



Research paper

Perceived friend support buffers against symptoms of depression in peer victimized adolescents: Evidence from a population-based cohort in South Korea

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ABSTRACT

Background: Peer victimization is associated with an increased risk for depression, but there is less evidence on how certain factors such as friend support can buffer this association. This study investigated the associations between friend support and depressive symptoms among victimized and non-victimized adolescent girls and boys from South Korea.

Methods: Participants includes 2258 students from the Korean Children and Youth Panel Survey, a nationally representative sample of middle school students in South Korea. Self-reported perceived friend support, depressive symptoms and peer victimization were measured using validated scales during middle school year 3 (mean age = 15.7 years).

Results: The association between peer victimization and depressive symptoms varied by sex (p for sex by peer victimization interaction < 0.05). Peer victimization was more strongly associated with same year depressive symptoms in girls ($\beta = 0.55$) than boys ($\beta = 0.24$). After controlling for key confounders, including prior year mental health symptoms, higher levels of friend support were found to attenuate the association between peer victimization and depressive symptoms (p for friend support by peer victimization interaction < 0.05). Peer victimization was associated with more depressive symptoms for adolescents with low and moderate friend support, but not those with high friend support.

Limitations: Peer victimization, depressive symptoms, and friend support, were self-reported and measured the same year.

Conclusions: Friend support protects victimized South Korean adolescents from the negative effect of peer victimization on depressive symptoms, hence contributes to closing the gap in depression between victimized and non-victimized adolescents.

1. Introduction

Peer victimization, defined as physical, verbal, or psychological harm caused by peers outside the norms of appropriate conduct (Finckelhor et al., 2012), is a major public health concern around the world (Craig et al., 2009; Geoffroy et al., 2018; Koyanagi et al., 2019). It

includes, but is not limited to, bullying which is characterized by an imbalance of power between the perpetrator and the victim (Olweus, 1993). Peer victimization is a common experience in adolescence. A large survey of adolescents in 40 countries indicated that 12.6% of 11- to 15-year-olds reported being exposed to bullying victimization in the past 2 months, with varying prevalence across sex, age, and countries (Craig

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et al., 2009).

Systematic reviews, meta-analyses, and recent studies found that peer victimization is associated with poor mental health including depressive symptoms, as well as a clinical diagnosis of depression in adolescence and later in adulthood (Bowes et al., 2016; Copeland et al., 2013; Geoffroy et al., 2018; Klomek et al., 2015; Moore et al., 2017; Reijntjes et al., 2010). Such associations were independent from prior mental health symptoms (including externalizing and internalizing symptoms) and family characteristics that are known for their associations with both peer victimization and depressive symptoms, which in turn, could have acted as confounders. To illustrate, Geoffroy et al. (2018) reported that children from the Quebec Longitudinal Study of Child Development (Canada) who were chronically victimized by their peers from 6 to 13 years old were at a higher risk of experiencing debilitating depressive symptoms in mid-adolescence compared to those who had not been victimized, even after adjusting for a range of mental health and family characteristics (e.g. prior depressive symptoms and family hardship) concurrent or prior to peer victimization. Similarly, in the Avon Longitudinal Study of Parents and Children (ALSPAC, United Kingdom), adolescents who were frequently victimized by peers had over a twofold increase in odds for clinical depression in early adulthood, even after adjusting for previous depressive symptoms and other key confounders (Bowes et al., 2016).

Similarly in South Korea, associations of peer victimization and depressive symptoms have been reported from elementary to high school students (Bhang et al., 2012; Jung et al., 2017; Kim et al., 2016; Yang et al., 2006), however only one study had adjusted for key confounders (Yang et al., 2006). Controlling for these individual and familial vulnerabilities is key to avoid reporting inflated estimation of the real magnitude of association between peer victimization and depressive symptoms, due to reciprocal effects (Martin-Storey et al., 2018; Oncioiu et al., 2020).

Furthermore, it is unclear whether peer victimization affects depressive symptoms in boys and girls similarly. While the vast majority of studies reported that victimized boys and girls were equally likely to report depressive symptoms (Craig, 1998; Geoffroy et al., 2018; Saluja et al., 2004; Turner et al., 2013), few reported that victimized girls are at a higher risk than boys (Bond et al., 2001; Klomek et al., 2007; Takizawa et al., 2014; Williams et al., 2017). One study reported that victimized boys reported more depressive symptoms compared to girls (Cheng et al., 2008).

To date, research on depression in youth has mostly focused on risk factors, such as peer victimization, however, less is known about factors that may buffer the putative effect of these adverse social experiences (Arango et al., 2018; Patel et al., 2007). For example, a recent systematic review of studies in Western countries showed that children and adolescent with friend support reported fewer depressive symptoms, but the role of friend support in the context of adversity was not investigated (Garipey et al., 2016). As adolescence is a period where peers are a salient source of support against depressive symptoms (Rueger et al., 2016), peers may also help young people cope with the negative consequences of adverse life experiences such as peer victimization.

Many studies have found that friend support is associated with a lower risk of depressive symptoms in youth in general (Auerbach et al., 2011; Hall-Lande et al., 2007; La Greca et al., 2005; Minkkinen, 2014; Rueger et al., 2010; Scardera et al., 2020), but it is unclear whether friend support can benefit adolescents in the context of peer victimization (Cheng et al., 2008; Cooley et al., 2015; Holt et al., 2007; Pouwelse et al., 2011; Tanigawa et al., 2011; Yin et al., 2017). On the one hand, some studies have reported that friend support is associated with fewer depressive symptoms for all youth, whether they had been victimized or not (Pouwelse et al., 2011; Yin et al., 2017). On the other hand, other studies reported the protective effect of friend support when it benefited only those exposed to peer victimization (Cheng et al., 2008; Cooley et al., 2015). Sex differences may also exist as one study reported that all girls benefited from friend support regardless of whether they were

victimized, while only victimized boys with friend support reported fewer depressive symptoms (Tanigawa et al., 2011).

As far as we are aware, evidence to date linking social support and depressive symptoms is largely based on cross-sectional samples, and most studies have not controlled for prior mental health symptoms (Garipey et al., 2016). This is problematic because youth who experience better mental health may perceive more social support in their environment, leading to an inflation of the real magnitude of the expected association (Cheng et al., 2008; Cooley et al., 2015; Holt et al., 2007; Pouwelse et al., 2011; Tanigawa et al., 2011; Yin et al., 2017). Thus, stronger support for the hypothesized buffering impact of friend support on depressive symptoms following peer victimization requires the inclusion of prospectively and repeatedly collected measures of depressive symptoms and peer victimization to statistically control for reciprocal effects and thus, minimize the influence of reverse causality.

Furthermore, to the best of our knowledge, only two studies have investigated the role of friend support on the association between peer victimization and depressive symptoms in non-western populations (Cheng et al., 2008; Yin et al., 2017). This is important because peer victimization may be different in nature in non-western countries; for example in South Korea, collective peer victimization, with several bullies targeting one victim, is a prevalent type of bullying (Lee, 2010). Furthermore, friend support may have a distinct significance and impact on mental health in collectivist societies such as South Korea (Lee, 2010; Park et al., 2015) or other non-western countries.

Using data collected across three middle school years from the Korean Children and Youth Panel Survey, a large population-based cohort, the present study examined 1) the concurrent association between peer-victimization and depressive symptoms in adolescents, and 2) whether perceived friend support moderates this association, while adjusting for key confounding factors in the prior years, including depressive symptoms. We also investigated the possibility of differential association by sex (or sex by peer victimization interaction). If significant sex interactions were found, associations were examined in boys and girls separately, if not, sex was adjusted for.

2. Method

2.1. Participants

Participants were from the Korean Children and Youth Panel Survey (KCYPs), a nationally representative cohort conducted by the National Youth Policy Institute. The dataset includes 2351 year 1 middle school students in 2010 and followed up annually thereafter (NYPI, 2014). The National Youth Policy Institute randomly selected KCYPs participants using a stratified multi-stage cluster sampling method by school size from 78 middle schools, in 9 provinces and 7 metropolitan areas (NYPI, 2010). The use of KCYPs data was approved by the Institutional Research Board at Korea University (IRB-2019-0288) with a waiver for informed consent since the data were obtained from a public depository freely accessible online. Further information about the KCYPs selection and data collection can be found online (NYPI, 2014). The present study included data from the baseline of the cohort in 2011 at year 1 of middle school (mean age=13.7; SD=0.33), at year 2 in 2012 (mean age=14.7; SD=0.33), and at year 3 in 2013 (mean age=15.7; SD=0.33). Follow-up rates for year 2 and year 3 were 97.0% (n = 2346) and 96.1% (n = 2337), respectively.

Information on peer victimization, perceived friend support, and depressive symptoms was available for 2257 participants, and among those 2227 participants had complete information on confounding factors; representing 94.7% of the original cohort.

2.2. Measures

2.2.1. Peer victimization exposure in middle school year 3

Participants responded to the Korean School Violence Victimization

Questionnaire (Hong et al., 2017; Kim et al., 2015; Lee et al., 2014) developed by the Korean National Youth Policy Institute (NYPI, 2014). The questionnaire assesses the presence (yes or no) of the following 7 victimization experiences by peers in the past 12 months (i.e. “being seriously teased or mocked”; “being bullied”; “being assaulted”; “being threatened”; “being robbed of money or goods”; “being sexually assaulted or harassed”; “hearing serious verbal violence”; Cronbach $\alpha=0.91$ in the study sample). The peer victimization measure was dichotomous; youth were considered victimized by peers if they reported at least one event of peer victimization.

2.2.2. Depressive symptoms outcome in middle school year 3

Symptoms of depression were measured by the depression subscale of the Symptom Checklist-90 Revised (SCL-90 revised) (Derogatis et al., 1974); translated into Korean (Kim et al., 1978; Lee et al., 2010; Park et al., 2016) and previously used in Korean adolescent samples (Bhang et al., 2012). The SCL-90 revised evaluates a broad range of psychological problems and symptoms of psychopathology in individuals 13 years or older (Derogatis et al., 1974). The depression scale consisted of 10 items assessing symptoms in the past week (e.g. “I feel unlucky”, “I feel sad and depressed”, “I want to die”; Cronbach $\alpha=0.91$ in the study sample). Responses were rated on a 4-point Likert scale (0=strongly disagree, 1=disagree, 2=agree, 3=strongly agree).

2.2.3. Perceived friend support in middle school year 3

Participants completed the adapted Korean version (Hwang, 2010; Lee et al., 2017) of the Inventory of Parent and Peer Attachment which includes a scale measuring friend support (degree of trust and communication) (Armsden et al., 1987). The scale includes 9 items (e.g. “my friends respect my opinions during conversations”, “I talk about my concerns with my friend”; Cronbach $\alpha=0.66$ in the study sample). Responses were rated on a 4-point Likert scale (0=strongly disagree, 1=disagree, 2=agree, 3=strongly agree).

2.2.4. Potential confounding factors in prior middle school years (year 1 or 2)

Potential confounders considered here were chosen a priori for their associations with both peer victimization and depressive symptoms in past studies based on Western samples (Geoffroy et al., 2018). However, as described in the analyses, only those associated with both peer victimization and depressive symptoms in this sample were controlled in the analyses.

2.2.5. Prior mental health symptoms

Depressive symptoms in year 2 were measured using the depression subscale of the Symptom Checklist-90 revised (Derogatis et al., 1974; Kim et al., 1983), also used in year 3 and described above. Depressive symptoms were standardized into z-scores.

Childhood externalizing problems in year 2 were assessed using the Emotional or Behavioral Problems Scale (Cho et al., 2003) adapted from the Walker Problem Behavior Identification Checklist (Walker, 1983) and the Child Behavior Rating Scale (Cassels, 1962). The full scale consists of 40 items, 7 of which were used to derive a *hyperactivity-inattention symptoms* score (e.g. “I often make mistakes/accidents because I do not pay attention”; Cronbach $\alpha=0.79$ in the study sample) and 6 items were used to compute an *aggressive behaviors* score (e.g. “I often get into fights for minor things”; Cronbach $\alpha=0.81$ in the study sample). Items are answered on a 4-point Likert scale (strongly disagree, disagree, agree, strongly agree).

2.2.6. Sociodemographic factors

Father and mother education levels (middle school, high school, college, university, graduate school) and yearly household income (in millions of Korean won) were reported by the participants.

2.2.7. Family factors

Childhood maltreatment at year 2, parental affection and parental monitoring subscales at year 1 were obtained using the Parenting Behavior Inventory (Huh, 2000). History of childhood maltreatment by parents (including neglect, physical and emotional abuse) was self-reported using 8 items (e.g. “My parents take me to get treated if I am sick”, “My parents have treated me harshly to the point that I had bruises or scars left on my body”; Cronbach $\alpha=0.74$ in the study sample). Parental monitoring was assessed from 4 items (e.g. “My parents know how I spend my time”, Cronbach $\alpha=0.76$ in the study sample) and parental affection from 3 items (e.g., “My parents often express that they love me”; Cronbach $\alpha=0.82$ in the study sample).

2.3. Statistical analysis

First, we reported descriptive statistics for our variables of interests, namely, peer victimization, friend support and depressive symptoms in the total sample and in girls and boys separately (Table 1). Second, in order to determine which confounders to control for in our analyses, we examined associations between a wide range of individual (e.g. prior depressive symptoms) and family (e.g. childhood maltreatment) characteristics measured in middle school year 1 and 2, and peer victimization in year 3 using t-tests and chi-squares, as well as depressive symptoms in year 3 using correlations (Table 2). Potential confounders simultaneously associated with both peer victimization and depressive symptoms were controlled for in the analyses. Third, using linear regression we examined the association between concurrent peer victimization and depressive symptoms in adolescents during middle school year 3 (Step 1, Table 3), while adjusting for key confounders measured in prior years (Step 2, Table 3). To test whether there was a difference in associations by sex, we included an interaction term between sex and peer victimization in the adjusted model (Step 3, Table 3). If the interaction was significant, the association would be then stratified by sex. All analyses were set to a significance level of 0.05.

Fourth, we further tested the protective role of perceived friend support in the association between peer victimization and depressive symptoms by including a friend support by peer victimization interaction term in the adjusted model (Fig. 1). We tested the three-way interaction between sex, peer victimization and friend support in the association with depressive symptoms by entering a sex by peer victimization by friend support interaction in the adjusted model.

3. Results

Table 1 describes peer victimization, friend support, and depressive symptoms in the total sample, as well as in boys and girls separately. The prevalence of peer victimization was 8.2% in the total sample with a higher prevalence rate in boys (11.3%) than in girls (5.1%).

Table 1.

Descriptive statistics for peer victimization, perceived friend support and depressive symptoms in middle school year 3 (mean age = 15.7) in the total sample, and in girls and boys.

	Total sample	Boys	Girls	Sex differences
	N(%) or mean (±sd)			p-value
N	2257	1139	1118	
Peer victimization	186(8.2%)	129 (11.3%)	57(5.1%)	<0.001
Friend support ^a	15.91(±3.44)	16.08 (±3.04)	15.74 (±3.79)	.017
Depressive symptoms ^a	9.82(±6.24)	10.76 (±6.29)	8.89 (±6.06)	<0.001

N based on maximum available data for all variables (n=2257)

Based on chi-square and t-tests

Table 2.

Associations between peer victimization and depressive symptoms in middle school year 3 and potential confounders including prior year mental health, family and socioeconomic factors ^a.

	Peer victimization		Depressive symptoms		
	No. N=2071 Mean (SD)	Yes N=186 (Mean (SD))	p-values ^b	Correlation coefficient	p-values ^c
Mental health factors					
Depressive symptoms	9.19(6.11)	10.58(6.52)	.004	.492	<0.001
Hyperactivity-inattention symptoms	9.67(3.68)	10.30(3.84)	.027	.232	<0.001
Aggressive behaviors	6.72(3.40)	7.38(3.72)	.013	.291	<0.001
Family factors					
Maltreatment	10.81(3.87)	11.24(3.87)	.151	.198	<0.001
Parental affection	8.05(2.60)	7.72(2.71)	.100	-.0197	<0.001
Parental monitoring	6.47(1.95)	6.38(2.05)	.544	-.0155	<0.001
Sociodemographic factors					
Yearly household income ^d	45.17(25.02) N(%)	43.97(22.01) N(%)	.538	-.0055	.012
Father's education					
More than High School	1017(55.7%)	93(57.8%)	.620	-.0032	.155
Mother's education					
More than High School	801(43.2%)	62(37.8%)	.188	-.0048	.030

N based on maximum available data for all variables, n ranged from 1988 to 2257

aSignificant associations between potential confounders with both peer victimization and depressive symptoms were bolded

bBased on chi-square or T-tests

cBased on Pearson correlation and Spearmans's rho for dichotomous variables

dIn million KRW

Table 3.

Concurrent association between peer victimization and depressive symptoms in middle-school year 3 (mean age = 15.7 years).

		Total sample		Boys		Girls	
Step 1 (Unadjusted)	Peer victimization (Y3)	Beta(±se)	p-value	Beta(±se)	p-value	Beta(±se)	p-value
		.403(±.077)	<0.001	.334 (±.091)	<0.001	.778 (±.139)	<0.001
Step 2 (Adjusted for prior mental health symptoms)	Peer victimization (Y3)	.330(±.067)	<0.001	.235 (±.082)	.004	.557 (±.118)	<0.001
	Sex	.201(±.037)	<0.001	NA ^a	NA	NA	NA
	Depressive symptoms (Y2)	.431(±.021)	<0.001	.380 (±.030)	<0.001	.483 (±.030)	<0.001
	Hyperactivity-inattention symptoms (Y2)	.059(±.022)	.008	.042 (±.030)	.163	.076 (±.033)	.020
	Aggressive behaviors (Y2)	.047(±.023)	.047	.038 (±.032)	.245	.049 (±.033)	.147
	Peer victimization by sex interaction	.353(±.144)	.054	NA	NA	NA	NA

N based on maximum available data for all variables (n=2227) in total sample, in boys (n=1129), in girls (n=1098)

aNot applicable

Furthermore, boys reported lower levels of friend support ($p=.017$) and fewer depressive symptoms ($p<.001$) compared to girls.

Table 2 presents mental health, family, and sociodemographic factors by peer victimization and depressive symptoms. Prior year mental health factors (but not family and sociodemographic factors) were associated with both peer victimization and depressive symptoms. Peer victimized participants experienced higher levels of mental health symptoms (i.e. depressive symptoms, hyperactivity-inattention symptoms, aggressive behaviors) in middle school year 2, which in turn were associated with higher depressive symptoms in middle school year 3, and thus were controlled in subsequent analyses.

3.1. Concurrent associations between peer victimization and depressive symptoms

There was a significant victimization-by-sex interaction ($\beta=0.353$, $p=.054$) in the fully adjusted model suggesting that peer victimization was differentially associated with depressive symptoms in girls and boys. Thus, analyses stratified by sex are presented in Table 3. Girls were twice as likely to report depressive symptoms when victimized in comparison to boys in unadjusted (Model 1: Girls: $\beta=0.778$, $p<.001$; Boys: $\beta=0.334$, $p<.001$) and adjusted models (Model 2: Girls: $\beta=0.557$, $p<.001$; Boys: $\beta=0.235$, $p<.001$).

3.2. The protective role of social support in the concurrent associations between peer victimization and depressive symptoms

There was an interaction between friend support and peer victimization ($\beta=-$

.137, $p=.019$, in the model adjusting for prior year mental health symptoms), indicating that levels of friend support are differentially associated with depressive symptoms in victimized and non-victimized adolescents. However, the protective role of social support for depressive symptoms of victimized adolescents was similar for girls and boys as indicated by the non-significant three-way interaction between perceived friend support, peer victimization and sex ($\beta =0.076$, $p=.645$).

Fig. 1 illustrates the association of peer victimization on depressive symptoms at lower (-1SD), moderate (sample's mean) and higher (+1SD) friend support. As shown in Fig. 1, peer victimized adolescents reported more depressive symptoms compared to non-victimized adolescents with low friend support ($p<.001$) and moderate friend support ($p<.001$). However, there was no difference in depressive symptoms between victimized and non-victimized with high levels of friend support ($p=.073$).

In additional analyses, we re-examined the interaction between perceived friend support and peer victimization while adjusting

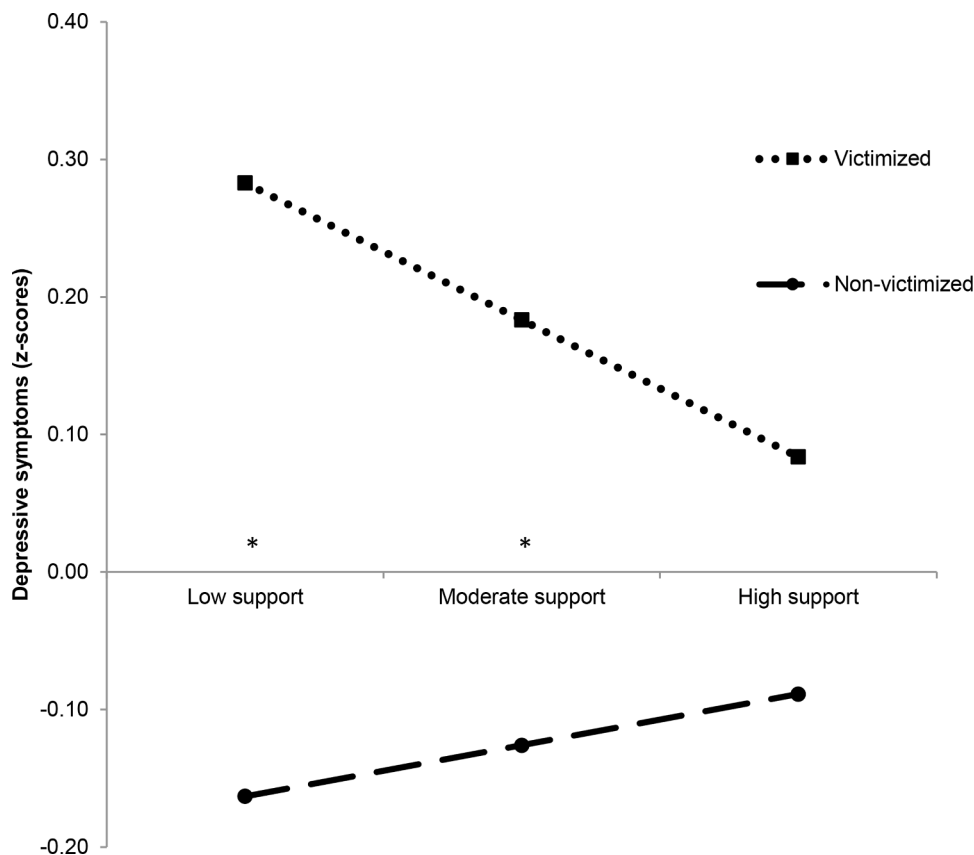


Fig. 1. Associations between friend support and depressive symptoms in victimized and non-victimized adolescents during middle school year 3 (mean age 15.7 years). N based on maximum available data for all variables ($n=2227$). There was a peer victimization by perceived friend support interaction in predicting depressive symptoms in year 3 controlling for prior year depressive symptoms, hyperactivity-inattention/ symptoms and aggressive behaviors $\beta=-0.137$, $p=.019$. The figure illustrates the association of peer victimization on depressive symptoms at low (-1 standard deviation), moderate (sample's mean) and high ($+1$ standard deviation) friend support. * indicates significant difference in depressive symptoms between victimized and non-victimized adolescents in low ($p<.001$) and moderate friend support ($p<.001$), but not in high friend support ($p=.073$).

simultaneously for all confounders available including prior year family factors (e.g., parental surveillance and affection, maltreatment), parental sociodemographic factors (e.g., yearly household income, father's and mother's education) and mental health symptoms (depressive symptoms, aggressive behaviors and hyperactivity-inattention symptoms) and the interaction still remained significant ($\beta = -0.137$, $p=.030$).

4. Discussion

Using the Korean Children and Youth Panel Survey, a large representative cohort of middle school students from South Korea, this study assesses (1) concurrent association of peer victimization with depressive symptoms, (2) the role of perceived friend support in this association, and (3) the role of sex in these associations. Similarly, to other studies (Moore et al., 2017), adolescents who were victimized by their peers reported higher depressive symptoms the same year, independently from their mental health symptoms the year before. More importantly, we found that high friend support could attenuate depressive symptoms in adolescents who were victimized by their peers, suggesting that friend support can act as a protective factor. Further, while girls were more likely to experience higher levels of depressive symptoms than boys following peer victimization, we found that friend support benefited boys and girls equally.

Our findings showed that about 8% of South Korean middle schoolers reported having been exposed to peer victimization in their third year, similarly to other South Korean studies of middle school students (Hong et al., 2018; Koo et al., 2008). In this cohort, adolescents experiencing mental health problems, including internalizing and externalizing symptoms, in their second year of middle school were more likely to report being peer victimized in their third year. This is in line with prior studies around the world, (Oncioiu et al., 2020; Turner et al., 2010) including in South Korea (Yang et al., 2013), where the authors found that certain individual or familial vulnerabilities

characteristics such as experiencing behavioral or emotional problems can put a child at risk of being victimized later on. In the present study, controlling for prior year depressive symptoms, hyperactivity-inattention symptoms, and aggressive behaviors, did not abolish the association between peer victimization and depressive symptoms. This is similar to many other large-scale studies based on Western samples of adolescents (Moore et al., 2017) showing an association of victimization on depression above and beyond prior vulnerabilities. Boys experienced more peer victimization in middle school, as previously reported in South Korean samples (Bhang et al., 2012; Jung et al., 2017; Kim et al., 2018; Kim et al., 2004) and in many other Western studies (Oncioiu et al., 2020). However, peer victimization was more strongly associated with depressive symptoms in girls than boys. Although most western studies found no sex difference in the association between peer victimization and depressive symptoms (Craig, 1998; Geoffroy et al., 2018; Saluja et al., 2004; Turner et al., 2013), a few studies in line with the present study reported that the effect of peer victimization on depressive symptoms were greater in girls than boys (Bond et al., 2001; Espelage et al., 2004; Klomek et al., 2007; Williams et al., 2017). For example, Klomek et al. (2007) found that girls were more at-risk to develop depressive symptoms if they were exposed to infrequent and frequent peer victimization, but boys were more at-risk only if they were exposed to frequent peer victimization. A prior study conducted in a small convenient sample of high-schoolers in Hong-Kong reported that boys, as opposed to girls, were more likely to experience depressive symptoms when exposed to peer victimization (Cheng et al., 2008). Future studies are needed to clarify sex differences in associations between peer victimization and depressive symptoms. For example, the associations may vary according to age, or the type of peer victimization (e.g. relational versus physical victimization), the frequency or severity of peer victimization (e.g. frequent versus infrequent). As far as we are aware, our study is the first to investigate sex differences in the association of peer victimization and depressive symptoms in South Korean

adolescents.

In terms of friend support, South Korean girls perceived greater friend support compared to boys, in line with other Asian studies (Cheng et al., 2008; Yin et al., 2017) and Western studies (Holt et al., 2007). Adolescence marks a transition for boys and girls from receiving more parental support to more friend support. For instance, a Dutch longitudinal study tracking the shifts in social support from early adolescence to emerging adulthood showed that girls reported a faster shift with a steeper increase of friend support in early adolescence between 12 and 16 years old (Helsen et al., 2000). Similarly, a study conducted in a USA sample also found that adolescent girls in middle and high school reported higher levels of friend support than boys (Malecki et al., 2002).

The role of social support for adolescents' depressive symptoms has been highlighted in recent longitudinal studies. For example, Scardera et al. (2020) found that social support in emerging adults (19 years) was associated with less depressive symptoms one year later, and that there was a dose-response with moderate and severe depression. However, this study did not examine whether social support may diminish depressive symptoms among individuals victimized by others. In the present study we found that a greater perception of friend support attenuated and closed the gap in depressive symptom levels between victims and non-victims. Moreover, friend support seemed to benefit boys as much as girls. This finding is in line with a study reporting a protective effect of friend support in boys and girls that were exposed to relational victimization in the US (Cooley et al., 2015). In contrast, one study using a sample of adolescents from Hong Kong had reported a protective effect of friend support for boys, but not for girls (Cheng et al., 2008). However, in this study peer victimization was also more strongly associated to depressive symptoms in boys compared to girls (Cheng et al., 2008), which is opposite to what the present study reported as well as other studies. The literature on sex differences in the moderating effect of friend support is scarce and inconsistent. More studies using similar methodology and measures of peer victimization, friend support and depressive symptoms are needed to clarify the role of friend support – in western and non-western samples.

It is important to note that a wide range of social support scales have been used across studies. Some scales reflect more general peer support, while others measure specific types of support – such as emotional support from friends – which may have influenced the differential associations found with peer victimization and depressive symptoms. We noted that cross-sectional studies that found a main effect of social support for depressive symptoms were using a more general measure of social support (Pouwelse et al., 2011; Yin et al., 2017). Whereas studies using friend or close friend support found that social support benefits more adolescents facing peer victimization (Cheng et al., 2008; Holt et al., 2007; Tanigawa et al., 2011). One hypothesis may be that friendships provide more valuable support in the context of adverse life experiences, such as peer victimization.

The study's strengths include 1) a large representative sample of students attending middle school in South Korea; 2) the use of reliable scales to measure depressive symptoms, friend support and peer victimization; and 3) the inclusion of prior year reports of mental health problems, including depressive symptoms, to account for reverse causality. However, our conclusions need to be interpreted in light of a number of limitations: 1) depressive symptoms were measured the same year as peer victimization and friend support, therefore we cannot conclude on longitudinal associations. To our knowledge, there is no longitudinal study reporting the moderating effect of friend support in the association between peer victimization and depressive symptoms, however other longitudinal studies have reported that peer support was associated with lower depressive symptoms (Burke et al., 2017; Kendrick et al., 2012). Longitudinal studies would be useful in determining the protective effect of friend support while strengthening inference about the directionality of the association between peer victimization and depressive symptoms; 2) the measures of peer victimization and

depressive symptoms were self-reported and may have been biased by common individual characteristics, including prior mental health status, which may also have induced shared method variance and inflated effect sizes. However, in this population-based survey, clinical interviews were not conducted, and adolescents were the only informants. It is important to note that parents may not be the best informants after childhood because they may not be aware of personal experiences including peer victimization and depressive symptoms (Bowes et al., 2016); 3) friends represent a key source of support for adolescents, but other sources of support such as; parental support may play a role and should be investigated; 4) peer victimization in this South Korean sample may differ from peer victimization in Western countries, by its unique characteristics; such as collective peer victimization or having multiple perpetrators (Lee, 2010). However, such information was not collected in the cohort, thus we were not able to assess how such cultural differences in peer victimization might affect mental health.

5. Conclusion

Peer victimization is a common experience, especially in adolescence, and the known consequential impacts on a range of mental health problems point towards the urgency in finding protective factors for the victims. In the current study, greater friend support protected peer victimized adolescents against depressive symptoms, which could have implications for intervention purposes. As far as we are aware, most anti-bullying interventions in schools focused at reducing bullying perpetration and victimization with promising results (Gaffney et al., 2019). Our findings suggested that leveraging friend support may represent an additional economical and readily available option to further reduce the harms of peer victimization on depressive symptoms. However, more studies are needed to confirm our conclusions.

Author statement

LCP, MCG and MK designed the study. MK provided the data and WK translated the database from Korean to English. LCP managed the literature review and statistical analyses. LCP wrote the first draft of the paper with contributions from SS and MC, and revisions from MCG. All authors contributed to the interpretation of the data, critically revised the manuscript for important intellectual contents, and approve the final version.

CRediT authorship contribution statement

L.C. Perret: Investigation, Methodology, Validation, Writing - review & editing. **M. Ki:** Investigation, Methodology, Validation, Writing - review & editing. **M. Comisso:** Investigation, Methodology, Validation, Writing - review & editing. **D. Chon:** Investigation, Methodology, Validation, Writing - review & editing. **S. Scardera:** Investigation, Methodology, Validation, Writing - review & editing. **W. Kim:** Investigation, Methodology, Validation, Writing - review & editing. **R. Fuhrer:** Investigation, Methodology, Validation, Writing - review & editing. **G. Gariépy:** Investigation, Methodology, Validation, Writing - review & editing. **I. Ouellet-Morin:** Investigation, Methodology, Validation, Writing - review & editing. **M-C. Geoffroy:** Investigation, Methodology, Validation, Writing - review & editing.

Declaration of Competing Interest

None.

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