

# Psychological Trauma: Theory, Research, Practice, and Policy

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# Prolonged Exposure to Violence: Psychiatric Symptoms and Suicide Risk Among College Students in the Palestinian Territory

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**Objective:** Little is known about the risk for suicide in those exposed to prolonged political and domestic violence. Thus, this study aims to explore suicidal ideation and attempts in a community sample of Palestinian students and identify the extent to which clinical variables are associated with suicidal ideation. **Method:** A cross-sectional design was utilized in this study, and 303 college and university students aged 18 to 23 from seven campuses in the Palestinian territory voluntarily and anonymously completed self-report questionnaires that assessed 12 months of suicidal ideation and attempts, posttraumatic stress symptoms (PTSS), depression, anxiety, and sleep problems. **Results:** The results showed high rates of suicidal ideation and attempts within the last 12 months. Severe symptoms of PTSS, depression, and sleep problems were reported compared with other college samples. An exploratory path analysis showed that PTSS is directly associated with suicidal ideation and indirectly by its association with sleep problems and depressive symptoms. **Conclusion:** The results highlight the elevated mental health difficulties of students living under prolonged exposure to violence and could be helpful to policy and decision-makers in health care and academic institutions in implementing and design interventions aim to reduce depression and PTSS. Screening for PTSS and depression is a vital first step in suicide prevention efforts in college students exposed to trauma. Future studies should assess the types of traumatic stress exposure and health risk behaviors to offer a more in-depth view.

## Clinical Impact Statement

This study offered initial insight into one of the most severe mental health issues, namely suicide behaviors among those who have been exposed to political and domestic violence for prolonged periods. The results highlighted the extent and effects of exposure to prolonged trauma on suicidal ideation and mental health, specifically among young adults living under prolonged exposure to violence. The study results could be helpful to policy and decision-makers in health care and academic institutions to implement and design interventions aim to reduce depression and PTSS.

**Keywords:** suicidal ideation, trauma, depression


## Introduction

Suicide is one of the leading causes of death, especially among college students (Liu et al., 2019; Shen et al., 2020). One out of six college students has experienced suicidal ideation, of which almost 45% have reported experiencing it in the 12-months preceding the survey, and 20% having reported to have attempted suicide (Mortier et al., 2017). Specifically, pooled prevalence estimates of lifetime suicidal ideation, plans, and attempts among college students were 22.3%, 6.1%, and 3.2%, respectively. For

12-month prevalence, this was 10.6%, 3.0%, and 1.2%, respectively (Mortier et al., 2018).

Elevated psychopathology levels have been reported among young adults from countries where high political conflict levels occur (Khamis, 2015; Punamäki et al., 2015; Thabet et al., 2008). Between 23% to 70% of adolescents living in the West Bank and Gaza had PTSD, anxiety, and depression (Abdeen et al., 2018; Elbedour et al., 2007; Fafous et al., 2013; Harel-Fisch et al., 2012; Qouta et al., 2008; Thabet et al., 2008; 2016). These psychopathologies are not the only factors that should be considered when determining potential negative effects on well-being.

Sleep problems are associated with suicidal ideation as well as for suicide attempts (Gelaye et al., 2016; Pigeon et al., 2012; Rotenstein et al., 2016; Weis et al., 2015), whereby it has been estimated that 40% to 77% of college students suffer from at least one type of sleep problem (Hershner & Chervin, 2014), with 9.5% of college students having met *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; American Psychiatric Association, 2013) criteria for chronic insomnia (Taylor et al., 2013). Thus,

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sleep difficulties have adverse effects on well-being, including depression and anxiety (Lunde et al., 2010; Shanahan et al., 2014).

Furthermore, sleep problems may have cumulative adverse effects among college students, specifically after prolonged exposure to traumatic events. These prolonged exposures may increase the reciprocal effects of posttraumatic stress symptoms (PTSS) and sleep problems: On the one hand, PTSS may induce specific sleep problems, such as insomnia and having nightmares, and on the other hand, sleep difficulties may maintain the symptoms of PTSD (Miller et al., 2020; Pigeon & Gallegos, 2015; Spoomaker & Montgomery, 2008).

Even though the abovementioned factors were identified to increase suicidal ideation and attempts, and despite that these psychopathologies are well documented, little is known about suicidal ideation or suicide attempts among college students in the vulnerable population of the West bank of the Palestinian territory. The vast majority of studies have focused on adolescents, suggesting a higher prevalence of suicidal ideation in this sample compared with other samples (Harel-Fisch et al., 2012; Itani et al., 2017). Furthermore, the data regarding suicide risk among college students who have been exposed to prolonged political violence is scarce; thus, this study is one of the few aimed at documenting suicidal ideation and suicide attempts among college students who are living under prolonged exposure to political and domestic violence (Abdeen et al., 2018). Previous studies have focused on the impact of exposure to traumatic events on academic achievement and psychopathology (Banyard & Cantor, 2004; Boyraz et al., 2015). Furthermore, those studies relied on single-item or nonstandard assessments to measure suicide behaviors or sleep problems (Bernert et al., 2014; Cheung & Wong, 2011; Mortier et al., 2017; Ribeiro et al., 2012). In this study, we have used a standardized measure of suicidal ideation and attempts and have used a comprehensive assessment to determine sleep problems that increased the validity and generalizability of the effect of sleep disorders on suicidal risk.

Therefore, this study aims to explore the frequency of suicidal ideation and attempts as well as the severity of PTSS, depression, and sleep problems in a community sample of Palestinian college students living under prolonged exposure to violence. Another aim is to identify the extent to which PTSS, sleep problems, and depressive symptoms are associated with suicidal ideation. Based on the findings discussed previously, we hypothesize that (a) suicidal ideation will be associated with PTSS, depressive symptoms, and sleep problems and that (b) sleep problems will be directly associated with suicidal ideation as well as its association with depressive symptoms and PTSS problems.

## Method

### Participants and Procedure

A cross-sectional design was utilized in the present study. A sample of 303 university and college students aged between 18 and 23 were recruited from seven public campuses at the West Bank in the Palestinian Authority via an advertisement posted on social media networks and utilizing a snowball sampling technique (Dragan & Isaic-Maniu, 2013). Almost half (48.5%) of the participants were men, 80.1% aged between 18 and 21 years, and 19.9% aged between 22 and 23 years. The vast majority were

**Table 1**  
*Demographics of the Study Sample*

Characteristic	% (n)
Age groups	
18 to 21	80.1 (243)
21 to 23	19.9 (60)
Gender (men)	48.5 (147)
Social status (single)	85.8 (260)
Religion (Muslim)	97.3 (295)
Place of residence	
City	38.3 (116)
Town	52.5 (159)
Refugee camp	9.2 (28)

Muslim (97%), and 9.2% of the sample ( $n = 28$ ) reported living in a refugee camp (see Table 1 for a detailed description of demographic characteristics). Information and explanation about the nature, purposes, confidentiality, and the risk of the research were provided to the participants before obtaining informed consent from all participants who voluntarily and anonymously participated. Furthermore, they were given a referral sheet with information about mental health services available if needed. The study was approved by the ethical committee of the authors' academic institutions.

## Measures

### *Suicidal Ideation and Attempts*

12 months of suicidal ideation and attempts were assessed using two relevant questions from the Columbia Suicide Severity Rating Scale (Posner et al., 2011). This includes suicidal ideation (“*Have you, during the past 12-months, thought of killing yourself?*”) and suicide attempts (“*Have you, during the past 12-months, made an attempt to kill yourself?*”) within the last 12 months. Posner et al. (2011) reported good validity and reliability estimates for the scale.

### *Suicidal Behaviors Questionnaire–Revised (SBQ-R)*

The Suicidal Behaviors Questionnaire–Revised (SBQ-R; Osman et al., 2001) is a four-item, Likert-type self-report questionnaire designed to assess levels of suicidal risk. The first item measured levels of lifetime suicidal behaviors including thoughts, plans, and attempts; the second item evaluated the frequency of suicidal thoughts in the last year; the third item measured communication of the intent to commit suicide, and the fourth item assessed the likelihood of committing suicide in the future. The total score ranged from 3 to 18, with higher scores indicating higher levels of suicidal behaviors. A cutoff score of 7 was used to determine clinically significant levels of suicide risk among the general adult population (Osman et al., 2001). The questionnaire is a reliable research tool in both clinical and nonclinical samples with an alpha coefficient ranging from .76 to .88. For this study, the SBQ-R was translated into Arabic for participants to complete and translated back into English by a professional translator fluent in both languages for analysis. The alpha coefficient for this measure in the present sample was .83.

### **PTSD Checklist–Civilian Version (PCL-C)**

PTSD Checklist–Civilian version (PCL-C; Conybeare et al., 2012; Weathers et al., 2001) is a 17-item self-report measure designed to assess PTSS severity, including intrusive negative thoughts, avoidance of negative thoughts and behaviors, and hyperarousal symptoms within the last month. Participants rated the extent to which they have been bothered by each symptom in the last month using 5-point Likert scales ranging from 1 (*not at all*) to 5 (*extremely*). A total score ranged between 17 and 85, and dichotomous scoring methods included either an overall cutoff score or a symptom cluster scoring approach that included a Cluster B (reexperiencing), Cluster C (avoidance/numbing), and Cluster D symptom (hyperarousal). In this study, we have used the cutoff score of 50 to represent a high severity of PTSS (Conybeare et al., 2012). The PCL-C has shown good agreement with both the PTSD module of the Structured Clinical Interview for *DSM-IV* (Andrykowski et al., 1998) and the Clinician-Administered PTSD Scale (Blanchard et al., 1996). The items related to sleep difficulties [Item 2: “Repeated, disturbing dreams of a stressful experience from the past”; Item 13: “Trouble falling or staying asleep”] were excluded from the correlation analysis and the hierarchical regression analyses. The validated Arabic version was used in this study (Alhalal et al., 2017). Cronbach’s alpha for this study was .86.

### **Patient Health Questionnaire (PHQ-9)**

The severity of depression was assessed with the Patient Health Questionnaire (PHQ-9), a nine-item self-report questionnaire that comprises scores ranging from 0 (*not at all*) to 3 (*nearly every day*). Scores were summed to obtain a global score ranging from 0 to 27. Cronbach’s alpha was reported to be between .89 and .86 (Kroenke et al., 2001). The validated Arabic version of the PHQ-9 was used in this study (AlHadi et al., 2017) and had an alpha coefficient of .87. Due to a high correlation between Item 9 (suicidal ideation) and the first questions of the Columbia Suicide Severity Rating Scale (Posner et al., 2011) regarding suicidal ideation ( $r = .82, p < .001$ ), we used only the eight-item version during the regression analysis (i.e., PHQ-8; Kroenke et al., 2009).

### **Generalized Anxiety Disorder**

The Generalized Anxiety Disorder–7 (GAD-7; Spitzer et al., 2006) was designed to assess generalized anxiety disorder symptoms and symptom severity. The GAD-7 has been widely used cross-culturally in primary care patients and the general population, including Arabic-speaking samples, with high reliability and validity (AlHadi et al., 2017; Kroenke et al., 2010). Participants were asked how often (during the last 14 days) they have been bothered by each of the seven generalized anxiety disorder symptoms. Response options were 0 (*not at all*), 1 (*several days*), 2 (*more than half the days*), and 3 (*nearly every day*). Therefore, the final GAD-7 global score ranged from 0 to 21. The cutoff point for severe generalized anxiety disorder was a global sum of 10 or more that optimized sensitivity (89%) and specificity (82%; Spitzer et al., 2006). The internal consistency of the GAD-7 was found to be good ( $\alpha = .92$ ; Spitzer et al., 2006). The internal consistency in this study was  $\alpha = .79$ .

### **The Pittsburgh Sleep Quality Index (PSQI)**

The Pittsburgh Sleep Quality Index (PSQI; Buysse et al., 1989) is a self-report measure of sleep quality that assesses multiple sleep-related variables within the preceding month using Likert-type and open-ended response formats. The PSQI yields seven component scores: subjective sleep quality, sleep duration, habitual sleep efficiency, sleep latency, sleep disturbances, sleep medication, and daytime dysfunction. Item scores ranged from 0 to 3 and were summed to obtain a global score, which ranged from 0 to 21. Higher scores suggested more significant sleep disturbance; a global score of more than 5 indicated a significant sleep disruption. The overall reliability coefficient (Cronbach’s alpha) was .83. We have used the validated Arabic version of the PSQI, which had an alpha coefficient of .83 in the present sample (Suleiman et al., 2010).

### **Demographic Information**

This information was collected throughout self-report questions inquired gender, age, family status, level of education, and residence.

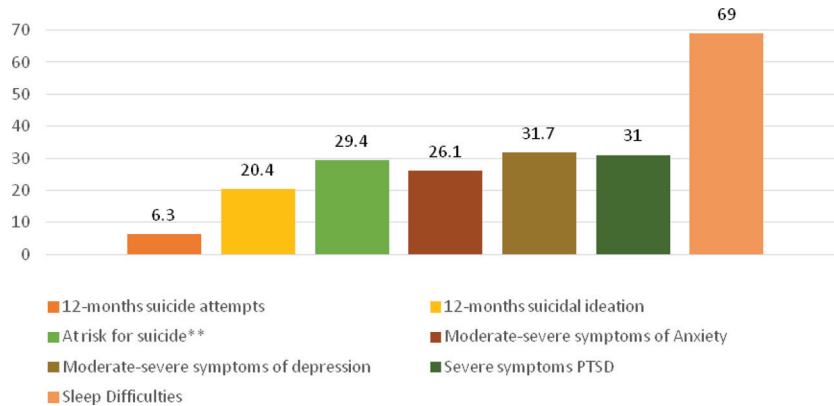
### **Data Analysis**

All analyses were conducted using IBM SPSS Version 22 (IBM Corp., 2013). Continuous variables were expressed as means and standard deviations. Categorical variables were presented as frequencies (%) and absolute numbers ( $N$ ). suicidal ideation groups (yes vs. no) were compared in terms of sociodemographic and clinical characteristics by using  $t$  tests or chi-square tests where appropriate. First, the alpha level was set at .05, and a Bonferroni post hoc test was conducted to correct for multiple comparison errors. Second, to identify the set of correlates associated with suicidal ideation, hierarchical logistic regression models were conducted. Based on previous studies (Ao et al., 2016; Itani et al., 2017; Lewinsohn et al., 2001; Schrijvers et al., 2012), we have controlled for significant demographical covariates related to suicidal ideation (including gender and residence). In the first block, gender and place of residence were included; in the second block, sleep difficulties and depressive symptoms, and PTSS were included in the last block model. The variable *anxiety* was excluded from the model due to multicollinearity ( $r = .79$ ; variance inflation factor (VIF)= 5.21). Finally, an exploratory path analysis model was conducted using AMOS software (Arbuckle, 2013) to identify the direct and indirect effects of correlates with suicidal ideation. We have fitted several models to identify the potential pathway to suicidal ideation by including the clinical variables identified by logistic regression. Furthermore, chi-square, comparative fit index (CFI), Tucker–Lewis index, and root mean square residual statistics were used to assess goodness of fit.

### **Results**

Clinically, one fifth of the sample reported suicidal ideation (20.4%,  $n = 62$ ), and 6.3% have attempted suicide ( $n = 19$ ) within the last 12 months. Of the total sample, 29.4% were at risk for suicide ( $n = 89$ ), 31.7% exhibited moderate to severe symptoms of depression ( $n = 96$ ), and 30.0% reported severe symptoms of PTSD ( $n = 90$ ). Just above a quarter (26.1%) had severe symptoms of general

**Figure 1**  
*Clinical Characteristics of the Study Sample*



*Note.* <sup>a</sup> Numbers represent frequencies; <sup>b</sup> Score  $\geq 7$  according to the Suicidal Behaviors Questionnaire-Revised (SBQ-R) (Osman et al., 2001). Suicide ideation or attempts within the last 12 months based on their responses on Columbia Suicide Severity Rating Scale (Posner et al., 2011). Depressive symptoms based on Patient Health Questionnaire (PHQ-9; Kroenke et al., 2001); sleep difficulties were based on the global score of The Pittsburgh Sleep Quality Index (PSQI; Buysse et al., 1989). Symptoms of anxiety were calculated based on the Generalized Anxiety Disorder (Spitzer et al., 2006). Post-traumatic stress symptoms were based on the PTSD Checklist-Civilian Version (PCL-C; Conybeare et al., 2012; Weathers et al., 1991). See the online article for the color version of this figure.

anxiety disorders ( $n = 79$ ). In terms of sleep difficulties, 69.0% of the total sample had sleep difficulties ( $n = 209$ ; see Figure 1).

As presented in the correlation matrix in Table 2, risk for suicide was significantly associated with depressive symptoms ( $r = .34, p < .001$ ), anxiety ( $r = .29, p = .01$ ), posttraumatic stress symptoms ( $r = .36, p < .001$ ), and sleep problems ( $r = .37, p < .001$ ).

As displayed in Table 3, participants who reported suicidal ideation during the preceding 12 months) compared with those without suicidal ideation exhibited higher levels of depression ( $10.70 \pm 4.93$  vs.  $6.68 \pm 4.34, t = -6.21, p < .001$ ), PTSS ( $47.95 \pm 15.72$  vs.  $34.13 \pm 12.08, t = -7.38, p < .001$ ) and anxiety ( $9.57 \pm 4.73$  vs.  $6.31 \pm 3.77, t = -5.64, p < .001$ ).

In terms of sleep difficulties, participants who reported suicidal ideation were likely to suffer from greater levels of sleep problems compared with those without suicidal ideation ( $8.83 \pm 4.06$  vs.  $5.63 \pm 2.68, t = -7.31, p < .001$ ). Specifically, they tended to exhibit greater levels of disturbed sleep ( $1.60 \pm .74$  vs.  $1.21 \pm .59, t = -5.16, p < .001$ ), worse quality of sleep ( $1.42 \pm 1.11$  vs.  $.87 \pm .95, t = -3.55, p < .001$ ), increased use of sleep medication ( $1.47 \pm .96$  vs.  $.79 \pm .69, t = -6.21, p < .001$ ), and reported

greater daily dysfunction due to sleep difficulties ( $1.11 \pm .92$  vs.  $.42 \pm .67, t = -5.77, p < .001$ ; see Table 3).

A hierarchical logistic regression analysis was used to examine the clinical variables' unique effects in relation to suicidal ideation, controlling for demographic covariates (including gender and place of residence). As presented in Table 4, depressive symptoms (odds ratio [OR] = 1.12,  $p = .003$ ), PTSS (OR = 1.21,  $p = .002$ ), and sleep difficulties (OR = 1.17,  $p = .001$ ) were parsimonious in terms of the set of correlates in relation to the risk of suicide,  $\chi^2(8) = 10.38, p = .24$ .

Finally, an exploratory path analysis was conducted to test a comprehensive model for suicidal ideation among the sample (see Figure 2). The best-fitting model (test of model fit  $\chi^2 = .59, p = .441$ ; CFI = .974; NFI = .932; RMSEA = .017) showed that PTSS had a direct effect on suicidal ideation ( $\beta = .41, p = .03$ ) and indirect effects through its contribution to sleep problems ( $\beta = .45, p = .01$ ) and depressive symptoms ( $\beta = .27, p = .02$ ). Also, sleep problems had indirect effects on suicidal ideation through its influence on depression ( $\beta = .32, p < .01$ ). Thus, the total indirect effects of PTSS on suicidal ideation were significant ( $\beta = .29, p = .018$ ).

**Table 2**  
*Correlation Matrix of the Study Variables*

Variable	1	2	3	4	5
1. Suicide risk <sup>a</sup>	—				
2. Depressive symptoms	.34**	—			
3. Sleep problems	.37**	.56**	—		
4. Symptoms of anxiety	.29**	.79**	.48**	—	
5. PTSS <sup>b</sup>	.36**	.64**	.64**	.59**	—

<sup>a</sup> Score  $\geq 7$ . <sup>b</sup> item 2 & 13 were excluded. \*\*Correlation is significant at the .01 level. \*Correlation is significant at the .05 level.

**Table 3**  
*Demographic and Clinical Characteristics by Suicidal Ideation*

Characteristic	Suicidal ideation <sup>a</sup>				
	Yes (n = 62)	No (n = 222)	Test	df	p
Demographic					
Male % (n)	50.0 (31)	48.6 (108)	$\chi^2 = .090$	1	.77
Place of residence % (n)					
City	45.9 (28)	36.5 (81)	$\chi^2 = 5.10$	2	.07
Town	52.5 (32)	52.3 (116)			
Refugee camp	1.6 (1)	11.2 (25)			
Single % (n)	86.9 (53)	86.5 (192)	$\chi^2 = .007$	1	.94
Clinical symptoms	<i>M (SD)</i>	<i>M (SD)</i>			
Depressive	10.70 (4.93)	6.68 (4.34)	$t = -6.21$	281	<.001
Anxiety	9.57 (4.73)	6.31 (3.77)	$t = -5.64$	281	<.001
PTSS	47.95 (15.72)	34.13 (12.08)	$t = -7.38$	281	<.001
Sleep difficulties	8.83 (4.06)	5.63 (2.68)	$t = -7.31$	281	<.001
Subjective sleep quality	1.42 (1.11)	0.87 (0.95)	$t = -3.55$	281	<.001
Sleep latency	1.83 (0.92)	1.32 (0.95)	$t = -3.79$	281	.001
Sleep duration	1.38 (0.97)	1.00 (1.00)	$t = -2.54$	281	.010
Sleep efficiency	0.26 (0.24)	0.08 (0.27)	$t = -3.90$	281	.021
Sleep disturbance	1.60 (0.74)	1.21 (0.59)	$t = -5.16$	281	<.001
Sleep medication	1.47 (0.96)	0.79 (0.69)	$t = -6.21$	281	<.001
Daytime dysfunction	1.11 (0.97)	0.42 (0.66)	$t = -5.77$	281	<.001

Note. PTSS = posttraumatic stress symptoms.

<sup>a</sup> Suicidal ideation within the last 12 months was measured with the Columbia Suicide Severity Rating Scale (Posner et al., 2011).

### Discussion

Exposure to violence and traumatic events has been shown to lead to adverse effects such as anxiety, depression, and PTSD among Palestinian communities wherein high levels of political conflict exist. Despite that suicidal ideation and attempts have been evident among college students and have been associated with anxious and depressive symptoms and sleep problems, there is scarce research on suicidal ideation and suicide attempts among college students exposed to political violence for prolonged periods. This study aimed to explore the prevalence of suicidal ideation and suicide attempts within the last 12 months in a community sample of Palestinian college students living under prolonged exposure to violence. The results revealed high rates of suicidal ideation and attempts compared with other college samples (Mortier et al., 2017). Almost 28% of the sample reported suicidal ideation and attempts within the last 12 months, which is

higher compared with other worldwide community samples, including the United States (Liu et al., 2019), Europe (Bernal et al., 2007), New Zealand (Chan et al., 2018), Cambodia (Jegannathan & Kullgren, 2011), Lebanon (Karam et al., 2012), and Nigeria (Uwakwe et al., 2012).

In fact, exposure to prolonged political and domestic violence, facing economic hardship, and mounting stress are well known antecedents for PTSD, depression and anxiety, in adolescents and young adults (Canetti et al., 2013; Dimitry, 2011; Haj-Yahia et al., 2018; Hamdan & Hallaq, 2018; Massad et al., 2014; Muldoon, 2013). The Palestinian population in West Bank and Gaza has been subjected to continuous political and interpersonal violence, such as shooting, interpersonal, and physical injuries, and as a result, children, adolescents, and women have developed severe psychiatric symptoms including PTSS, depression, and anxiety (Espie et al., 2009; Garrouette et al., 2006; Thabet et al., 2004; Zakrisson et al., 2004). We have found high rates of students who

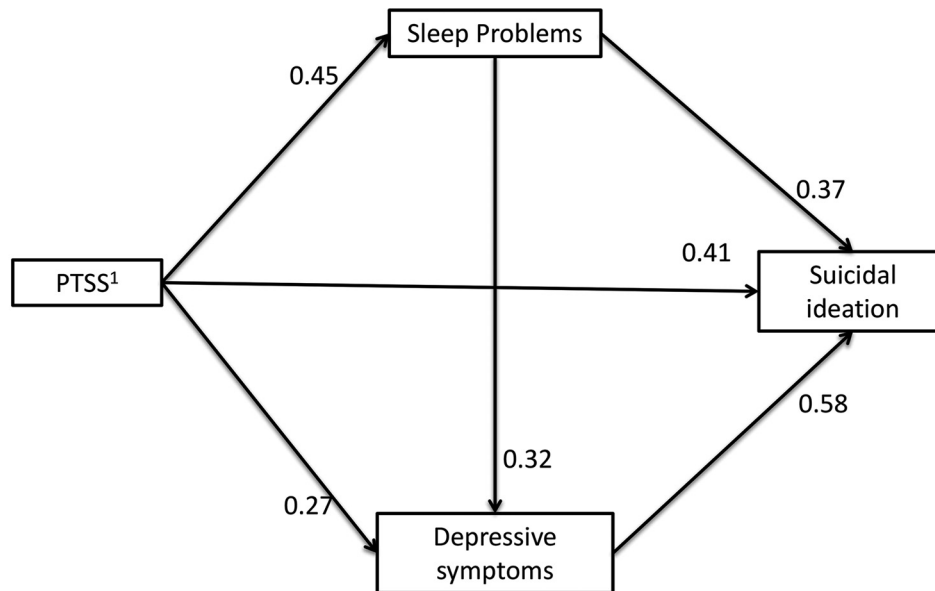
**Table 4**  
*Hierarchical Logistic Regression of Correlates With Suicidal Ideation*

Correlate	B	SE <sub>B</sub>	Wald	p	OR	95% CI
Step 1						
Gender <sup>a</sup>	.07	.32	.05	.82	1.08	[0.58, 1.99]
Place of residence <sup>b</sup>	1.98	1.09	3.27	.07	7.23	[0.85, 61.68]
Step 2						
Depressive symptoms	.18	.03	27.11	<.001	1.20	[1.12, 1.29]
Sleep difficulties <sup>c</sup>	.21	.06	14.28	<.001	1.24	[1.11, 1.39]
Step 3						
Depressive symptoms	.26	.05	7.67	.003	1.12	[1.03, 1.22]
Sleep difficulties	.21	.06	14.28	.001	1.17	[1.01, 1.33]
PTSS <sup>d</sup>	.11	.02	5.59	.002	1.21	[1.04, 2.14]

Note. Hosmer and Lemeshow's test of the goodness of fit ( $\chi^2[8]=10.38, p = .24$ ) was used. OR = odds ratio; CI = confidence interval; PTSS = posttraumatic stress symptoms.

<sup>a</sup> Reference group: male. <sup>b</sup> Reference group: Refugee camps. <sup>c</sup> Suicidal ideation and sleep items were excluded. <sup>d</sup> Sleep items were excluded.

**Figure 2**  
*Exploratory Model of Associations of PTSS, Sleep Problems, and Depressive Symptoms on 12-Months Suicidal Ideation Among College Students Living Under Prolonged Exposure to Violence*



<sup>1</sup> post traumatic stress symptoms. Numbers are standardized path coefficients. The lines indicate statistically significant paths.

Note. PTSS = posttraumatic stress symptoms.

exhibited PTSS, depressive symptoms, and sleep difficulties. These psychopathologies were associated with suicidal ideation. Furthermore, PTSS was associated with suicidal ideation even after controlling other psychiatric conditions, including depression and anxiety. This implies that suicidal ideation may be a direct sequela of prolonged exposure to traumatic events and suggests a possible direct link between experiencing traumatic events and suicide behaviors. This direct association may become more significant due to a dose-response relationship between the number of traumatic events experienced (including domestic and political violence) and the subsequent odds of suicidal ideation or even attempts (Stein et al., 2010). This positive association between PTSS and suicidal ideation appears to hold across different populations, including war veterans, victims of interpersonal victimization in childhood and adulthood, samples with mixed traumas, psychiatric populations, and nonpsychiatric community samples (Alberdi-Paramo et al., 2020; Littlewood et al., 2016; MacIsaac et al., 2018; Smith et al., 2016). The association of prolonged exposure to traumatic events with suicidal ideation is also indirect through the presence of other forms of psychiatric conditions, namely depressive and anxious symptoms (Dillon et al., 2018; Karam et al., 2012; Robison, 2003). Traumatic events contribute to the development of psychiatric disorders such as depression and anxiety, which, in turn, increase suicidal behaviors (Jankovic et al., 2013). Consistent with these findings, participants in the current study exhibited high levels of depressive and anxious symptoms, considered dominant correlate with suicidal ideation or suicide attempts. Studies conducted in the West Bank and Gaza have shown peak levels of depression among adolescents and adults during the first uprising and the subsequent wars and

military operations in Gaza (Abadsa & Thabet, 2013; El-Khodary & Samara, 2020; Khamis, 2012). Untreated depression can function as a mediator between stressful life events such as exposure to war and suicidal ideation and suicide attempts (Karam et al., 2012), childhood physical abuse and neglect (Brodsky & Stanley, 2008), as well as childhood sexual abuse (Sigfusdottir et al., 2013). The saliency of depression as a dominant correlate with suicidal ideation was shown to be evident in different cultures, including Australian (Handley et al., 2012), Chinese (Kwok, 2014), countries in the association of southern Asian Nations (ASEAN) (Peltzer et al., 2017) as well as in African, Native, Latino, and Asian American adolescents (Langhinrichsen-Rohling et al., 2009). Mental disorders in the Palestinian cities and the refugee camps are undertreated, and mental health services are underfunded and cannot meet the burden of need (Marie et al., 2016). The mental health services in the Palestinian territories are based on the community provision of care. They have a severe lack of human and infrastructure resources, a lack of adequate programs providing an evidence-based treatment of PTSD and other psychopathology, and a lack of up-to-date training or continuing education and intervention in mental health (Jabr et al., 2013). These conditions reduce mental illness help-seeking awareness and increase the stigma toward mental health-seeking, which in turn deteriorates mental health among children, adolescents and families.

Sleep problems were highly prevalent in this study and significantly correlated to suicidal ideation and suicidal attempts, similar to other studies (Gelaye et al., 2016; Nadorff et al., 2011; Pigeon et al., 2012; Rotenstein et al., 2016; Weis et al., 2015). The transition from high school to college brings an upsurge in one of the imminent risk factors for suicide: sleep problems a. The shift in

sleep patterns is one of the significant changes facing young adults throughout their college time. Participants of this study exposed to traumatic events have been reported on sleep problems similarly to different samples (Milanak et al., 2019; Zhen et al., 2018). Even after accounting for depression and anxiety, we found that sleep problems were significantly associated with suicidal ideation, alongside other results (Marinova et al., 2014; Nadorff et al., 2011; Nadorff et al., 2014; Titus et al., 2018). Positive correlations between Insomnia symptoms and suicidal ideation have been reported among adults (Kim et al., 2016; Nadorff et al., 2011; Pigeon et al., 2012; Rotenstein et al., 2016; Wong et al., 2011) as well as among adolescents (Barbe et al., 2005; Roberts et al., 2001; Wong et al., 2011).

Furthermore, disordered sleep found to be correlated with suicide attempts (Hall et al., 1999; Koyawala et al., 2015; Mustanski & Liu, 2013; Nrugham et al., 2008) as well as with death by suicide (Bjørngaard et al., 2011; Fawcett et al., 1990; Goldstein et al., 2008). Despite this positive association that has been reported in different studies, the mechanisms of these relations were still unclear.

On the one hand is the view that psychopathology composes of the relation of sleep-suicide due to the fact that sleep problems are common in specific psychiatric disorders that are considered to be dominant correlate with suicidal ideation and suicide attempts, such as PTSD, depression, and anxiety (Cavanagh et al., 2003; Gunnell et al., 2013). Studies have shown reciprocal impacts of sleep and posttraumatic stress symptoms. First, individuals who suffer from PTSS may manifest a combination of hypervigilance and emotional dysregulation that may -in turn- interfere with their sleep patterns. In fact, sleep alteration represents one of the dominant sequelae of exposure to traumatic events (Babson & Feldner, 2010; Fawcett, 2015; Morgan et al., 2018). Participants in this sample live under the cumulative risk of exposure to domestic and political violence, which initiates and maintains psychopathology in general and PTSD in specific. Childhood adversities, including interpersonal violence, were more strongly related to sleep problems (Wang et al., 2016). The lack of mental health care resources in the Palestinian territories (Giacaman et al., 2011) prevents professional support that has a vital role in minimizing psychopathology and psychiatric symptoms. Second, sleep problems may develop and maintain symptoms of PTSD. Preexisting insomnia symptoms within the first month after the exposure to the traumatic event were found to be associated with a higher risk of developing or increasing PTSD symptoms (Cui et al., 2011; Koffel et al., 2013; Koren et al., 2002). In this current sample, sleep problems may limit participants' capacity to manage stressors by limiting their potential emotional and cognitive resources or increasing their hyperarousal leading to psychiatric conditions. Insomnia may deteriorate their concentration and increase the difficulty of managing traumatic events' stress (Shapiro et al., 2002). Sleep problems preceding traumatic exposure may render participants more susceptible to developing an anxiety disorder or PTSD due to the increased arousal levels that augment their propensity for fear conditioning prior to the trauma (Bryant et al., 2010). Due to the cross-sectional design of the current study, a causal link between PTSS, sleep problems, and suicidal ideation could not be established. The lack of a prospective study design limited our ability to track how disordered sleep impacts PTSS and suicidal ideation among this vulnerable population. Therefore, a prospective future study is needed to elucidate the specific and temporal effects of disordered sleep and PTSS on suicidal ideation or suicide attempts. Understanding the temporal ordering of these problems is critical both for developing and modifying clinical intervention programs.

In addition to the above mentioned, other limitations could have affected the interpretation of the results. First, using a convenience sample limited our ability to generalize the results to other population groups, specifically non-Muslim and students living at refugee camps. These results may present an underestimation of the frequencies of suicidal ideation and psychiatric symptoms among those who are living in refugee camps where the living conditions are poor and unsafe (Santoro et al., 2016). Second, the lack of a direct assessment (by using a clinical interview) may have limited the ability to present a reliable, objective psychiatric diagnosis. Third, we have used a single-item assessment of suicidal ideation. We did not examine the range of suicidal ideation contents. Therefore, the results may not be relevant to suicidal desire or planning of suicide. Fourth, the fact that we have assessed suicidal ideation within a 12-month time frame precludes the ability to understand the dynamic nature of how suicidal ideation and attempts operate as they occur (Kleiman & Nock, 2018). Fifth, the fact that we did not objectively measure sleep problems may have provided incomplete or inaccurate sleep problems assessment. Sixthly, the PCL-C responses were not anchored to specific events or types of traumatic stress exposure; thus, the results may provide an incomplete understanding of the different reactions to different traumatic events (i.e., political, domestic, and community violence). Last, an alternative view to the one of sleep-suicide states that the relation between sleep problems and suicidal ideation may be confounded by common sequelae of sleep disturbance namely increased impulsivity (Gvion & Apter, 2011; Zouk et al., 2006) and drug and alcohol abuse (Bjørngaard et al., 2011; Shoval et al., 2013). This study did not assess health risk behaviors (including alcohol and substance abuse) or impulsivity. Therefore, a future study that focuses on the role of impulsivity and alcohol misuse in samples experiencing prolonged exposure to trauma may elucidate alternative adverse paths to suicidal ideation or suicide attempts.

This study offered initial insight into one of the most severe mental health issues, namely suicide behaviors. It highlighted the extent and effects of exposure to prolonged trauma on mental health and sleep, specifically among young adults living under prolonged exposure to violence. The study results could be helpful to policy and decision-makers in health care and academic institutions in the Palestinian Authority to implement and design interventions aim to reduce depression and PTSS. Screening for PTSS and depression is a vital first step in suicide prevention efforts in college students exposed to trauma. Implementing psychological interventions to reduce depressive symptoms, modify and improve sleep patterns may reduce suicidal ideation (Morin, 2004; Trockel et al., 2015). Adapting programs targeting posttraumatic stress symptoms may decrease suicidal ideation and attempts among these vulnerable young adults (Gradus et al., 2013; Guerra et al., 2011; Spangenberg et al., 2012).

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