29.2
No	1620	65.5	11.4		10.7	11.5
Risk behavior						
Cigarette smoking				<.001		
Yes	354	14.6	32.7		25.9	42.6
No	2122	85.4	13.0		10.3	14.7
Missed school				<.001		
Yes	903	37.7	20.4		16.4	22.7
No	1556	62.3	13.7		12.9	14.2

Table 2. Multivariable logistic regression of the association between suicidal ideation and victimization including an interaction term (gender × victimization).

Independent variable	Adjusted OR	95% CI	Interaction p
Gender (male)	1.03	.71–1.47	.012
Victimization (no victimization)			
One form of victimization	2.07	1.48-2.89	
Polyvictimization	5.69	3.73-8.68	

conducted in the Middle East that have participated in the GSHS (which had suicidal ideation rates ranging from 15.2 to 19.9%) (Itani et al., 2017) except for Iran where the prevalence was 4.1% among 15–17-year-old students (Ziaei et al., 2017). In the current study, female students reported a higher rate of suicidal ideation than males. This was consistent with a study conducted in Iran that used a similar methodology (Ziaei et al., 2017) but contradictory to a study in the Occupied Palestinian Territories that was based on GSHS data (Itani et al., 2017). Other correlates of suicidal ideation in the UAE GSHS were

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Independent variables	Unadjusted OR	95% CI	Adjusted OR	95% CI
Age in years (13 years and younger)				
14	1.00	.59-1.68	1.30	.66-2.55
15	1.00	.60-1.68	1.09	.56-2.10
16 and older	1.40	.78-2.50	1.16	.54–2.49
Victimization (no victimization)				
One form of victimization	1.45	.96-2.21	1.14	.69–1.88
Polyvictimization	1.97	1.12-3.44	1.37	.71–2.64
Mental health				
Felt lonely	4.30	2.85-6.49	2.89	1.69–4.95
Felt worried	2.98	1.87-4.73	2.00	1.11-3.57
Peer relations				
No close friends	2.08	1.13-3.80	.86	.35–2.07
Students helpful	1.81	1.21-2.73	1.05	.62–1.79
Parental factors				
Lack of understanding	2.04	1.38-2.99	1.54	.96–2.47
Risk behavior				
Cigarette smoking	3.07	2.06-4.57	2.08	1.26-3.46
Missed school	1.32	.90-1.93	.96	.59–1.54

Table 3. Simple and multivariable logistic regression of the association between past-year suicidal ideation and factors related to victimization, mental health, risk behavior, and parental factors among males.

Table 4. Simple and multivariable logistic regression of the association between past-year suicidal ideation and factors related to victimization, mental health, risk behavior, and parental factors among females.

Independent variables	Unadjusted OR	95% CI	Adjusted OR	95% CI
Age in years (13 years and younger)				
14	1.04	.77-1.42	.96	.61–1.51
15	1.23	.91-1.67	1.15	.73–1.83
16 and older	2.03	1.41-2.93	2.19	1.20-4.00
Victimization (no victimization)				
One form of victimization	1.77	1.36-2.29	1.87	1.27-2.76
Polyvictimization	3.68	2.65-5.11	3.53	2.13-5.87
Mental health				
Felt lonely	3.95	3.06-5.08	1.86	1.22-2.81
Felt worried	3.97	3.07-5.12	2.86	1.94–4.22
Peer relations				
No close friends	1.83	1.22-2.75	1.42	.70-2.90
Students helpful	1.70	1.28-2.25	1.11	.64–1.92
Parental factors				
Lack of understanding	2.65	2.10-3.34	2.56	1.81–3.64
Risk behavior				
Cigarette smoking	3.24	2.47-4.24	3.25	1.96-5.39
Missed school	1.60	1.27-2.01	1.26	.88–1.80

related to victimization, mental health characteristics, peer relations, lack of parental understanding, and risk behaviors (cigarette use and missing school without permission). This multitude of correlates is consistent with findings from other studies about adolescent suicidality in the Eastern Mediterranean region (Mahfoud et al., 2011; Itani et al., 2017), and other GSHS studies conducted from around the world (Page, Saumweber, Hall, Crookston, & West, 2013). It is worth mentioning that female smokers reported higher odds of suicidal ideation than male smokers in their respective adjusted models. This suggests that the effect of engaging in risky behavior such as cigarette smoking on suicidal ideation could be worse for female adolescents. The latter should be taken into account when designing suicide prevention programs.

The central finding of this study indicates that gender may exert a moderating effect on the association between victimization and suicidal ideation among Emirati middle school students. On the one hand, there was no significant association between victimization and suicidal ideation among males after adjusting for age and factors related to mental health, peer relations, parental understanding, and

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risk behaviors. On the other hand, we observed a significant association after accounting for the same set of variables for females. In fact, the adjusted model showed that females who were either bullied or physically attacked had twice the odds of suicidal ideation than females who were not victimized. Additionally, females who were exposed to both victimization forms in the last year had 3.5 times the odds of suicidal ideation as compared to females with no history of victimization in the past year after adjusting for known confounders. When compared to male adolescents, females might suffer far more detrimental effects from victimization exposure on their suicidal behavior and those effects being much more pronounced when exposed to two forms of victimization. This could be further explained once the type of bullying is considered, although not specifically examined in the current analysis. Previous studies reported that females are more likely than males to be victims of cyberbullying which in turn has been linked with worse mental health outcomes such as suicidal ideation (Bannink, Broeren, van de Looij-Jansen, de Waart, & Raat, 2014; Cassidy, Faucher, & Jackson, 2013). The literature indicates that when being faced with adversities such as negative peer events, females experience more interpersonal stress and report more distress as compared to males (Rose & Rudolph, 2006).

Previous studies that explored the moderating role of gender on the association between victimization and suicidal ideation have yielded mixed results. Our results share similarities with a previous Finnish cohort study that reported a significant association between bullying victimization and suicidal behavior only among young females after controlling for conduct and depression symptoms (Klomek et al., 2009). In contrast, male adolescents who were victims of bullying were found to be at greater risk for suicidal ideation (Laukkanen, Honkalampi, Hintikka, Hintikka, & Lehtonen, 2005). A meta-analysis that examined gender childhood victimization and psychiatric outcomes found no definitive answer whether gender moderated the effects of childhood victimization on psychiatric outcomes (Gershon et al., 2008). Hence there is a need for more scientifically sound studies to replicate and further explore the moderating role of gender on the effects of victimization on suicidal ideation.

As mentioned earlier, we found evidence that exposure to more than one form of victimization was associated with higher odds of suicidal ideation among female adolescents. A recent study conducted among Vietnamese adolescents indicated that polyvictims were more likely to report suicidal ideation than both non-victims and victims of fewer forms of victimization (Le, Holton, Nguyen, Wolfe, & Fisher, 2016). A different study that examined the relationship between victimization exposure and suicidal ideation among adolescents using longitudinal data found that polyvictimization was the most powerful predictor of suicidal ideation. This reflects significant adversity within the lives of those affected by different forms of victimization (Turner et al., 2012).

Findings from this study should be interpreted while considering several limitations. The study captured the concept of polyvictimization using only two forms of victimizations (being bullied and being physically attacked) and missed other important dimensions such as sexual abuse and neglect. The latter was not assessed by the GSHS and the former was not included in the publicly available data-set. Additionally, the GSHS did not include items about the socioeconomic status of participants' households in the questionnaires that might be important confounders. Lastly, due to the cross-sectional study design, causal associations between victimization and suicidal ideation could not be assessed.

Conclusions

This study highlighted the significant association between polyvictimization and suicidal ideation among adolescents in the UAE and explored the moderating effect of gender on that association. The results of this study could be important in guiding officials in recognizing the magnitude of victimization on the mental health of middle school adolescents. Future research on violence victimization among adolescents in UAE and the Eastern Mediterranean region could benefit from considering the effects of more forms of victimization on various mental health outcomes as compared to the current study. Policies aimed at violence prevention and mental promotion should be devised while considering gender as an effect modifier.

Author contributions

Taha Itani and Alexander Kramer conceived the study; Taha Itani and Florian Fischer analyzed the data; Taha Itani; Florian Fischer; and Alexander Kraemer wrote the paper together.

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Disclosure statement

The authors declare no conflict of interest.

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