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Exposure to school violence at school and mental health of victimized adolescents: The mediation role of social support

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ABSTRACT

The purpose of the current study is to examine the mediation role of social support in the relationship between exposure to violence at school and mental health among adolescents within the framework of two structured models via structural equation model (SEM). The participants consist of a total of 1420 9th, 10th, and 11th grades high school students (54.5% girls and 45.5% boys). The students' ages ranged from 14 to 18 years with a mean of 16.11 ($SD = 0.91$) for total sample. 38 percent of the participants are in the 9th grade, 34.1 percent are in the 10th grade, and 28 percent are in the 11th grade. Findings from both models indicated that social support mediated the relationships between exposure to violence and mental health among adolescents. Additionally, both models showed that the associations between exposure to violence, social support and mental health varied by gender. Contributions and implications of the current findings are discussed in detail.

1. Introduction

School violence, as a concept, has become widely used since 1992, and a considerable amount of research has been conducted to understand school violence in more detail (Furlong & Morrison, 1994). School violence is not an issue of a particular culture or society. Examining the existing literature, school violence is considered to be a problem of both developing countries and advanced countries in spite of the fact that they have different structures and contents (Astor, Meyer, & Pitner, 2001; Shapiro, Burgoon, Welker, & Clough, 2002). The percentage of adolescents exposed to violence at school is quite high. For example Flannery, Wester, and Singer (2004) found that over 44% of the adolescents reported that they had been exposed to violence at school.

A growing body of research points to the adverse effects of being a victim of school violence on students' physical and mental health (Crick & Grotpeter, 1995; Due et al., 2005; Estévez, Musitu, & Herrero, 2005; Janosz et al., 2008; Natvig, Albreksten, & Qvarnstrom, 2001; Rigby & Slee, 1999; Schwab-Stone et al., 1995; Storch & Masia-Warner, 2004). For example Natvig et al. (2001) found that adolescents exposed to violence suffered from psychosomatic symptoms such as headache and backache. Schwab-Stone et al. (1995) found that adolescents exposed to violence reported high levels of depression and anxiety. A similar finding of Estévez et al. (2005) is that victimization at school was positively related to psychological distress (depressive symptomatology and perceived stress). In their longitudinal study, Janosz et al. (2008) reported that actual victimization at school more reliably estimated later internalizing problems such as depression and anxiety. Overall, these studies highlighted that exposure to violence has adverse effects on adolescents' mental and physical health.

One of the best ways to understand the violence in schools is to focus on mutual and complex relationship between the individual and the environment (Hong & Espelage, 2012). Developed by Bronfenbrenner (1994), the ecological systems theory focuses on

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various environmental factors and their interaction with each other. An ecological system is defined by five interwoven system circles from smaller to bigger. Those interwoven systems are microsystem, mesosystem, exosystem, macrosystem and chronosystem. This research focuses on micro and meso systems in relation to the effect of violence at school on adolescents. Microsystem includes the relations of adolescents with family, teachers, school environment, and peers (Hong & Espelage, 2012). Mesosystem is related to the interaction of two or more microsystems. For example, the relation of the adolescent with his/her family and his/her teachers can affect his/her perception of the school environment and his/her relationships with peers. In this concept, the level of social support from teacher, peer and family is supposed to be a protective factor in coping with the violence at school.

Existing literature has recognized the critical role of social support in reducing the detrimental effects of negative experiences on adolescents' mental health (Henrich & Shahar, 2008; Youngstrom, Weist, & Albus, 2003). Youngstrom et al. (2003) found that family support moderated the effects of stress and cumulative risks on internalizing symptoms and externalizing behaviors among urban adolescents. Similarly, Henrich and Shahar (2008) stated that social support eliminated the negative impact of increased depression and worked as a protecting factor in periods of traumatic stress among adolescents. In the same vein, Garcia-Reid, Reid, and Peterson (2005) concluded that both school-related social support and self-system factors such as scholastic competence and social acceptance are crucial for adolescents' subjective well-being in school.

1.1. School violence and social support

Catalano, Oesterle, Fleming, and Hawkins (2004) pointed out that a well-organized school, which meets students' academic and psychological needs, has teachers supporting their students, has a consensus that all students can learn in school, supports peer culture and has a safe and supportive school environment, is likely to produce positive outcomes for students and to reduce problem behaviors. One of the factors that produce positive outcomes at school and reduce problem behaviors of students is social support. Numerous studies have indicated that social support has a protective role in the relationship between exposure to school violence and psychological well-being of adolescents (Chen & Wei, 2013; Cooley, Fite, Rubens, & Tunno, 2015; Holt & Espelage, 2005; Flaspohler et al., 2009; Hammack, Richards, Luo, Edlynn, & Roy, 2004; Prinstein, Boergers, & Vernberg, 2001; Rigby & Slee, 1999). For example, some studies emphasize that social support protects adolescents from the undesirable effects of exposure to violence (Hammack et al., 2004); exposure to violence is primarily related to internalizing symptoms and social support buffers the effects of exposure to violence on the adjustment of adolescents (Prinstein et al., 2001). Similarly, Holt and Espelage (2005) found that social support moderated the relationship between victimization and psychological well-being, specifically for African American boys. Cooley et al. (2015) revealed that social support from a peer buffered the effect of relational victimization on depressive symptoms among adolescents. Briefly, existing literature shows that support from peers, teachers, classmates and adults at school functions as a protective factor on psychological health and adjustment of adolescents to school. While social support protects and increases the subjective well-being and adjustment of students to school, lack of support from peers, teachers and classmates may affect them negatively. The mediating role of social support in relation to peer victimization and well-being of victims has attracted a lot of attention in recent years (e.g. Chen & Wei, 2013; Flaspohler et al., 2009). For instance, Chen and Wei (2013) reported that peer support had a mediator role in the relationship between peer victimization and the psychological health of junior-high students. They concluded that students who are exposed to violence at school are more likely to perceive less available support from peers, which in turn increases their risk to psychological distress. Therefore, it is possible that exposure to violence at school impacts adolescents' mental health via social support. The mediating role of social support in relation to exposure to violence at school and mental health will be tested by the current study.

1.2. The current study

Existing literature indicated that there are strong relationships between exposure to violence, social support and mental health among adolescents. Two important themes have emerged from the studies discussed so far: (a) exposure to violence has adverse effects on adolescents' mental health, and (b) social support reduces the adverse effects of violence on adolescents' mental health. Although extensive studies have been carried out on the relationships between exposure to violence, social support, and mental health, there is still a need for new studies. According to Furlong, Manuel, Corral, Chung, and Bates (1997), school violence is a broad concept that covers a wide range of behaviors, including acts of physical harm and psychological harm such as verbal taunts, threats, bullying, and sexual and ethnic harassment. First of all, when examining the links between exposure to violence and mental health, most of the previous studies were found to be limited to the effects of bullying, physical and verbal violence on adolescents' mental health separately. For example, Due et al. (2005) and Natvig et al. (2001) examine the effects of bullying; Crick and Grotpeter (1995) of relational violence; Estévez et al. (2005) of physical and verbal violence, and Storch and Masia-Warner (2004) of physical and relational violence on mental health. Very little is known about the effects of exposure to multiple forms of violence on adolescents' mental health. Indeed in a meta-analysis study, Kitzmann, Gaylord, Holt, and Kenny (2003) indicated that the negative effects of exposure to multiple forms of violence are not clear enough. According to Kitzmann et al. (2003) exposure to multiple types of violence might increase the risk of undesirable effects. Therefore, investigating effects of multiple forms of school violence on adolescents' mental health may help to improve our understanding of their adverse effects. Secondly, regarding the role of social support in the relationship between exposure to violence and adolescents' well-being, except Hammack et al. (2004) and Rigby and Slee (1999), most of the studies have only focused on one or two sources of social support about the relationships between exposure to violence and mental health. For example, while some authors examined the role of peer support in the relationship of exposure to violence and mental health (Chen & Wei, 2013; Cooley et al., 2015; Prinstein et al., 2001), others highlighted the role of family and

peer social support (Holt & Espelage, 2005) or teacher and peer social support (Flaspohler et al., 2009). Lastly, although Hammack et al. (2004) and Rigby and Slee (1999) operationalize social support as multi-dimensional in their study, they do not deal with the sub-dimensions of social support in their analyses. This may lead to uncertainty regarding the role of the sources of social support in the relationship between exposure to violence and mental health; thus, examining the unique effects of particular sources of social support and combined effect of social support sources in this relationship may contribute to a better understanding of the role of social support. In fact, Rueger, Malecki, and Demaray (2008) suggest that considering unique and combined effects provides clear interpretations and comparisons of results across studies. The current study, therefore, is set out to examine the effects of multiple types of school violence on adolescents' mental health, and the effects of social support sources on the relationships between exposure to violence and adolescents' mental health. For this purpose, the mediation role of social support in the relationship between exposure to violence and adolescents' mental health was tested by means of two structural equation models. In the first structural equation modeling, the mediation role of social support was tested through general social support score. In the second structural equation modeling, the mediation role of social support was examined through social support sources: family, friend, and teacher support. In addition, the gender differences in the exposure to violence, social support and mental health were also examined in spite of fact that it is not the main purpose of this study. The gender differences in the exposure to violence, social support and mental health are well documented in the existing literature. Previous studies suggested that (a) boys were at risk in terms of being exposed to violence (Schwab-Stone et al., 1995), (b) girls were more likely to use social support as a coping mechanism (Rueger et al., 2010), and (c) while girls were more likely to report higher level of internalizing symptoms, boys reported higher level of externalizing symptoms (Foster, Kuperminc, & Price, 2004; Mrug, Loosier, & Windle, 2008). In this sense, the following hypotheses have been generated:

(1) Whether or not exposure to violence would predict mental health; (2) whether or not social support would predict mental health; (3) whether or not social support would mediate the relationship between exposure to violence and mental health; (4) whether or not family social support would mediate the relationship between exposure to violence and mental health; (5) whether or not teacher social support would mediate the relationship between exposure to violence and mental health; (6) whether or not peer social support would mediate the relationship between exposure to violence and mental health and (7) whether or not the relationships between exposure to violence, social support and mental health would differ by gender.

2. Method

2.1. Participants

The participants of the current study consist of a total of 1420 9th, 10th, and 11th grades high school students (54.5% girls and 45.5% boys). The study group is comprised of high school students enrolled in four different high schools in Denizli, Turkey (a western city in Turkey). The total number of students at these four high schools is 2.845. In the study, the data from "The Violence in Schools Project" was used. This project is supported by the Province Educational Directorate of Denizli. The study utilizes the secondary analyses of the data from high school students. All participants have the same ethnic background. The students' ages range from 14 to 18 years with a mean of 16.11 (SD = 0.91). 38 percent of the participants were 9th graders, 34.1 percent 10th graders, and 28 percent 11th graders. In terms of socio economic status (SES), 42.9% of the participants are in low SES, 28.1% of the participants are in average SES, 24.9% of the participants are in high SES group, and 4% of the participants did not report their SES. All students were invited to participate in the study during their class time. A paper-pencil survey which included data collection instruments described below and demographic variables was distributed to the students who accepted to participate in the study.

2.2. Instruments and measures

2.2.1. Demographic information sheet

Demographic information sheet prepared for this study includes personal information such as age, gender, grade and SES.

2.2.2. Exposure to violence

The level of exposure to violence was assessed through the Exposure to Violence Inventory (EVI), which measured the amount of violence that an adolescent was victimized at school. Developed by Kepenekci and Çinkır (2006), it includes 19-items and four subscales. The subscales include physical violence (*How often have you been kicked and slapped by other students at school*), verbal violence (*How often have you been gossiped about by other students at school*), emotional violence (*How often have you been excluded from the group by other students at school*), and sexual violence (*How often have you been a victim of sexual harassment by other students at school*). Students indicated the level of agreement with each item which were scored on a 5-point Likert response scale from 0 (Never) to 4 (Always). Psychometric characteristics of EVI were examined by Duru, Balkis, and Buluş (2011). The internal coefficients were found to be 0.90 for physical violence, 0.88 for verbal violence, 0.88 for psychological violence, and 0.86 for sexual violence (Duru et al., 2011). For the current study, the internal coefficients were found to be 0.88 for physical violence, 0.88 for verbal violence, 0.87 for emotional violence, and 0.88 for sexual violence.

2.2.3. Mental health

Participants' mental health was assessed using the Turkish version of Brief Symptom Inventory (TVBSI) which consists of 53 items in 5 subscales. The subscales are depression, anxiety, somatization, negative self-evaluation and hostility. Students indicated the level

of agreement with each item which were scored on a 4-point Likert response scale from 0 (Never) to 4 (Excessively). Şahin, Durak and Uğurtaş (2002) examined the psychometric characteristics of TVBSI for adolescent. The internal coefficients were found to be 0.85 for depression, 0.81 for anxiety, 0.80 for negative self-evaluation, 0.71 for somatization and 0.72 for hostility. In the current study, depression, anxiety, and somatization subscales of TVBSI were used to assess adolescents' mental health. For the current study, the internal coefficients were found to be 0.91 for depression, 0.89 for anxiety, and 0.83 for somatization.

2.2.4. Social support

Social support was assessed with Adolescent Social Support Inventory (ASSI) which was developed by Balkis, Duru, and Buluş (2011). ASSI is a multidimensional inventory which has 12 items measuring perceived social support from three sources: parents (*I get emotional help and support from my family when I need help*), friends (*I have friends that I can share my joys and sorrows*), and teachers (*My teachers try to help me when I need help*). Items were rated on a 7-point scale ranging from 1 (Absolutely no) to 7 (Absolutely yes). The internal coefficients were found to be 0.88 for parents, 0.90 for friends, and 0.88 for teachers subscale of ASSI (Balkis et al., 2011). For this study, the internal coefficients were found to be 0.75 for parents, 0.88 for friends, and 0.89 for teachers subscale of ASSI.

2.3. Data analysis

Data were analyzed with SPSS 22 and Amos 22.0. The relationships between variables were examined by utilizing Pearson product moment correlation analysis. The direct and indirect relations between variables were tested by latent variable path analysis using maximum likelihood parameter estimation with AMOS 22. Two step approaches to structural equation modeling (SEM) were used in this study. Initially, in order to test the relations between latent variables and their indicators the measurement model was tested by using confirmatory factor analysis. Then, structural models were estimated. Chi square (χ^2), RMSEA (Root Mean Square of Error Approximations), SRMR (Standardized Root Mean Square Residual) and fit indices, CFI (comparative fit index), IFI (incremental fit index), GFI (goodness of fit index), and, NFI (normed fit index) were used to assess the models. For each of these fit indices, values greater than 0.95 indicate very good fits. Moreover, SRMR values ≤ 0.05 and RMSEA values ≤ 0.08 , and a non-significant χ^2 ($p > 0.05$), and X^2/d ratio below the suggested 5 ratio represent the acceptable model fit (Fan & Sivo, 2005; Kline, 2005).

3. Results

3.1. Descriptive statistics

Tables 1, 2 and 3 (for Tables 5 and 6, see Appendix A in Supplementary material) show descriptive statistics and correlations among variables for the whole sample, for the boys, and for the girls. Results of the correlation analysis revealed that all forms of exposure to violence were positively related to poor mental health and negatively related to social support from family, friend and teacher. Analyses also indicated that all social support sources were negatively associated with poor mental health.

A t -test was further conducted to test possible differences in the variables by gender. Gender was coded 0 = girl and 1 = boy. Significant gender differences were found in psychological violence [$t(1418) = 2.614, p < 0.01, d = 0.11$], sexual violence [$t(1418) = 6.461, p < 0.001, d = 0.32$], friends support [$t(1418) = -4.380, p < 0.001, d = 0.21$], teacher support [$t(1418) = -3.133, p < 0.01, d = 0.16$], depression [$t(1418) = -9.877, p < 0.001, d = 0.48$], anxiety [$t(1418) = -5.528, p < 0.001, d = 0.27$], and somatization [$t(1418) = -4.497, p < 0.001, d = 0.21$]. No significant gender differences were found in physical violence [$t(1418) = 0.935, p > 0.05$], verbal violence [$t(1418) = -0.183, p > .05$], and family support [$t(1418) = 0.144, p > .05$].

Table 1
Bivariate correlations among variables, means, and standard deviations, and range for total sample (N = 1420).

	1	2	3	4	5	6	7	8	9	10
1-Physical violence	–	0.660**	0.596**	0.459**	–0.096**	–0.092**	–0.072**	0.163**	0.177**	0.168**
2-Verbal violence		–	0.591**	0.483**	–0.111**	–0.113**	–0.090**	0.221**	0.218**	0.198**
3-Psychological violence			–	0.667**	–0.131**	–0.154**	–0.086**	0.172**	0.205**	0.201**
4-Sexual violence				–	–0.089**	–0.136**	–0.077**	0.120**	0.164**	0.166**
5-Family Support					–	0.295**	0.338**	–0.293**	–0.252**	–0.201**
6-Friend Support						–	0.213**	–0.150**	–0.135**	–0.142**
7-Teacher Support							–	–0.193**	–0.175**	–0.158**
8-Depression								–	0.834**	0.792**
9-Anxiety									–	0.722**
10-Somatization										–
M	9.24	10.34	7.14	5.22	21.66	23.15	17.50	15.48	12.81	7.60
SD	3.75	4.42	3.21	2.42	4.59	0.5.25	6.37	11.79	10.46	6.82
Range	0–20	0–20	0–20	0–16	8–28	4–28	4–28	0–48	0–52	0–36

** $p < 0.001$.

Table 2

Fit indices of two nested models for the multi-group confirmatory factor analysis (N = 1420).

	χ^2 (df)	p	χ^2/df	CFI	RMSEA(90% CI)	SRMR
Measurement Model 1						
Configural	112.720 (60)	0.000	1.879	0.992	0.025(0.018–0.032)	0.029
Metric	136.381 (67)	0.000	2.036	0.989	0.027(0.020–0.034)	0.032
Scalar	165.241 (73)	0.000	2.264	0.985	0.030(0.024–0.036)	0.036
Strict	243.423 (85)	0.000	2.864	0.975	0.036(0.031–0.042)	0.035
Measurement Model 2						
Configural	669.320(278)	0.000	2.336	0.974	0.031(0.028–0.034)	0.034
Metric	684.298(292)	0.000	2.343	0.972	0.031(0.028–0.034)	0.035
Scalar	712.594(307)	0.000	2.321	0.971	0.031(0.028–0.033)	0.039
Strict	867.725(329)	0.000	2.637	0.962	0.034(0.021–0.037)	0.039

3.2. Test of the measurement model 1

In the first model, the physical, verbal, psychological and sexual violence were used as indicators of exposure to violence latent construct. Family, friends, and teacher support dimensions of social support were used as indicators of general social support latent construct. Finally, the depression, anxiety and somatization subscales of the TVBSI were used as indicators of the mental health latent construct.

This model was tested by confirmatory analysis. The results provided good fit to data: $\chi^2(30, N = 1420) = 71.806$ and $p < 0.01$. The fit indices were, $[(\chi^2/df = 2.394)$. GFI = 0.99, RMSEA = 0.031 (.022–.041), SRMR = 0.021, CFI = 0.99, TLI = 0.99, IFI = 0.99, NFI = 0.99]. Standardized values ranged from 0.43 to 0.95, $p < .001$.

3.2.1. Test of the structural model 1

Table 3 and Fig. 1 present the results of path analysis. Results of SEM analysis show that structural model 1 was accepted as adequate: $\chi^2(30, N = 1420) = 71.806$ and $p < 0.01$. Furthermore, $[\chi^2/df = 2.394]$. GFI = 0.99, RMSEA = 0.031 (.022–.041), SRMR = 0.021, CFI = 0.99, TLI = 0.99, IFI = 0.99, NFI = 0.99].

Table 3 and Fig. 1 make it clear that exposure to violence directly predicted general social support and mental health. Mental health was predicted by social support. Results also indicated that exposure to violence indirectly predicted mental health via the mediation of general social support. Exposure to violence and general social support together account for 19% of the variance in mental health.

3.2.2. Gender-comparison analysis for model 1

For testing the equivalence of the factor structure/measurement model for boys and girls, we conducted a series test of measurement invariance such as configural, metric, scalar, and strict invariance. First, CFA analyses was conducted for both boys and girls separately. Findings from CFA indicated that the fit was acceptable for both the boy and the girl sample (for boys: $\chi^2(30, N = 646) = 54.005$, $\chi^2/df = 1.800$, $p < 0.006$, RMSEA = 0.035 (.019–.050); Pclose = 0.949; SRMR = 0.026; CFI = 0.992; for girls: $\chi^2(30, N = 744) = 57.296$, $\chi^2/df = 1.910$, $p < 0.002$, RMSEA = 0.034 (.020–.048); Pclose = 0.975; SRMR = 0.027; CFI = 0.991). After that, we conducted multi group confirmatory analyses (MGCFA) for testing the equivalence of measurement model across gender. Table 2 presents summary fit indices of MGCFA. As suggested by Chen (2007), ΔCFI , $\Delta RMSEA$, and $\Delta SRMR$ were used to test whether the equality constraints were upheld, because chi-square statistic is sensitive to sample size. The following

Table 3

Unstandardized direct, indirect and total effects for the relationships between exposure to violence, general social support and mental health.

	Direct effect	Indirect effect	Total effect
Model 1 (Total sample, N = 1420)			
Exposure to Violence → Mental Health	1.087***	0.482**	1.569***
Exposure to Violence → Social Support	-0.776***	-	-0.776***
Social Support → Mental Health	-0.622***	-	-0.622***
Model 1 (Girl Sample, N = 774)			
Exposure to Violence → Mental Health	1.376***	0.496**	1.872***
Exposure to Violence → Social Support	-0.757***	-	-0.757***
Social Support → Mental Health	-0.655***	-	-0.655***
Model 1 (Boy sample, N = 646)			
Exposure to Violence → Mental Health	0.955***	.495**	1.450***
Exposure to Violence → Social Support	-0.752***	-	-0.752***
Social Support → Mental Health	-0.659***	-	-0.659***

*** $p < 0.001$.

*** $p < 0.001$.

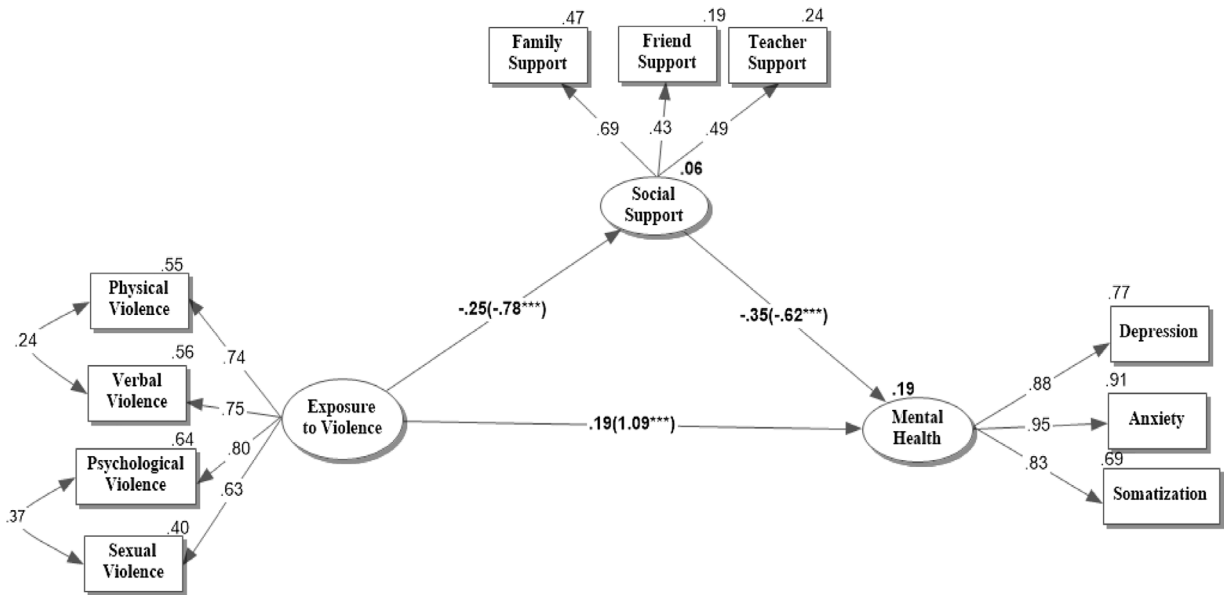


Fig. 1. Mediation role of general social support in relation exposure to violence and mental health. The coefficients outside of parenthesis and those in parenthesis, represent, respectively, standardized and unstandardized parameter estimates for the structural model 1. *** $p < 0.001$.

cutoff criteria are suggested by [Chen \(2007\)](#): if the sample is larger than 300, metric noninvariance is indicated by a change larger than 0.01 in CFI, supplemented by a change larger than 0.015 in RMSEA or a change larger than 0.03 in SRMR compared with the configural invariance model. Regarding scalar invariance, noninvariance is indicated by a change larger than 0.01 in CFI, supplemented by a change larger than 0.015 in RMSEA or a change larger than 0.01 in SRMR compared with the metric invariance model. [Table 2](#) indicates that both the configural and metric invariance, metric and scalar invariance, and scalar and strict invariance for the measurement models can be accepted based on fit measures as suggested by [Chen \(2007\)](#).

Results of SEM analyses provided a good fit to data: $X^2(60, N: \text{boys} = 646, \text{girls} = 774) = 111.302$ and $p < 0.001$. Furthermore, $[(X^2/\text{df} = 1.855)$. GFI = 0.99, RMSEA = 0.025 (.017–.032), SRMR = 0.027, CFI = 0.99, TLI = 0.99, IFI = 0.99, NFI = 0.98].

[Table 3](#) indicated that the relationship of exposure to violence with general social support was similar for boys ($Z = -4.458$, $p < 0.001$) and for girls ($Z = -4.313$, $p < 0.001$). The relation between exposure to violence and mental health was stronger for girls ($Z = 5.810$, $p < 0.001$) than for boys ($Z = 3.707$, $p < 0.001$). The association of general social support with mental health was similar for girls ($Z = -6.512$, $p < 0.001$) and for boys ($Z = -5.379$, $p < 0.001$). Finally, the overall model accounts for 25% of the variance in mental health for girls and 18% of the variance in mental health for boys.

3.3. Test of the measurement model 2

In the second model, the dimensions of exposure to violence were used as indicators of exposure to violence latent construct. All dimensions of social support have four items, and these items were used as indicators of social support sources latent construct. Finally, depression, anxiety and somatization were used as indicators of mental health latent construct.

The measurement model was tested by confirmatory analysis. Results showed that the model was accepted as fit: $X^2(139, N = 1420) = 443.912$ and $p < 0.01$. Furthermore, $[(X^2/\text{df} = 3.194)$. GFI = 0.97, RMSEA = 0.039 (.035–.043), SRMR = 0.030, CFI = 0.98, TLI = 0.97, IFI = 0.98, NFI = 0.97. All of the loadings of the measured variables on the latent variables were statistically significant. Standardized values ranged from 0.50 to 0.95, $p < .001$.

3.3.1. Test of the structural model 2

The results of SEM analysis revealed that the second structural model was accepted as adequate: $X^2(139, N = 1420) = 443.912$ and $p < 0.01$. Furthermore, $[(X^2/\text{df} = 3.194)$. GFI = 0.97, RMSEA = 0.039 (.035–.043), SRMR = 0.030, CFI = 0.98, TLI = 0.97, IFI = 0.98, NFI = 0.97].

[Table 4](#) and [Fig. 2](#) displayed that exposure to violence directly predicted family support, friend support, teacher support and mental health. Mental health was predicted by family support and teacher support. Results also revealed that exposure to violence indirectly predicted mental health by the mediation of family and teacher support. Friends' support did not predict mental health. What's more, family support and teacher support partially mediated the relation between exposure to violence and mental health. Exposure to violence and social support together account for 16% of variance in mental health.

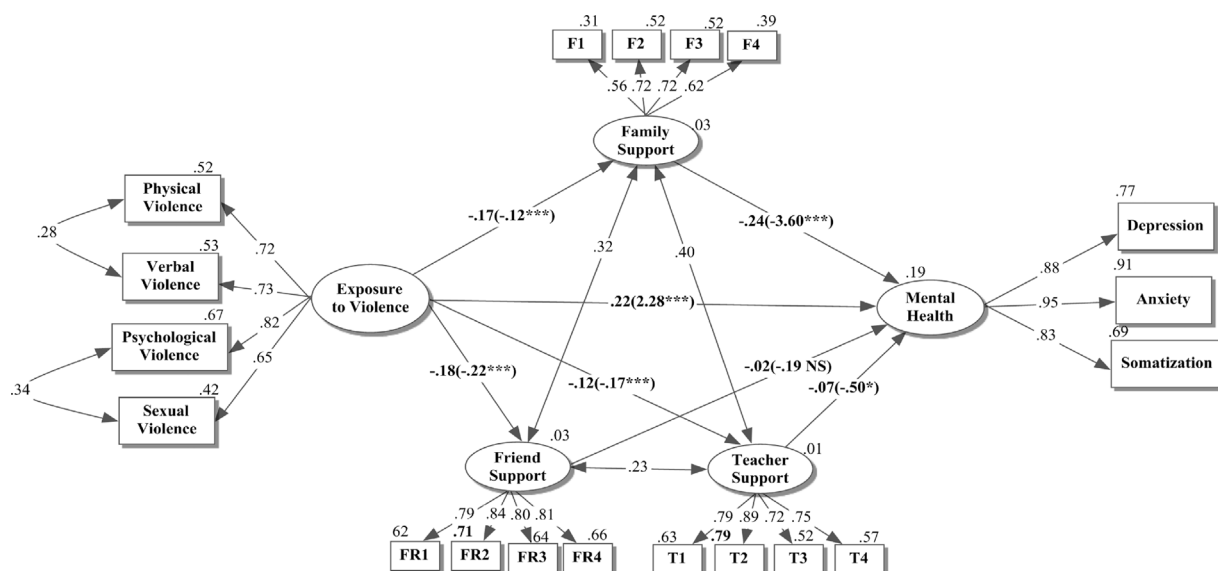
3.3.2. Gender-comparison analysis for model 2

This analysis was conducted in a similar fashion. First, CFA analysis was conducted for both boys and girls separately. Findings

Table 4

Unstandardized direct, indirect and total effects for the association between exposure to violence, sources of social support and mental health.

	Direct effect	Indirect effect	Total effect
Model 2(Total sample, N = 1420)			
Exposure to Violence → Mental Health	2.284***	.565**	2.849***
Exposure to Violence → Family Support	−0.121***	−	−0.121***
Exposure to Violence → Friend Support	−0.216***	−	−0.216***
Exposure to Violence → Teacher Support	−0.172***	−	−0.172***
Family Support → Mental Health	−3.600***	−	−3.600***
Friend Support → Mental Health	−0.195 NS	−	−0.195 NS
Teacher Support → Mental Health	−0.468*	−	−0.498*
Model 2 (Girl Sample, N = 774)			
Exposure to Violence → Mental Health	2.848***	.626**	3.474***
Exposure to Violence → Family Support	−0.128***	−	−0.128***
Exposure to Violence → Friend Support	−0.164***	−	−0.164***
Exposure to Violence → Teacher Support	−0.172**	−	−0.172**
Family Support → Mental Health	−3.107***	−	−3.107***
Friend Support → Mental Health	−0.506 NS	−	−0.506 NS
Teacher Support → Mental Health	−0.840**	−	−0.840**
Model 2 (Boy sample, N = 646)			
Exposure to Violence → Mental Health	1.919***	.555**	2.474***
Exposure to Violence → Family Support	−0.115***	−	−0.115***
Exposure to Violence → Friend Support	−0.246***	−	−0.246***
Exposure to Violence → Teacher Support	−0.156*	−	−0.156*
Family Support → Mental Health	−3.516***	−	−3.516***
Friend Support → Mental Health	−0.346 NS	−	−0.346 NS
Teacher Support → Mental Health	−0.426 NS	−	−0.426 NS

* $p < 0.05$.** $p < 0.001$.*** $p < 0.001$.**Fig. 2.** Mediation role of domain specific social support in relation exposure to violence and mental health. The coefficients outside of parenthesis and those in parenthesis, represent, respectively, standardized and unstandardized parameter estimates for the structural model 2. * $p < 0.05$, *** $p < 0.001$, NS = $p > 0.05$.

from CFA indicated that the fit was acceptable both the boy and the girl sample (for boys: $X^2(139, N = 646) = 314.706$, $X^2/df = 2.264$, $p < 0.001$, RMSEA = 0.044 (.038–.051); Pclose = 0.926; SRMR = 0.038; CFI = 0.972; for girls: $X^2(139, N = 744) = 334.609$, $X^2/df = 2.407$, $p < 0.001$, RMSEA = 0.043 (.037–.049); Pclose = 0.981; SRMR = 0.034; CFI = 0.975). Then, we conducted multi group confirmatory analyses (MGCFAs) for testing the equivalence of the measurement model across gender. Table 2 presents a summary of fit indices of MGCFAs for the measurement model 2. Table 2 suggests that both the configural and metric invariance, metric and scalar invariance, and scalar and strict invariance for the measurement models can be accepted to be based on fit measures as suggested by Chen (2007).

The results of SEM analysis provided such a good fit to data that structural model was accepted as adequate: $X^2(278, N:$

boys = 646, girls = 774) = 649.320 and $p < 0.01$. Furthermore, $[(X^2/df = 2.336)$. GFI = 0.95, RMSEA = 0.031 (.028–0.034), SRMR = 0.038, CFI = 0.97, TLI = 0.97, IFI = 0.97, NFI = 0.96].

Table 4 indicated that the gender differences were observed on several paths. The relationship of exposure to violence to friend support ($Z = -4.339$, $p < 0.001$) was a bit stronger for boys than for girls ($Z = -3.339$, $p < 0.001$). The relation between exposure to violence and family and teacher support was slightly stronger for girls ($Z = -3.702$, $p < 0.001$ for family support and $Z = -2.855$, $p < 0.01$ for teacher support) than for boys ($Z = -3.484$, $p < 0.001$ for family support and $Z = -2.347$, $p < 0.05$ for teacher support).

The association of exposure to violence to mental health was stronger for girls ($Z = 6.779$, $p < 0.001$) than for boys ($Z = 4.540$, $p < 0.001$). The associations of family and mental health was stronger for girls ($Z = -4.700$, $p < 0.001$) than for boys ($Z = -3.972$, $p < 0.001$). The relation between teachers support and mental health was significant for girls ($Z = -2.648$, $p < 0.01$), but not for boys ($Z = -1.352$, $p > 0.05$). Finally, the overall model accounts for 21% of variance in mental health for girls and 14% of variance in mental health for boys.

3.4. Alternative model

The second model indicated that social support from friends does not mediate the relationships between exposure to violence and mental health. Additional analyses were made in order to determine the possible reasons of this. For this purpose, SEM analyses were repeated by removing social support of family and teacher from equation separately. When the teacher support was removed from the equation, friend support did not mediate the relation of violence and mental health with family support. Then, family support was removed and friend support mediated this relationship with the teacher support. The results of SEM analyses revealed that the alternative model was accepted as adequate: $X^2(81, N = 1420) = 160.811$ and $p < 0.01$. Furthermore, $[(X^2/df = 1.985)$. GFI = 0.99, RMSEA = 0.026 (.020–.032), SRMR = 0.020, CFI = 0.99, TLI = 0.99, IFI = 0.99, NFI = 0.99].

Table 7 and Fig. 3 (see Appendix B and C in Supplementary material) indicated that in the absence of family support, support from friends did appear to mediate the association between exposure to violence and mental health. Finally, the overall model accounts for 11% of variance in mental health.

3.4.1. Gender-comparison analysis for alternative model

The results of SEM analyses provided such a good fit to the data that alternative model was accepted as adequate: $X^2(164, N: \text{boys} = 646, \text{girls} = 774) = 505.524$ and $p < 0.01$. Furthermore, $[(X^2/df = 3.082)$. GFI = 0.95, RMSEA = 0.038 (.035–.042), SRMR = 0.029, CFI = 0.97, TLI = 0.97, IFI = 0.97, NFI = 0.96].

The findings in Table 7 (see Appendix B in Supplementary material) showed the overall model accounts for 16% of variance in mental health for girls and 11% of variance in mental health for boys.

4. Discussion

The main purpose of the current study is to examine the mediation role of social support in the relationship between exposure to violence and adolescents' mental health within the framework of two different models. In the first model, the results of SEM analyses showed that higher levels of exposure to violence was associated with lower levels of general social support and mental health. The general social support partially mediated the relationships between exposure to violence and adolescents' mental health for the whole sample (girls and boys). Mediation effect of general social support on the relationship between exposure to violence and mental health was a little bit stronger for girls than for boys.

In the second model, the results indicated that family and teacher support partially mediated the relationship between exposure to violence and mental health for the whole sample and for adolescent girls, and family support partially mediated the relationship between exposure to violence and mental health for adolescent boys. Mediation effect of family support was a bit stronger for girls than for boys; and was stronger than teacher support for girls.

In the alternative model, results showed that social support from friends mediated the relationship between exposure to violence and mental health in the absence of social support from family. Social support from friends partially mediated the relation between exposure to violence and mental health for both genders.

4.1. Mediation role of social support in the relationship between exposure to violence and mental health

Two models were conducted to test the mediation role of social support in the relationship between exposure to violence and adolescents' mental health. In the first model, the mediation role of social support was tested through general social support score. In the second model, the mediation role of social support was examined via social support sources: family, friend, and teacher support. In both models, results from SEM analyses confirmed the expectation, which assumed that exposure to violence has adverse impact on adolescents' mental health. This result revealed that adolescents who are exposed to violence at school suffer from depression, anxiety, and somatization. This finding is in line with the previous studies which underlined adolescents who are exposed to violence reported lower level of mental health (Due et al., 2005; Estévez et al., 2005; Janosz et al., 2008; Schwab-Stone et al., 1995). In their longitudinal study, Janosz et al. (2008) found that actual victimization at school more reliably estimated later internalizing problems such as depression and anxiety. Schwab-Stone et al. (1995) found that adolescents exposed to violence reported high levels of depression and anxiety. When both models were compared, the undesirable effects of exposure to violence on adolescents' mental

health were stronger in the first model than in the second model.

Results of SEM analyses also confirmed the second expectation which assumed that social support has positive effects on adolescents' mental health for both models. In the first model, findings indicated that adolescents who get higher general social support also reported higher levels of mental health. Similarly, in the second model, findings showed that adolescents who get social support from family and teachers reported higher levels of mental health, as well. This finding is in agreement with [Henrich and Shahar's \(2008\)](#) findings, which indicated that as a protecting factor, social support eliminated the negative impact of increased depression in a period of traumatic stress among adolescents. [Garcia-Reid et al. \(2005\)](#) reported that school related social support is crucial for adolescents' well-being. Moreover, [Youngstrom et al. \(2003\)](#) suggested that family support moderated the effects of stress and cumulative risk on internalizing symptoms.

Finally, results from the current study confirmed the third expectation which assumed that social support mediates the relationship between exposure to violence and mental health among adolescents for both models. In the first model, findings from the current study indicated that general social support score mediated the relation between exposure to violence and mental health. A similar result was for the second model, which showed that the adverse effects of exposure to violence at school on adolescents' mental health may change with respect to the level of social support received from family and teachers. This finding confirms previous studies which reported family and teacher support reduce the negative effects of exposure to violence on adolescents' mental health ([Holt & Espelage, 2005](#); [Flaspohler et al., 2009](#); [Hammack et al., 2004](#)). [Hammack et al. \(2004\)](#) stated that social support factors protect adolescents from adverse effects of exposure to violence. [Holt and Espelage \(2005\)](#) pointed out that maternal social support moderated the relationship between victimization and mental health (depression and anxiety). Furthermore, [Flaspohler et al. \(2009\)](#) found that social support from teachers functions as a buffer against the detrimental effects of bullying on victims. Findings from the second model also revealed that friends' support does not mediate the relation between exposure to violence and mental health. This finding is inconsistent with previous studies which revealed that peer support reduced the effects of exposure to violence on mental health ([Chen & Wei, 2013](#); [Cooley et al., 2015](#); [Prinstein et al., 2001](#)). For example, [Cooley et al. \(2015\)](#) reported that peer social support buffered the effect of relational victimization on depressive symptoms among adolescents. Likewise, [Chen and Wei \(2013\)](#) found that in junior-high students peer support had a mediator role on the relationship between being victimization by students and psychological health. Alternative analyses were made to determine possible reasons of this discrepancy. Findings from the alternative analyses revealed that social support from friends can mediate the relation between exposure to violence and mental health in the lack of support from family. This finding suggests that discrepancy has occurred due to the aspects of social support. The two studies mentioned above ([Cooley et al., 2015](#); [Chen & Wei, 2013](#)) were limited to peer support as an indicator of social support. However, in the current study, family, teacher and friend support were used as indicators of social support. Therefore, the strength of family support may reduce the effects of friend support in the relationship between exposure to violence and mental health. It is considered that family support might be a suppressor variable that inhibits the effect of peer support on mental health.

4.2. Gender differences

Results from the two models confirmed the fourth expectation which assumed that the associations between exposure to violence, social support and mental health vary by gender. In the first model, general social support score mediates the relationship between exposure to violence and mental health for boys and girls, but this effect was slightly stronger for girls than for boys.

In the second model, friends' support does not mediate the detrimental effects of exposure to violence on mental health for both genders. While family support mediates the undesirable effects of school violence on boys' mental health, social support from family and teachers together mediate the adverse effects of exposure to violence on girls' mental health. These findings confirmed the previous studies which reported family support remains to be important for adolescent girls and boys ([Cheng & Chan, 2007](#); [Liebkind & Jasinskaja-Lahti, 2000](#); [Rueger et al., 2010](#)). Furthermore, [Rueger et al. \(2010\)](#) suggest that parents have critically an important role in the protection of adolescents' mental health.

Findings from both models suggest that compared to boys, girls are more likely to have the risk of poorer mental health because they tend to perceive less family and teacher support or general support. These findings are in agreement with those of previous studies which reported girls' psychological adjustment is more associated with social support ([Chen & Wei, 2013](#); [Oppedal & Roysamb, 2004](#); [Väänänen, Marttunen, Helminen, & Kaltiala-Heino, 2014](#)).

Briefly, the current study has results which corroborate the findings of many of the previous work in this field. Findings from the first model shows that lack or absence of social support more likely resulted in poorer mental health for adolescents in cases of exposure to violence. The second model suggests that social support from adults (family and teachers) is important. The alternative model suggests that social support from friends is an important support source in the absence of social support from family. Considering that the participants of this study were adolescent students in Turkey, these findings may be connected to culture. Culture is an important variable which may influence behaviors of its members in different ways ([Eskin, 2003](#)). In more traditional or collectivistic cultures such as in Turkey, family integrity and close interpersonal relationships are very important ([Duru, 2008](#)). Turkish culture has been described as a culture of relatedness and close relationship. Moreover, family ties and interdependency are perceived as values in Turkish culture ([Eskin, 2003](#); [Karakitapoglu-Aygun & Imamoglu, 2002](#)). For example, [Kuzucu and Özdemir \(2013\)](#) found that perceived parental support was positively related to the mental health of Turkish adolescents. Findings of this study highlighted the importance of a supportive family environment and close relationships with the family for adolescents' well-being in Turkish culture. In sum, these findings confirm the notion that social support factors play a crucial role in the protection of adolescents' mental health in Turkish culture.

5. Conclusion

The strongest conclusion emerging from the current study is that social support plays a significant role in the protection of adolescents' mental health against the detrimental effects of exposure to violence. The present study contributes to the current literature by examining the mediation role of social support as general and domain specific measurements. This analysis provides an understanding for the nature of protective impact of general and domain specific social support on mental health.

Findings from the present study suggest that family support has a crucial role in reducing the undesirable effects of exposure to violence on mental health of boys and girls; and teacher support protects girl students against the adverse effects of exposure to violence. In addition, findings suggest that social support from friends mediates the relationships between exposure to violence and mental health in the absence of social support from family. Although adolescence is a developmental period of intense conflicts with adults, the present study suggest that adults still play an important role in protecting adolescents' mental health against the undesirable impact of exposure to violence. Thus, improving adolescents' relations with their family and teachers might protect them against the destructive impacts of exposure to violence at school.

Results of this study confirmed that both microsystem and mesosystem are important to understand the relationships between exposure to violence and mental health of adolescents. Findings empirically supported that in the relationship of exposure to violence at school and mental health, social support may be a protective factor in the microsystem level. Moreover, this study provides data for future studies which might attempt to understand the relation of exposure to violence at school and mental health at mesosystem level. In the absence of family support, in order to decrease the effect of exposure to violence at school on mental health, friend support steps in and this support is very important. In other words, the lack of social support in one microsystem might lead the individual to other social support resources in another microsystem. Thus, further studies on preventing and decreasing violence at school might focus on the integrated effects of various adult supports such as teacher-parent, teacher-teacher, parent-parent, and parent-staff. For example, Astor, Pitner, and Duncan (1996) emphasized that teachers' interaction with parents to strengthen the connections between home and school is important as a protective factor in the level of mesosystem. In a similar fashion, Lee (2011) reported that the interaction of parents with their children's peers and friends without teachers' involvement is significant to decrease the violence at school at the mesosystem level. Therefore, future studies might be conducted at the macro- or mesosystem level to provide a base for intervention programs direct (Espelage & Swearer, 2003). As a result, future studies might focus on different aspects of a microsystem such as school connectedness and school environment, and at the mesosystem level such as teacher attitudes, teacher involvement and domestic violence

Finally, the findings from the present study should be viewed with its limitations. The findings are based on SEM analyses and should be interpreted carefully. The biggest limitation of the current study is that we cannot make statements about the causality among the variables due to its cross-sectional nature. So a further study, by conducting longitudinal designs, could test long term protective role of general or domain specific social support in the relationship between exposure to violence and mental health among adolescents.

Conflict of interests

The authors declare no conflicts of interest with respect to the research, authorship, and/or publication of this article.

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Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at <https://doi.org/10.1016/j.chiabu.2017.11.016>.

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