Depression as a Mediator between Negative Interpersonal Relationship and Suicidal Ideation among Korean Adolescents

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Abstract

South Korea has one of the highest global suicide rates. In spite of the notorious ranking of suicide rate across the world, analyses of the cause of suicide have been rare in South Korea. Using a Korean survey in 2010 with 399 samples aged 12 to 21, this study conducted structural equation modeling to apply Agnew's general strain theory to suicidal ideation of adolescents. This study supported the theory's assumption that negative interpersonal relationship increased suicidal ideation, with mediation effect of depression level. On the other hand, some findings in this study should be questionable. More specifically, negative relationship with friends decreased adolescents' suicidal ideation. Eventually, however, it increased their suicidal ideation through swelling depression level. In sum, results of this study could help guide to explain the cause of suicidal ideation by interpersonal relationship. In particular, they showed the applicability of general strain theory in South Korea.

Keywords
Suicidal Ideation, General Strain Theory, Interpersonal Relationship, Depression

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INTRODUCTION

Suicide is the third leading cause of mortality in adolescents and young adults aged 10 to 24, as well as the highest leading cause of death worldwide (Heron, 2016; Värnik, 2012). According to the World Health Organization (WHO) Mortality Database, global suicide rates among adolescents have increased by 60% in the last four decades (Wasserman, Cheng, & XinJiang, 2005). Furthermore, WHO estimated that 793,000 people across the world died by suicide in 2016 (WHO, 2016). Additionally, the Center for Disease Control and Prevention (Curtin & Heron: CDC, 2019) reported that 47,173 individuals committed suicide in 2017. The most concerning out of all these statistics is that South Korea has always been the top three countries for suicide rates amongst Organization for Economic Cooperation and Development (OECD) countries since 2003 (CDC, 2015).

In 2016, South Korea had the highest suicide rate amongst OECD countries, at 24.6 per 100,000 people, compared to a rate of 10.6 in the US in 2017 (Curtin & Heron: CDC, 2019). Further, the suicide rates of South Korea have been gradually increasing from 16.6 in 2000 to 24.6 in 2016 (OECD, 2017). More specifically, Korean Statistics reported that suicide was the leading cause of death among Korean adolescents in 2016 (26.9 per 100,000; Korea, 2018). On the other hand, the OECD average of suicide rates was 6.4 suicides per 100,000 population aged 15 to 19 years (Hewlett & Moran, 2014). According to the report from OECD, suicide rates of Korean adolescents have continuously increased while the rates of other OECD countries have decreased (Hewlett & Moran, 2014). Despite this situation, causal relationship analyses of suicide in South Korea have been rare; few studies have examined causality of suicidal ideation and suicide attempts (e.g., Lee, Kim, Park, & Shim, 2010; Park & Lee, 2016).

Furthermore, studies regarding the causality of suicide are not a simple task since its definition is unclear and reporting of suicide is inaccurate (Fergusson et al., 2005). According to a medical dictionary (Stedman, 2000), suicide is defined as "the taking of one's own life." The definition included the meaning of completed suicide. Nevertheless, when analyzing causal factors, suicide is described differently as suicidal ideation, suicidal plans, suicidal behaviors, and suicide attempts (Andrew & Lewinsohn, 1992; Bebbington et al., 2009; Bridge, Goldstein, & Brent, 2006). That is, suicide ideation is the starting point and

suicide is the endpoint of a continuum; suicidal plans, suicidal behaviors, and suicide attempts occur along this continuum (Aliverdinia & Usefi, 2014).

Although not an exhaustive definition, suicide is used in the literature to combine all the behaviors and factors related to suicidality and suicide risk (Andrews & Lewinsohn, 1992; Bebbington et al., 2009; Bridge, Goldstein, & Brent, 2006). In particular, suicidal ideation and attempts were powerful predictive factors for suicide deaths (Klonsky, May, & Saffer, 2016). Additionally, prior studies have found several risk factors for suicide, such as mental disorder (Klomek et al., 2011; Luoma, Martin, & Pearson, 2002), previous suicide attempts (Jenkins, Hale, Papanastassiou, Crawford, & Tyrer, 2002; Carter, Child, Page, Clover, & Taylor, 2007), family history of suicide (De Leo & Heller, 2008; Lester, 2002), and suicide contagion (Sisask & Värnik, 2012; Wang, 2012). Particularly, depression and personality disorders are common factors of impact on the suicidal continuum (Bertolote & Fleischmann, 2002). Therefore, by using these risk factors related to suicide, examinations of the cause of suicide will be possible.

Numerous studies found that depression was a significant predictor for suicidal ideation (Bertolote & Fleischmann, 2002; Chaung, Kim, Yang, & Lee, 2016; Sigfusdottir, Asgeirdottir, Gudjonsson, & Sigurdsson, 2013; Woo & Kim, 2011; Woo, Park, & Jung, 2010). Further, studies have found that negative interpersonal relationships were related to later depressive symptoms (Carson, Sullivan, Cochran, & Lersch, 2009; Hollist, Hughes, & Schaible, 2009; Moylan et al., 2010; O'Keefe, 1996; Sigfusdottir et al., 2013; Watts & McNulty, 2013). This depression had an influence on suicide behaviors (Dube et al., 2001; Walls, Chapple, & Johnson, 2007).

Researchers have also indicated that experiences of maladaptive parenting (i.e., abuse, rejection) were highly linked to suicidal ideation (Button, 2015; Walls et al., 2007). For instance, caretaker rejection and coercive parenting were also related to suicide in this sample (Walls et al., 2007). Many studies have found that parental child maltreatment was a key predictor for later deviant behaviors of youths (e.g., Baek et al., 2018; Carson et al., 2009; Fagan, 2005; Hay & Evans, 2006; Hollist et al., 2009; Watts & McNulty, 2013). Furthermore, the negative relationship with family is not only a predictor of suicidal ideation and psychiatric disorders among adolescents, but also negative interpersonal relationships with

others (e.g., teachers and friends [Agnew, 2001; Agnew & Brezina, 1997; Button, 2015; Klomek et al., 2011; Lee et al., 2010; Walls et al., 2007]). Regarding negative interpersonal relationships, Agnew's (1992) general strain theory places particular focus on negative emotionality (e.g., anger and depression) as a mediating cause of negative consequence. Thus, it may be useful in the explanation and understanding of suicidal ideation.

THEORETICAL BACKGROUND

General Strain Theory (GST) developed by Agnew (1992) explains that individuals who experienced strain evoke negative emotionality. Although some may use prosocial coping mechanisms to relieve these negative emotions, others select antisocial means (e.g., deviant and criminal behaviors) of escaping the negative emotion associated with the strain (Agnew, 1992). GST indicates that there are three main types of strain responsible for deviant or delinquent behavior: 1) failure to achieve goals, 2) extinction of positive stimuli, and 3) presentation of negative stimuli. The first type of strain, failure to achieve goals, is similar to Merton's (1938) original strain theory. When a person is in a situation where he or she is prevented from or blocked from achieving their goal via legitimate means, they then will achieve their goals via legitimate means, crime.

This strain according to Agnew (1992) is defined as 'failure to achieve goals' as the inability of an individual to obtain what they want. Hence, this strain can lead individuals to be hopeless about the future, and may develop suicidal ideation in order to remove the feelings of inadequacy and hopelessness. The second type of strain is the removal of a positive stimulus (Agnew, 1992). This is a situation where something good (positive stimuli) in a person's life is removed or disappears. For example, the death of a loved one or close friend becomes a situation where a positive stimulus is removed from one's life. These strains can lead to the negative emotion such as depression and later lead to the deviant act of suicide or suicide ideation. The last type of strain is the presentation of negative or noxious stimuli (Agnew, 1992). A strain occurs when an individual is presented with an adverse event or situation they dislike. For example, ill treatment by others, poor parental practice, victimization of bullying

by peers can be a good example of 'presentation of negative or noxious stimuli' (Agnew, 1992).

Researchers provide support for GST's theoretical propositions that identified the causes of delinquency (e.g., Agnew & Brezina, 1997; Agnew, Brezina, Wright, & Cullen, 2002; Hollist et al., 2009; Moon, Morash, McCluskey, & Hwang, 2009). However, relatively few studies have used GST principles to examine the relationship between depression and suicidal ideation (Baek, Roberts, & Higgins, 2017; Bertolote & Fleischmann, 2002; Dube et al., 2001; Walls et al., 2007) or regressions of negative interpersonal relationships and negative emotions on suicidal ideation (Agnew, 2001; Button, 2015; Hay & Meldrum, 2010). While anger is thought to be the most likely mediating emotion leading to criminal coping, many studies have found other negative emotions, such as depression and anxiety, to also act as mediators (e.g., Gao, Wong, & Yu, 2016; Lin, Dembo, Sellers, Cochran, J., & Mieczkowski, 2014; Moon, Hwang, & McCluskey, 2011).

Particularly, studies have used GST to explain suicidality (e.g., Francis, 2014; Hay et al., 2010; Hay & Meldrum, 2010). Walls and her colleagues (2007) supported GST's proposition that poor parenting and caretaker rejection as noxious strains increased suicidal ideation or attempts among American Indian Youth. Kaufman's (2009) study also found support for GST; this study examined the impact of serious strains (suicidal behavior by friends and family) on suicidal ideation with mediating negative emotions. Furthermore, Sigfusdottir and colleagues (2013), Using data from the national survey in Iceland, tested GST's hypotheses among high school students and found sexual abuse and family conflict/violence was negative or noxious stimuli. More importantly, it influenced suicidal ideation and suicide attempts, with mediating effects of depressed mood as a negative emotion (Sigfusdottir et al., 2013). Although a variety of strains could be crucial predictors of suicidal behaviors, interpersonal relationships with others are also important to examine in order to account for suicidal ideation.

Agnew (2001) demonstrated that negative interpersonal relationships (in particular, negative relationships with teachers and peers) were a significant type of strain in GST's hypotheses. Studies found that negative interpersonal relationships with others increased depressive symptoms and suicidal ideation (Agnew & Brezina, 1997; Baek et al., 2017; Button, 2015; Fotti, Katz, Afifi, & Cox, 2006; Klomek et al., 2011; Lee et al., 2010; Walls et al., 2007). For

instance, Button (2015) examined the link between social support of youths, and suicidality in the past year. The results found support for the hypothesis that social support (e.g., parents, teachers, and friends) decreases suicidality in adolescents (Button, 2015).

More specifically, studies have found that negative interpersonal relationship with peer was a significant predictor of suicidal ideation (Cui, Cheng, Xu, Chen & Wang, 2011; Gini & Espelage, 2014; Hinduja & Patchin, 2010). For example, Cui and colleagues (2011) found that negative relationships with peer was a significant predictor of suicide ideation and attempts. Similarly, Hinduja and Patchin (2010) found that American adolescents who had negative relationship with peers, specifically experiences with bullying victimization and offending, were more likely to have suicidal ideation. Also, Gini and Espelage (2014) found that peer victimization was significantly related to increased chance of suicidal ideation and suicide attempts among adolescents. The negative interpersonal relationship with peer was not the only predictor of suicidal ideation. Fotti and her colleagues (2006) found that poor peer and parental relationships were significantly associated with suicidal ideation and attempts among early adolescents.

As such, studies have also found that negative interpersonal family relationships were a significant predictor of suicidal ideation (Compton, Thompson & Kaslow, 2005; Harris & Molock, 2000; Sewall, Goldstein, Salk, Merranko, Gill, Strober, Keller, Hafeman, Ryan, Yen, Hower, Liao, & Birmaher, 2019; Topol & Reznikoff, 1982). Topol and Reznikof (1982) found that when adolescent have a negative relationship with parents, they feel hopelessness which was a significant predictor of suicidal ideation. Compton and colleagues (2005) examined the protective role of family relationships and social support on suicide attempts. They found that lower levels of family cohesion increased the African American adolescent's likelihood of suicide attempts. Similarly, Harris and Molock (2000) also found that family cohesion and family support was a significant predictor of suicidal ideation and depression among African American young adults. A recent study by Sewall and colleagues (2019) also concluded that negative interpersonal relationships such as negative family and peer relationship were associated with suicidal ideation for youth even when controlling for their current bipolar symptoms.

Teacher-student relationships have been found to impact adolescents' suicidal

ideation as well (Han, Fu, Liu & Guo, 2018; Madjar, Walsh & Harel-Fisch, 2018). For example, Madjar and colleagues (2018) found that interpersonal relationships such as teacher, parent, and peer support were all significant predictor of adolescent's suicidal ideation. Additionally, Han and colleagues (2018) examined the role of teacher student relationships regarding suicidality in Chinese youth. They found that teacher-student relationship was a significant predictor of suicidality.

In addition, although they did not mention GST propositions, a few studies in South Korea examined relationships between negative interpersonal relationships, depression, and suicidal ideation (Bae, Yoon, & Cho, 2015; Kim, Park, Park, & Kim, 2012; Woo & Kim, 2011). Woo and Kim (2011) found that negative interpersonal relationships significantly increased students' suicidal ideation and depression. In another study (Kim et al., 2012), suicidal ideation was strongly associated with interpersonal relationships with teachers and peers; specifically, the interpersonal relationships with parents was the most significant predictor to suicidal thinking. However, these studies were not based on structural equation modeling (SEM); in particular, they did not include mediation effects of depression. As shown in previous studies (e.g., Kaufman, 2009; Sigfusdottir et al., 2013), depression as a mediator between interpersonal relationship and suicidal ideation should be included.

In response to all above issues, the purpose of this study was to provide an understanding that might lead to the reduction of suicidal ideation through examining negative stimuli and emotions hypothesized by the General Strain Theory. In particular, this study focused on adolescents in South Korea since few studies have examined suicidal ideation using general strain theory on a South Korean population. Therefore, this study intended to examine if the negative interpersonal relationships influence suicidal ideation, with the mediating variable of depression, amongst a unique international sample. As related to this research question, this study conducted analyses of structural equation modeling (SEM) with seven hypotheses. Figure 1 provided a graphical presentation of all the hypotheses.

Hypothesis 1: Negative relationships with friends increase suicidal ideation.
Hypothesis 2: Negative relationships with teachers increase suicidal ideation.

Hypothesis 3: Negative relationships with family increase suicidal ideation.

Hypothesis 4: Negative relationships with friends increase depression.

Hypothesis 5: Negative relationships with teachers increase depression.

Hypothesis 6: Negative relationships with family increase depression.

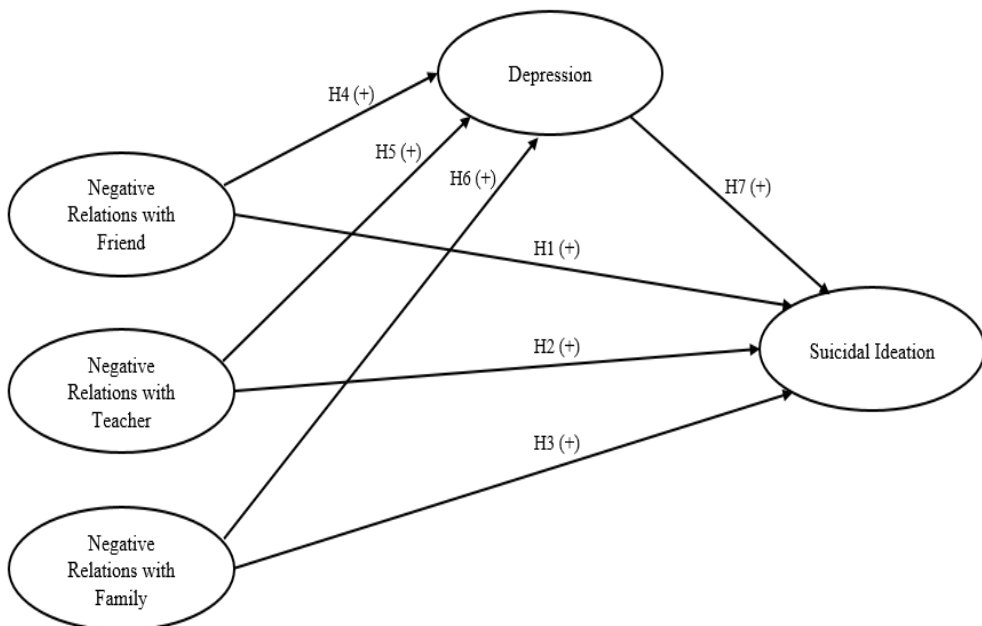Hypothesis 7: Depression increases suicidal ideation.

Figure 1. Research Models with Hypotheses

METHODS

Data

This study used data, *A Study on the Prediction Factors of Youth Suicide* (Lee, 2010), from a Korean survey in 2010, which was gathered from 9 cities of South Korea from May to August in 2010. According to the data description, the researcher used non-probability sampling (i.e., purposive sampling). The data were donated to the Korean Social Science Data Archive in 2014 (data code: A1-2010-0165), which is a non-profit social science data archive integrating the Korean Social Science Library and the Korean Social Survey Data Archive. The original data have various questions about respondents' self-esteem, school stress, family cohesion, deviant behaviors, social conception about suicide as well as demographic information (Lee, 2010). The total sample size was 399. Of these, 202 (50.6%) were female and 196 (49.1%) were male; one did not respond this item. The ages of respondents were between 12 and 21, with an average age of 15.5. Regarding socio-economic background of their parents, approximately 76% of students responded that an income level was above middle, while about 24% of them did that it was low. Respondents were also living in different regions: 40.9% in a metropolis, 42.4% in a small or medium-sized city, and 16.3% in a farming village (0.5% of respondents were no answer).

Measures

Suicidal ideation (SI) was composed of 4 items and each item was represented as SI in the study model*. Survey questions asked respondents: "I have been thinking about suicide," "I have recently thought of wanting to die," "I have said to someone that I want to suicide," and "I have ever thought that my life would end up killing myself." The respondents used an answer choice for these questions (1 = not at all to 5 = always). Higher scores on the scale indicated more intention of suicide.

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* Our presentation, of this labeling system in the text and in the tables were designed to assist the reader.

Other variables were derived from Agnew's (1992) General Strain Theory (GST), including both negative stimuli and negative emotion. With 14 items, negative interpersonal relationships as the exogenous variables used to represent negative or noxious stimuli. The variables were then divided into three groups: relationships with friends (5 items), teacher (4 items), and family (5 items). Tables 1 and 3 shows more detailed information about observed measures. Respondents used a five-part Likert scale for each question, answer choices ranged from 1 = not at all to 5 = always. Thus, the higher score means that students did not have good relationships with friends, teachers, and family.

The mediating variable used to assess negative emotion was depression. The Depression measurement utilized 4 items, which included the following questions, "Over the last month, how often have you been felt by any of the following questions?: I am sad and depressed, I am not interested in anything, Everything in my life is tough, and I consider myself useless to others. Answers were coded using a 5-point Likert-scale, responses ranged from 1 = not at all to 5 = always. Thus, higher scores on the scale indicated that respondents had a higher level of depression.

Analysis Plan

Using a data set, *A Study on the Prediction Factors of Youth Suicide* (Lee, 2010), this study conducted data analyses in the following series of steps. The first step in the analysis involved the descriptive statistics (i.e., mean, standard deviation, skewness, and kurtosis) to determine the normality of the observed measures. Secondly, bivariate statistical analysis was conducted to show that those observed measures shared suitable levels of variation. Third, to assess the measurement model, CFA (Confirmatory Factor Analysis) was conducted to examine the measurement qualities, using Amos 22.0. CFA is able to confirm that the observed variables indicate the latent variables. Next, this study examined a structural model (SM) with the goodness-of-fit of the model and tests of hypotheses. Regarding the goodness-of-fit, this study used several fit indices, the chi-square (χ^2) statistic, the comparative fit index (CFI), the root mean squared error of approximation (RMSEA), and the standardized root mean of the residual (SRMR). Particularly, this study used the following criteria for the goodness-of-fit: CFI > .95, RMSEA < .08, and SRMR < .05 (Hu & Bentler, 1999; Kline, 2016).

RESULTS

Descriptive Statistics

In Table 1, this study combines several descriptive statistics as the first step, such as mean, standard deviation (SD), range, skewness, and kurtosis. These provide information about the distribution of the data. No observed measures in this study had any problems of normality, meeting Kline's (2016) thresholds (skewness -3 to 3 and kurtosis -7 to 7). In addition, as seen in Table 1, there were not many missing cases. A half of measures had no missing cases and others had less than 1% of missing cases. Only the measure of religion had 7 missing cases (1.8%).

Table 1. Sample Descriptive Statistics of Observed Measures

Variables			Valid N	Mean	SD	Range	Skewness	Kurtosis
Negative Relationship with Friends (NFR)	My friends do not like me.	NFR1	399	2.34	.88	1-5	.20	.09
	My friends do not listen to my thoughts and comments well	NFR2	399	2.21	.86	1-5	.59	.51
	My friends do not help me.	NFR3	397	2.22	.88	1-5	.65	.66
	I have no friend who can cheer me up when I am in trouble.	NFR4	398	2.04	.83	1-5	.63	.51
	Friends understand me.	NFR5	397	2.29	.87	1-5	.51	.43
Negative Relationship with Teachers (NT)	I do not get along with my teacher.	NT1	398	2.95	.95	1-5	.05	.13
	My teacher is not interested in me.	NT2	398	2.84	.91	1-5	.25	.56
	My teacher does not help me when I ask for help.	NT3	399	2.56	.93	1-5	.48	.55
	My teacher does not encourage me when I have a trouble.	NT4	399	2.80	.93	1-5	.29	.39
Negative Relationship with Family (NFA)	My family does not like to do something together.	NFA1	398	3.03	1.07	1-5	-.09	-.42
	My family does not like to spend leisure time together.	NFA2	399	2.85	1.13	1-5	.04	-.74
	My family is not familiar with each other.	NFA3	399	2.32	1.04	1-5	.45	-.39
	My family does not share activities together.	NFA4	399	2.80	1.07	1-5	.10	-.45
	My family does not consult with each other when deciding to work.	NFA5	399	3.03	1.08	1-5	.03	-.45
Depression (DEP)	I am sad and depressed.	DEP1	397	2.65	1.25	1-5	.28	-.96
	I am not interested in anything.	DEP2	397	2.23	1.12	1-5	.72	-.22
	Everything in my life is tough.	DEP3	396	2.55	1.19	1-5	.42	-.66
	I consider myself useless to others.	DEP4	398	2.03	1.08	1-5	.99	.50
Suicidal Ideation (SI)	I have been thinking about suicide.	SI1	399	2.04	1.13	1-5	.78	-.25
	I have recently thought of wanting to die.	SI2	397	1.81	1.11	1-5	1.27	.76
	I have said to someone that I want suicide.	SI3	399	1.66	1.04	1-5	1.52	1.47
	I have ever thought that my life would end up killing myself.	SI4	399	1.62	1.02	1-5	1.71	2.26

Note. N=399

Bivariate Statistics

The second step was the performance of a bivariate correlation analysis, indicating that there were no potential problems that measures would be collinear. The strongest correlation coefficient ($r = .83$, $p < .01$) was between "I have been thinking about suicide" (SI1) and "I have recently thought of wanting to die" (SI2). These measures shared much variation so that they would be collinear. However, we retained the measures because of their relevance to our measurement of suicidal ideation. Regarding other correlation coefficients, detailed information is presented in Table 2.

Table 2. Correlation Matrix of Observed Measures

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1.NFR1	-																					
2.NFR2	.67**	-																				
3.NFR3	.62**	.74**	-																			
4.NFR4	.58**	.60**	.68**	-																		
5.NFR5	.62**	.68**	.70**	.72**	-																	
6.NT1	.35**	.30**	.31**	.33**	.40**	-																
7.NT2	.26**	.20**	.19**	.20**	.24**	.54**	-															
8.NT3	.24**	.23**	.22**	.18**	.20**	.47**	.63**	-														
9.NT4	.27**	.22**	.25**	.28**	.30**	.55**	.62**	.76**	-													
10.NFA1	.15**	.16**	.27**	.14**	.20**	.22**	.11*	.14**	.23**	-												
11.NFA2	.20**	.22**	.24**	.21**	.27**	.21**	.19**	.14**	.22**	.71**	-											
12.NFA3	.23**	.24**	.31**	.22**	.28**	.16**	.14**	.24**	.23**	.58**	.60**	-										
13.NFA4	.24**	.19**	.26**	.16**	.26**	.29**	.22**	.24**	.25**	.60**	.63**	.57**	-									
14.NFA5	.21**	.21**	.33**	.20**	.24**	.24**	.25**	.27**	.30**	.56**	.60**	.53**	.61**	-								
15.DEP1	.26**	.28**	.26**	.14**	.23**	.16**	.17**	.21**	.18**	.21**	.21**	.33**	.25**	.19**	-							
16.DEP2	.27**	.31**	.30**	.21**	.24**	.19**	.16**	.24**	.23**	.18**	.21**	.30**	.27**	.22**	.63**	-						
17.DEP3	.30**	.27**	.28**	.19**	.28**	.17**	.18**	.19**	.18**	.20**	.22**	.28**	.26**	.23**	.63**	.67**	-					
18.DEP4	.32**	.30**	.31**	.23**	.29**	.13*	.22**	.24**	.20**	.25**	.21**	.36**	.29**	.24**	.54**	.63**	.64**	-				
19.SI1	.20**	.17**	.19**	.09	.14**	.16**	.23**	.31**	.26**	.28**	.22**	.34**	.31**	.27**	.54**	.43**	.48**	.53**	-			
20.SI2	.22**	.21**	.22**	.08	.14**	.16**	.27**	.30**	.23**	.21**	.18**	.31**	.29**	.27**	.49**	.43**	.54**	.56**	.83**	-		
21.SI3	.16**	.14**	.15**	.05	.09	.09	.13**	.23**	.17**	.17**	.10*	.25**	.20**	.17**	.45**	.36**	.42**	.45**	.72**	.72**	-	
22.SI4	.22**	.23**	.24**	.13*	.22**	.15**	.24**	.31**	.29**	.17**	.15**	.27**	.23**	.18**	.48**	.43**	.47**	.53**	.72**	.76**	.69**	-

Note. *p<.05, **p<.01. NFR=negative relationship with friends, NT=negative relationship with teachers, NFA=negative relationship with family, DEP=depression, SI=suicidal ideation, GEN=gender, AGE=age, REL=religion, FS=family structure, FI=family income

CFA

Using 22 items and potentially 5 latent measures—as presented in Table 3, CFA was conducted. It was to determine the model fits of CFA and the significance of factor loadings. Although $\chi2$ was significant ($\chi2$ = 427.43, df = 199, p < .01), other fit statistics indicated that this measurement model fit the data satisfactorily (CFI = .96, RMSEA = .05, and SRMR = .05) (see the criteria of the model fits above). Table 3 also indicates that the factor loadings were all statistically significant (λ > .50; Kline, 2016). That is, all observed measures were statistically significant to explain their latent variables. In addition, all composite reliabilities (analogous to coefficient alpha) of latent variables were deemed to excellent (above .80), as meaning that the consistency of the indicators in measuring respective latent variables (Raykov, 1997). Overall, these results indicated that proper levels of reliability and convergent and discriminant validity were present with these data.

Table 3. Measurement Model

Latent Variables	Observed Measures	Factor Loading
Negative Relationship with Friends	My friends do not like me.	.76[**]
	My friends do not listen to my thoughts and comments well	.83[**]
	My friends do not help me.	.86[**]
	I have no friend who can cheer me up when I am in trouble.	.80[**]
	Friends understand me.	.84[**]
Negative Relationship with Teachers	I do not get along with my teacher.	.60[**]
	My teacher is not interested in me.	.73[**]
	My teacher does not help me when I ask for help.	.86[**]
	My teacher does not encourage me when I have a trouble.	.88[**]
Negative Relationship with Family	My family does not like to do something together.	.80[**]
	My family does not like to spend leisure time together.	.83[**]
	My family is not familiar with each other.	.73[**]
	My family does not share activities together.	.78[**]
	My family does not consult with each other when deciding to work.	.73[**]
Depression	I am sad and depressed.	.76[**]
	I am not interested in anything.	.79[**]
	Everything in my life is tough.	.83[**]
	I consider myself useless to others.	.78[**]
Suicidal Ideation	I have been thinking about suicide.	.89[**]
	I have recently thought of wanting to die.	.91[**]
	I have said to someone that I want suicide.	.80[**]
	I have ever thought that my life would end up killing myself.	.84[**]

χ^2	df	CFI	RMSEA	SRMR
427.43[**]	199	.97	.05	.05

Note. *p⟨.05, **p⟨.01

SM

In the last step, a structural model (SM) was examined in order to test all of the seven hypotheses in this study (see Figure 1). We examined the fit between model and the data first. Based on the criteria aforementioned, the Korean data were appropriate to explain the research model ($\chi 2$ = 427.43, p < .01, CFI = .96, RMSEA = .05, and SRMR = .05). Since the goodness-of-fit of the research model was verified, the hypotheses of this model would be examined next. Regarding direct effects of interpersonal relationships on adolescents' suicidal ideation, negative relationships with teachers (H2: β = .14, p < .01) and family (H3: β = .12, p < .05) increased it, in contrast, negative relationships with friends decreased it (H1: β = -.13, p < .01). This unexpected direction will be discussed later. Moreover, while the effect of negative relationships with teachers did not influence adolescents' depression level (H5: β = .12, p = .056), other negative relationships had a significant influence on their depression: negative relationships with friends (H4: β = .25, p < .001) and family (H6: β = .24, p < .001). However, depression level was the highest predictor of suicidal ideation in Model 3 (H7: β = .67, p < .001). In particular, the indirect effects of depression between interpersonal relationships and suicidal ideation were high and significant. As seen in Table 5, even though the negative relationships with friends decreased suicidal ideation (standardized direct effect [SDE] = -.12), the mediation effect of depression was high (standardized indirect effect [SIE] = .17), and eventually, suicidal ideation was increased through depression (standardized total effect [STE] = .05). In other interpersonal relationships, the mediation effect of depression was crucial to account for adolescents' suicidal ideation (teachers: STE = .22, SDE = .15, and SIE = .07; and family: STE = .25, SDE = .15, and SIE = .10).

Table 4. Structural Model Results

Measures	Research Model			
	Coef.	SE	p	β
Negative Relationships with Friends → Suicidal Ideation	-.17	.07	.009	-.13
Negative Relationships with Teachers → Suicidal Ideation	.17	.06	.003	.14
Negative Relationships with Family → Suicidal Ideation	.15	.06	.014	.12
Negative Relationships with Friends → Depression	.29	.06	***	.25
Negative Relationships with Teachers → Depression	.12	.06	.056	.12
Negative Relationships with Family → Depression	.26	.07	***	.24
Depression → Suicidal Ideation	.78	.07	***	.67
χ^2	427.43**			
df	199			
CFI	.97			
RMSEA	.05			
SRMR	.05			

Note. *p<.05, **p<.01, ***p<.01

Table 5. Direct/ Indirect and Total Standardized Effects of Variables

I.V.	M.V.	D.V.	Direct	Indirect	Total Effect
Negative relationships with Friends	Depression	Suicidal Ideation	-.16 (-.12)	.23 (.17)	.07 (.05)
Negative relationships with Teachers			.18 (.15)	.09 (.07)	.27 (.22)
Negative relationships with Family			.13 (.10)	.18 (.15)	.32 (.25)

Note. Parentheses are standardized effects. I.V.=independent variable, M.V.=mediating variable, D.V.=dependent variable

DISCUSSION

Numerous studies have proclaimed that suicide is a crucial cause of adolescents' mortality (CDC, 2015; Heron, 2016; Värnik, 2012; Wasserman et al., 2005; WHO, 2014). In particular, South Korea has had in the highest global suicide rate and its rates have been gradually increasing (CDC, 2015; WHO, 2014). In spite of this ranking across the world, the causality of suicide have rarely been examined in South Korea. A few studies attempted to explain causality of suicide amongst Korean youth using concepts of negative interpersonal relationships, depression symptoms, and suicidal ideation (Bae et al., 2015; Chaung et al., 2016; Kim et al., 2012; Lee et al., 2010; Woo & Kim, 2011). Even though these studies did not use Agnew's (1992) General Strain Theory (GST), findings were consistent with GST propositions. That is, negative interpersonal relationships significantly increased students' suicidal ideation with a mediation effect of depression. Furthermore, many studies in literature have shown the applicability of GST's theoretical principles to suicidal ideation by interpersonal relationship (e.g., Baek et al., 2017; Bertolote & Fleischmann, 2002; Button, 2015; Dube et al., 2001; Klomek et al., 2011; Sigfusdottir et al., 2013; Walls et al., 2007).

Consistent with findings of numerous previous studies (e.g., Agnew & Brezina, 1997; Button, 2015; Carson, et al., 2009; Klomek et al., 2011; Lee et al., 2010; Walls et al., 2007), this study supported Agnew's (1992) GST. Negative interpersonal relationships with others increased adolescents' depression and suicidal ideation. In addition, adolescents' depression level was the principal mediation between negative interpersonal relationships with others and their suicidal ideation in this study. These results were consistent with Korean studies, in that interpersonal relationships and depression symptoms were strongly associated with suicidal ideation (Kim et al., 2012; Woo & Kim, 2011; Woo et al., 2010). Unlike these Korean studies, by applying GST to Korean adolescents, this study found the mediation effect of depression between interpersonal relationships and suicidal ideation. That is, Korean adolescents with a higher level of depression (negative emotion) generated by negative stimuli (negative interpersonal relationships) may select suicide as an antisocial mean of escaping the negative emotion.

On the other hand, negative relationships with friends significantly decreased adolescents' suicidal ideation. Although this result was not expected by the theory, previous studies have shown empirical evidence about this occurrence (e.g., Bearman & Moody, 2004; Davaji, Valizadeh, & Nikamal, 2010; Liu, 2006). Bearman and Moody (2004) accounted for adolescents' suicidal thoughts using the number of friends who had an experience of suicide attempts. They found that the friends' suicide attempts substantially increased adolescents' thinking about suicide (Bearman & Moody, 2004). In other words, depending on characteristics of friends, the likelihood of suicidal ideation could be different. Additionally, depending on the level of friends' closeness, adolescents might select different actions (e.g., imitation or refusal). Thus, future studies need to combine more control variables regarding friends' aspects. Overall, the finding from the analysis of mediation effects (see Table 5) showed the relationship between friends, depression, and suicidal ideation. While negative relationships with friends directly decreased adolescents' suicidal ideation, the relationship with friends indirectly increased suicidal ideation through depression. In other words, suicidal ideation was ascended when adolescents had a negative relationship with friends.

In addition, Davaji and colleagues' (2010) study provided a possible explanation why adolescents' suicidal ideation would be different depending on relationships with others. This study found that students' suicidal ideation was significantly different depending on attachment styles (see Ainsworth and Bowlby's attachment theory [1991]) with other people; while avoidant and ambivalent attachment styles increased suicidal ideation, secure attachment style decreased it (Davaji et al., 2010). In particular, one well-known criminological theory, social learning theory (Akers [1985, 1998]), could explain the result that negative relationships with friends significantly decreased adolescents' suicidal ideation. According to the theory, the delinquent values and beliefs that arise from association with deviant peers cause the likelihood of engaging in such behaviors to rise (Akers, 1998). Thus, when adolescents do not have an intimate friend with suicidal ideation, their suicidal ideation will decrease.

Despite meaningful findings, this study has a few limitations. First, due to the cross-sectional nature of the data, temporal effects could be debated. That is, some situation will be possible to occur; for example, after increasing depression level, students' relationship with others will be worse. In addition, people may

keep away from a suicidal person. Thus, the suicidal person does not have any good relationships with others. The second issue is the measure of negative emotion. Like Jang's (2007) findings, there are gender differences depending on types of negative emotion (anger vs. depression). However, original data used in this study do not combine other types of negative emotion. In order to account for gender differences of GST's propositions, other mediations will be required to examine. Lastly, this study did not include all three types of strain suggested by Agnew (1992). It will be possible that other types of strain influence suicidal ideation more. Future studies of suicidal ideation need to contain these variables. In spite of these problems, we find support for GST's proposition that negative stimulation (negative interpersonal relationships), increased the likelihood of negative emotion (depression), which further increased the likelihood of suicidal ideation among adolescents. In addition, this study would contribute as an examination that applies GST's assumptions to Korean sample aged 12 and 21. Thus, the resolution in a relationship with others can offer ways to reduce adolescents' suicidal ideation; eventually, to prevent suicide among Korean youths.

Reference

Agnew, R. (1992). Foundation for a general strain theory of crime and delinquency. *Criminology, 30*(1), 47-87.

Agnew, R. (2001). Building on the foundation of general strain theory: Specifying the types of strain most likely to lead to delinquency. *Journal of Research in Crime and Delinquency*, 38(4), 319-361.

Agnew, R. (2007). *Pressured into Crime: An Overview of General Strain Theory*. New York, NY: Oxford.

Agnew, R., & Brezina, T. (1997). Relational problems with peers, gender, and delinquency. *Youth & Society*, *29*(1), 84-111.

Agnew, R., Brezina, T., Wright, J. P., & Cullen, F. T. (2002). Strain, personality traits, and delinquency: Extending general strain theory. *Criminology, 40*, 43-72.

Ainsworth, M. D. S., & Bowlby, J. (1991). An ethological approach to personality development. *American Psychologist, 46*, 331-341.

Alaimo, K., Olson, C. M., & Frongillo, E. A. (2002). Family food

insufficiency, but not low family income, is positively associated with dysthymia and suicide symptoms in adolescents. *The Journal of Nutrition, 132*(4), 719-725.

Aliverdinia, A., & Usefi, N. (2014). Suicidality among students: An experiment of Agnew's general strain theory. *Journal of Applied Sociology, 54*(1), 9-12.

Andrews, J. A., & Lewinsohn, P. M. (1992). Suicidal attempts among older adolescents: Prevalence and co-occurrence with psychiatric disorders. *Journal of the American Academy of Child & Adolescent Psychiatry, 31*(4), 655-662.

Bae, S. Y., Yoon, H. S., & Cho, Y. C. (2015). Factors related to suicide ideation among middle school students. *Journal of the Korea Academia-Industrial cooperation Society, 16*(1), 544-554.

Baek, H., Roberts, A. M., & Higgins, G. E. (2017). The impact of negative stimuli on suicidality among adulthoods: A mediating effect of depression. *Deviant Behavior,* 1-13.

Baek, H., Roberts, A. M., & Higgins, G. E. (2018). The impact of family indifference on delinquency among American Indian youth: A test of general strain theory. Journal of Ethnicity in Criminal Justice, 16(1), 57-75.

Bearman, P. S., & Moody, J. (2004). Suicide and friendships among American adolescents. *American Journal of Public Health, 94*(1), 89-95.

Bebbington, P. E., Cooper, C., Minot, S., Brugha, T. S., Jenkins, R., Meltzer, H., & Dennis, M. (2009). Suicide attempts, gender, and sexual abuse: data from the 2000 British Psychiatric Morbidity Survey. *American Journal of Psychiatry, 166*(10), 1135-1140.

Bertolote, J. M., & Fleischmann, A. (2002). Suicide and psychiatric diagnosis: A worldwide perspective. *World Psychiatry, 1*(3), 181-185.

Bridge, J. A., Goldstein, T. R., & Brent, D. A. (2006). Adolescent suicide and suicidal behavior. *Journal of Child Psychology & Psychiatry, 47*(3-4), 372-394.

Broidy, L., & Agnew, R. (1997). Gender and Crime: A general strain theory perspective. *Journal of Research in Crime and Delinquency, 34*(3), 275-232.

Button, D. M. (2015). A general strain approach comparing the effects of

victimization, social support, and perceived self-efficacy on LGBQ and heterosexual youth suicidality. *Criminal Justice Studies, 28*(4), 484-502.

Byrne, B. M. (2012). *Structural Equation Modeling with Mplus*. New York, NY: Routledge.

Carson, D. C., Sullivan, C. J., Cochran, J. K., & Lersch, K. M. (2009). General strain theory and the relationship between early victimization and drug use. *Deviant Behavior, 30*(1), 54-88.

Carter, G. L., Child C., Page, A., Clover, K., & Taylor, R. (2007). Modifiable risk factors for attempted suicide in Australian clinical and community samples. *Suicide and Life-Threatening Behavior, 37*(6), 671-680.

Centers for Disease Control and Prevention (CDC). (2015). *Fatal injury reports 2013*. http://www.cdc.gov/injury/wisqars/fatal_injury_reports.html, Accessed on December 20, 2016.

Chaung, S. K., Kim, C. G., Yang, S., & Lee, S. Y. (2016). Factors for suicidal ideation in middle school students by gender. *The Korean Society of School Health, 29*, 267-276.

Cheung, G. W., & Rensvold, R. B. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural Equation Modeling, 9*, 233-255.

Compton, M., Thompson, N., & Kaslow, N. (2005). Social environment factors associated with suicide attempt among low-income African Americans: The protective role of family relationships and social support. *Social Psychiatry and Psychiatric Epidemiology, 40*, 175-185.

Cui, S., Cheng, Y., Xu, Z., Chen, D., & Wang, Y. (2011). Peer relationships and suicide ideation and attempts among Chinese adolescents. *Child: care, health, and development, 37*(5), 692-702.

Curtin, S., & Heron, M. (2019). Death rates due to suicide and homicide among persons aged 10-24: United States, 2000-2017. U.S. Department of Health and Human Services, CDC. https://www.cdc.gov/nchs/data/databriefs/db352-h.pdf

Davaji, R. B. O., Valizadeh, S., & Nikamal, M. (2010). The relationship between attachment styles and suicide ideation: the study of Turkmen students, Iran. *Procedia-Social and Behavioral Sciences, 5*, 1190-1194.

De Leo, D., & Heller, T. (2008). Social modeling in the transmission of suicidality. *Journal of Crisis Intervention & Suicide, 29*(1), 11-19.

Dube, S. R., Anda, R. F., Felitti, V. J., Chapman, D. P., Williamson, D. F., & Giles, W. H. (2001). Childhood abuse, household dysfunction, and the risk of attempted suicide throughout the life span. *The Journal of the American Medical Association, 286*(24), 3089-3096.

Fagan, A. A. (2005). The relationship between adolescent physical abuse and criminal offending: Support for an enduring and generalized cycle of violence. *Journal of Family Violence, 20*(5), 279-290.

Fergusson, D., Doucette, S., Glass, K. C., Shapiro, S., Healy, D., Hebert, P., & Hutton, B. (2005). Association between suicide attempts and selective serotonin reuptake inhibitors: Systematic review of randomized controlled trials. *British Medical Journal, 330*(7488), 330-396.

Fotti, S. A., Katz, L. Y., Afifi, T. O., & Cox, B. J. (2006). The associations between peer and parental relationships and suicidal behaviours in early adolescents. *The Canadian Journal of Psychiatry, 51*(11), 698-703.

Francis, K. A. (2014). General strain theory, gender, and the conditioning influence of negative internalizing emotions on youth risk behaviors. *Youth, Violence, and Juvenile Justice, 12*(1), 58-76.

Gao, Y., Wong, D. S. W., & Yu, Y. (2016). Maltreatment and delinquency in China: Examining and extending the intervening process of general strain theory. *International Journal of Offender Therapy & Comparative Criminology, 60*(1), 38-61.

Gini, G., & Espelage, D. (2014). Peer victimization, cyberbullying, and suicide risk in children and adolescents. *JAMA, 312*(5), 545-546.

Han, Z., Fu, M., Liu, C., & Guo, J. (2018). Bullying and suicidality in urban Chinese youth: The role of teacher-student relationships. *Cyber-psychology, Behavior, and Social Networking, 21*(5), 287-293.

Harris, T., & Molock, S. (2000). Cultural orientation, family cohesion, and family support in suicide ideation and depression among African American college students. *Suicide and Life-Trheatening Behavior, 30*(4), 341-353.

Hay, C., & Evans, M. M. (2006). Violent victimization and involvement in delinquency: Examining predictions from general strain theory. *Journal of Criminal Justice, 34*(3), 261-274.

Hay, C., & Meldrum, R. (2010). Bullying victimization and adolescent self-harm: Testing hypotheses from General Strain Theory. *Journal of*

Youth and Adolescence, 39(5), 446-459.

Hay, C., Meldrum, R., & Mann, K. (2010). Traditional bullying, cyber bullying, and deviance: A general strain theory approach. *Journal of Contemporary Criminal Justice, 26*(2), 130-147.

Heron, M. (2016). *Deaths: Leading causes for 2013*. National Vital Statistics Reports, Vol 65 No 2. Hyattsville, MD: National Center for Health Statistics.

Hewlett, E. & Moran, V. (2014). *Making Mental Health Count: The Social and Economic Costs of Neglecting Mental Health Care*, OECD Health Policy Studies. Paris, France: OECD Publishing.

Hinduja, S., & Patchin, J. (2010). Bullying, cyberbullying, and suicide. *Archives of Suicide Research, 14*(3), 206-221.

Hoffman, S., & Marsiglia, F. F. (2014). The impact of religiosity on suicidal ideation among youth in central Mexico. *Journal of religion and health, 53*(1), 255-266.

Hollist, D. R., Hughes, L. A., & Schaible, L. M. (2009). Adolescent maltreatment, negative emotion, and delinquency: An assessment of general strain theory and family based strain. *Journal of Criminal Justice, 37*(4), 379-387.

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal, 6*(1), 1-55.

Fuller-Thomson, E., Hamelin, G. P., & Granger, S. J. (2013). Suicidal ideation in a population-based sample of adolescents: Implications for family medicine practice. *ISRN family medicine, 2013*.

Jang, S. J. (2007). Gender differences in strain, negative emotions, and coping behaviors: A general strain theory approach. *Justice Quarterly, 24*(3), 523-553.

Jenkins, G. R., Hale, R., Papanastassiou, M., Crawford, M. J., & Tyrer, P. (2002). Suicide rate 22 years after parasuicide: Cohort study. *British Medical Journal, 325*(7373), 1155.

Kaufman, J. M. (2009). Gendered responses to serious strain: The argument for a general strain theory of deviance. *Justice Quarterly, 26*(3), 410-444.

Kim, H. S., Park, W. J., Park, K. R., & Kim, M. H. (2012). Interpersonal relationships and suicide probability among Korean adolescents. *Journal*

of Korean Academy of Psychiatric and Mental Health Nursing, 21, 11-20.

Kline, R. B. (2016). *Principles and practices of structural equation modeling* (4nd ed.). New York, NY: Guilford.

Klomek, A. B, Kleinman, M., Altschuler, E., Marrocco, F., Amakawa, L., & Gould, M. (2011). High school bullying as a risk for later depression and suicidality. *Suicide and Life-Threatening Behavior, 41*(5), 501-516.

Klonsky, E. D., May, A. M., & Saffer, B. Y. (2016). Suicide, suicide attempts, and suicidal ideation. *Annual Review of Clinical Psychology, 12*, 307-330.

Korea, S. (2017). *Cause of death statistics 2016*. Daejeon, Korea: Statistics Korea.

Lee, C. (2010). *A Study on the Prediction Factors of Youth Suicide*. Seosan, Korea: Hanseo University.

Lee, M., Kim, S., Park, J., & Shim, E. (2010). Factors of suicidal ideation and behavior: Social relationships and family. *Journal of the Korean Gerontology Society, 33,* 61-94.

Lester, D. (2002). Twin studies of suicidal behavior. *Archives of Suicide Research, 6*(4), 338-389.

Lin, W-H., Dembo, R., Sellers, C. S., Cochran, J., & Mieczkowski, T. (2014). Strain, negative emotions, and juvenile delinquency: The United States versus Taiwan. *International Journal of Offender Therapy and Comparative Criminology, 58*(4), 412-434.

Liu, R. X. (2006). Vulnerability to friends' suicide influence: The moderating effects of gender and adolescent depression. *Journal of Youth and Adolescence, 35*(3), 454-464.

Luoma, J. B., Martin, C. E., & Pearson, J. L. (2002). Contact with mental health and primary care providers before suicide: A review of the evidence. *American Journal of Psychiatry, 159*(6), 909-916.

Madjar, N., Walsh, S., & Harel-Fisch, Y. (2018). Suicidal ideation and behaviors within the school context: Perceived teacher, peer and parental support. *Psychiatry Research, 269,* 185-190.

Meade, A. W., Jonson, E. C., & Braddy, P. W. (2008). Power and sensitivity of alternative fit indices in tests of measurement invariance. *Journal of Applied Psychology, 93*, 568-592.

Merton, R. K. (1938). Social Structure and Anomie. *American Sociological Review, 3*(5), 672-682.

Meyer, R. E., Salzman, C., Youngstrom, E. A., Clayton, P. J., Goodwin, F. K., Mann, J. J., ... & Meltzer, H. Y. (2010). Suicidality and risk of suicide-definition, drug safety concerns, and a necessary target for drug development: A brief report. *Journal of Clinical Psychiatry, 71*(8), 1040-1046.

Moon, B., Hwang, H-W., & McCluskey, J. D. (2011). Causes of school bullying: Empirical test of a general theory of crime, differential association theory, and general strain theory. *Crime & Delinquency, 57*(6), 849-877.

Moon, B., Morash, M., McCluskey, C. P., & Hwang, H. W. (2009). A comprehensive test of general strain theory: Key strains, situational based emotions, trait based emotions and delinquency. *Journal of Research in Crime & Delinquency*, *46*(2), 182-212.

Moylan, C. A., Herrenkohl, T. I., Sousa, C., Tajima, E. A., Herrenkohl, R. C., & Russo, M. J. (2010). The effects of child abuse and exposure to domestic violence on adolescent internalizing and externalizing behavior problems. *Journal of Family Violence, 25*(1), 53-53.

O'Brien, R. M. (2007). A caution regarding rules of thumb for variance inflation factors. *Quality & Quantity, 41*(5), 673-690.

O'Keefe, M. (1996). The differential effects of family violence on adolescent adjustment. *Child and Adolescent Social Work Journal, 13*(1), 51-68.

Organization for Economic Cooperation and Development (OECD). (2014). *Suicide rates*. doi: 10.1787/a82f3459-en, Accessed on July 12, 2017.

Piquero, N. L., Fox, K., Piquero, A. R., Capowich, G., & Mazerolle, P. (2010). Gender, general strain theory, negative emotions, and disordered eating. *Journal of Youth and Adolescence, 39*(4), 380-392.

Rueter, M. A., & Kwon, H. K. (2005). Developmental trends in adolescent suicidal ideation. *Journal of Research on Adolescence, 15*(2), 205-222.

Schumacker, R. E., & Lomax, R. G. (1996). *A beginner guide to structural equation modeling*. Mahwah, NJ: Erlbaum.

Sewall, C., Goldstein, T., Salk, R., Merranko, J., Gill, M., Strober, M., Keller, M., Hafeman, D., Ryan, N., Yen, S., Hower, H., Liao, F., & Birmaher, B. (2019). Interpersonal relationships and suicidal ideation in youth with bipolar disorder. *Archives of Suicide Research 0*, 1-15.

Sigfusdottir, I. D., Asgeirsdottir, B. B., Gudjonsson, G. H., & Sigurdsson, J. F. (2008). A model of sexual abuse's effects on suicidal behavior and delinquency: The role of emotions as mediating factors. *Journal of Youth and Adolescence, 37,* 699-712.

Sigfusdottir, I. D., Asgeirdottir, B. B., Gudjonsson, G. H., & Sigurdsson, J. F. (2013). Suicidal ideations and attempts among adolescents subjected to childhood sexual abuse and family conflict/violence: The mediating role of anger and depressed mood. *Journal of Adolescence, 36*(3), 1227-1236.

Sigfusdottir, I. D., & Silver, E. (2009). Emotional reactions to stress among adolescent boys and girls: An examination of the mediating mechanisms proposed by general strain theory. *Youth & Society, 40*(4), 571-590.

Sisask, M., & Värnik, A. (2012). Media roles in suicide prevention: A systematic review. *International Journal of Environmental Research and Public Health, 9*(1), 123-138.

Stedman, T. L. (2000). *Stedman's medical dictionary* 27th edition. Philadelphia: Lippincott Williams & Wilkins.

Topol, P., & Reznikoff, M. (1982). Perceived peer and family relationships, hopelessness and locus of control as factors in adolescent suicide attempts. *Suicide and Life-Threatening Behavior, 12*(3), 141-150.

Värnik, P. (2012). Suicide in the World. *International Journal of Environmental Research and Public Health, 9*(3), 760-771.

Walls, M. L., Chapple, C. L., & Johnson, K. D. (2007). Strain, emotion, and suicide among American Indian youth. *Deviant Behavior, 28*(3), 219-246.

Wang, X. (2012). Media guidelines for the responsible reporting of suicide: A review of effectiveness. *Crisis: Journal of Crisis Intervention & Suicide, 33*(4), 190-198.

Wasserman, D., Cheng, Q., & Jiang, G. (2005). Global suicide rates among young people aged 15-19. *World Psychiatry, 4*(2), 114-120.

Watts, S. J., & McNulty, T. L. (2013). Childhood abuse and criminal behavior: testing a general strain theory model. *Journal of Interpersonal Violence, 28*(15), 3023-3040.

Woo, C. Y., & Kim, P. H. (2011). Multidimensional structure analysis of variables related to adolescents` suicidal ideation. *Korean Journal of*

Youth Studies, 18, 219-240.

Woo, C. Y., Park, A. C., & Jung, H. H. (2010). Structural relationship among human relations, stress, depression and suicidal ideation of adolescents by genders and level of school. *The Korean Journal of Educational Psychology, 24*, 19-38.

World Health Organization (WHO). (2014). *Preventing suicide: A global imperative*. Geneva, Switzerland: WHO. Retrieved from http://apps.who.int/iris/bitstream/10665/131056/1/9789241564779_eng.pdf?ua=1

Yun, M., Kim, E., & Morris, R. (2014). Gendered pathways to delinquency: An examination of general strain theory among South Korean youth. *Youth Violence and Juvenile Justice, 12*(3), 268-292.

Zhai, H., Bai, B., Chen, L., Han, D., Wang, L., Qiao, Z., ... & Yang, Y. (2015). Correlation between family environment and suicidal ideation in university students in China. *International Journal of Environmental Research and Public health, 12*(2), 1412-1424.