

Effects of Parenting Attitudes on the Suicide Risk of Adolescents in South Korea and the Moderating Effect of Out-Of-School Youth Status

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ABSTRACT

This study aimed to investigate the impact of parenting attitudes on the suicide risk of adolescents in South Korea, and to verify the moderating effect of out-of-school youth status. Utilising data from the Mental Health Survey of Korean Adolescents (2021), conducted by the National Youth Policy Institute, 5,937 school youths (SYs) and 752 out-of-school youths (OSYs) were selected for this study. Multiple regression analysis was used to analyse the relationship between parenting attitudes and the impact on the suicide risk of adolescents along with the moderating effect of OSY status. Parenting attitudes consisted of a total of six sub-types: warmth, autonomy support, structure, rejection, coercion, and chaos. The results showed that the parenting attitude of warmth, autonomy support, and rejection had a significant effect on the risk of suicide

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19 among the adolescents. The study also confirmed that OSY had a moderating effect related to the
20 parenting attitude types of structure, rejection and chaos. The result of this study filled the gap in
21 prior research which overlooked the moderating factor of OSY related to parent attitudes and the
22 suicide risk of adolescents. Some useful insights for practical and policy measures to reduce the
23 suicide risk of adolescents are suggested.

24 **Keywords:** parenting attitude; suicide risk, adolescent, out-of-school youth; moderating effect,
25

Impact Statement

This study addresses a critical issue in South Korea, where adolescent suicide rates are alarmingly high, especially among out-of-school youths (OSYs). By investigating the relationship between parenting attitudes and suicide risk among adolescents, the research provides valuable insights into the understanding of how different parenting styles influence suicidal tendencies. Furthermore, the study identifies the moderating role of OSY status, highlighting that OSYs are more vulnerable to negative parenting behaviors such as rejection and chaos, which significantly increase their suicide risk. On the other hand, positive parenting behaviors like structure can mitigate suicide risk more effectively among OSYs compared to school youths (SYs). We believe that these findings can contribute to the development of targeted interventions for both groups, suggesting that differentiated parenting education programs should be implemented to address the specialized and unique needs of OSYs. We also address that this study can support policy development aimed at providing mental health resources and crisis intervention, especially for those adolescents with a high-risk of suicide, particularly OSYs, as they often have insufficient access to institutional support systems.

I. INTRODUCTION

Suicide among adolescents is one of the major social problems worldwide. According to Keeley (2021), suicide is one of the top five causes of death among adolescents, and almost 46,000 adolescents die from suicide worldwide every year. South Korea (henceforth 'Korea'), the country with the highest rate of suicide among the Organization for Economic Cooperation and Development (OECD) member nations, shows a worrisome development in the problem of adolescent suicide. According to the Ministry of Health and Welfare (2023), as of 2020, the mean

50 rate of adolescent suicide mortality (per 100,000 population) in OECD member countries is 6.0,
51 while that of Korea is 11.7, which is almost double the OECD average, and ranks 3rd among
52 OECD member countries in adolescent suicide rate. In addition, for the last 10 consecutive years,
53 suicide has been the number one cause of death among Korean adolescents, and the number of
54 adolescents who took their own lives has been steadily increasing since 2017 (Department for
55 Women and Families, 2022), clearly showing the grave reality of suicide among adolescents.

56 Adolescence is a stage of human development in which the youths undergo psychological and
57 physical transition, and form and develop emotional stability and self-identity; adolescents are
58 easily exposed to various personal/family/environmental stressors, and managing and maintaining
59 a mentally healthy state poses a challenge in this period (Choi & Cho, 2016). During adolescence,
60 which is a period of cognitive immaturity and emotional instability before maturing into adulthood,
61 suicide is often viewed as a means of escaping from the difficulties or tribulation at hand rather
62 than a means of abandoning the will to live, making the adolescents susceptible to impulsive
63 suicidal ideation or behaviour (Lee et al., 2016). These characteristics of adolescents indicate that
64 proactive discussions and measures are needed to prevent the suicide of adolescents, which
65 comprised the motivation for conducting this study. In particular, this study focused on the teenage
66 years, when mental illness is reported to be concentrated, with those aged 10 to 19 being defined
67 as adolescents and selected as research subjects (National Human Rights Commission, 2018).

68 Parents are responsible for raising adolescents as they grow into adult members of society and
69 are the ones who have the most direct and significant influence on them. Therefore, the parenting
70 attitude of these parents, which encompasses the general attitude, behaviour, and thinking that
71 parents adopt while raising their children, serves as a predictor of delinquent behaviours of
72 adolescents (Kim & Han, 2014). This influence also applies to adolescents' suicide risk. Per the
73 reports of relevant previous studies, parental abuse and neglect were associated with suicidal
74 ideation in adolescents (Nilsen & Conner, 2003; Draper et al., 2008; Nelson & Galas; 2006;
75 Swogger et al., 2011; Jeong, 2021), and in the case of adolescents lacking support from their

76 parents, their relationship with parents had a direct impact on their suicidal ideation and suicidal
77 behaviour (Lewinsohn et al., 2001; Bostik & Everall, 2007; Woo et al., 2010). In addition,
78 adolescents who seriously thought about suicide attempts had lower parental support and more
79 severe parent-child conflict than those who did not have such suicidal thoughts (Wright, 1985);
80 moreover, physical and sexual childhood abuse from parents was reported to be closely related to
81 the suicide of adolescents (Esposito & Clum, 2002). These results of previous studies indicate that
82 the parenting attitude of the youths' parents is a major predictor of suicide risk in adolescents.

83 From the perspective of encouraging the motivation of adolescents, Skinner et al., (2005)
84 categorized the parenting attitudes into six sub-types: 'warmth, autonomy support, structure,
85 rejection, coercion, and chaos'. Warmth refers to the genuine caring, consideration, and emotional
86 support given to the child by the parents. Rejection is the conceptual opposite of warmth and refers
87 to parents showing indifference, hostility/aversion, and overt communication of negative feelings
88 such as criticism, derision, and irritability toward their children. Autonomy support refers to
89 primary caregivers or parents helping and supporting children in solving problems on their own
90 and making decisions and choices. Contrary to autonomy support, coercion shows key features
91 like authoritarian and autocratic parenting styles, and refers to suppressing the voices of children,
92 involving restrictive overcontrolling with rules and expectations set by parents. Structure refers to
93 the provision of clear goals, rules and expectations, and resources, including information such as
94 the predictability of desired or undesired outcomes and feedback; at home, the primary caregivers
95 or parents play the role of leaders. Chaos is the conceptual opposite of structure in which parents
96 show inconsistent behaviour and standards to their children depending on their moods or situations.
97 In addition, according to Self-Determination Theory (SDT), adolescence is a period in which three
98 psychological needs, namely autonomy, competence, and relatedness, are satisfied, and parental
99 parenting attitudes affect the satisfaction of these needs (Assor et al., 2004). Positive parenting
100 factors have a positive effect on the psychological development of adolescents by satisfying these
101 needs, while negative parenting attitudes are reported to significantly increase their emotional

instability (Vansteenkiste & Ryaam, 2013; Otterpohl et al., 2019). As can be seen from these six dimensions, parenting attitude is composed of conceptually opposite dimensions, but in terms of relations among these dimensions, trends show that warmth and rejection, which are opposing concepts, are both low or both high at the same time (Skinner et al., 2005), which points out to the need for comprehensive considerations of both positive parenting factors (warmth, autonomy support, structure) and negative parenting factors (rejection, coercion, chaos). However, existing literature investigating the relationship between parenting attitude and the suicide risk of adolescents has the limitation of not including such a comprehensive analysis (Jung & Seo, 2014; Kim & Kim, 2020; Donath et al., 2014; Darvishi et al., 2023). This study, therefore, aimed to examine parenting attitudes as a predictor of suicide risk among adolescents by categorizing them into six sub-types; warmth, autonomy support, structure, rejection, coercion and chaos.

In addition, gender (Beautrais et al., 2006; Jiang et al., 2010), age (Lee, 2018; Jeong et al., 2021), and household income level (Parker, 2021), which have been reported to influence adolescent suicide risk, were included as control variables to provide a clear understanding of the relationship between parenting attitude and adolescent suicide risk.

Out-of-school youths (OSYs) have a higher risk of suicide compared to school youths (SYs) as they are more likely to experience drug involvement, family strain, emotional distress, and exposure to violence (Thompson et al., 1994; Thompson & Eggert, 1999), and they have been reported to have higher frequency of suicidal ideation and suicide attempts (Daniel et al., 2006; Jeong, Park, & Kim, 2010). Furthermore, for school-age adolescents, school is generally the place where they spend most of their time during the day, and along with academic knowledge, they acquire skills of socialization through interpersonal relationships with different people, which cannot be learned at home (Shaffer, 2009). As a result, it is a place where the youths are greatly influenced by relationships with other people beyond their relationship with parents (Lee, 2008). However, OSYs spend relatively more time at home and are more influenced by their parents (Park & Yoon, 2021). Considering these aspects of OSYs, it is expected that OSY status will have a

128 moderating role between parenting attitudes and the suicide risk of adolescents. However, previous
129 studies related to adolescent suicide have mainly looked into cases of adolescents attending school
130 (Jung & Seo, 2014; Kim & Kim, 2020; Park & Yoon, 2021; Donath et al., 2014; Darvishi et al.,
131 2023). Moreover, previous studies have only included OSYs as participants (Daniel et al., 2006;
132 Szlyk, 2020; Jo et al., 2023; Lee & Lee, 2023); even if they included both SYs and OSYs, they
133 performed a simple comparison of how individual factors affect the suicide risk of adolescents
134 (Jeong et al., 2010; Kim, 2021). Thus, there have been few previous studies that examined and
135 verified the changes in suicide risk according to the SY/OSY status of adolescents.

136 This study aims to analyse the effect of parental parenting attitudes on the suicide risk of
137 adolescents and verify whether out-of-school youth (OSY) moderate this relationship. To this end,
138 parental parenting attitudes were classified into six types: warmth, autonomy support, structure
139 provision, rejection, coercion, and inconsistency. The effect on the suicide risk of adolescents was
140 evaluated, and the differences between school adolescents and out-of-school adolescents were
141 analyzed. The significance of this study is that it proposes practical intervention measures to reduce
142 the suicide risk of adolescents and provides basic data for parent education program and policy
143 support.

144

II. DATA AND METHODS

1. Research model

In this study, we aimed to investigate how parenting attitude affects the suicide risk of adolescents and examine whether OSY status has a moderating effect in this relationship. Figure 1 below shows the research model for this study including variables.

2. Data

The Mental Health Survey of Korean Adolescents (2021), collected by the National Youth Policy Institute, was used for this study. The data was aimed at collecting basic information of the major mental health problems experienced by adolescents in Korea and providing evidence for the development of government policies and programs related to the mental health of Korean adolescents. The original sample consisted of a total of 6,689 adolescents, including 5,937 school youths (SYs); 2,039 upper grades of elementary school students, 1,948 middle school students, and 1,950 high school students, and 752 OSYs. The SYs were extracted by stratified cluster sampling, and OSYs by convenience sampling. This study was a cross-sectional study that utilized data collected at a specific time. That is, the survey was conducted for the period of approximately one month from July to August 2021 and by means of a self-administered online survey. All research participants were given the consent form for the data collection and use of personal information, with only those adolescents who agreed to all consent matters being included in this study. In total, 5,937 SYs and 752 OSYs were selected as respondents for final analysis using the data of the Mental Health Survey of Korean Adolescents.

3. Variables

168 1) Dependent variable: suicide risk

169 The dependent variable in this study was suicide risk, and the Mental Health Screening Tool for
 170 Suicide Risk (MHS:S) developed by Yoon et al. (2020) was used as the tool for screening and
 171 assessment. The MHS:S consists of four questions on a five-point scale (never = 0, slightly true =
 172 1, true = 2, fairly true = 3, very true = 4). In this study, the average score of the four questions was
 173 used, and the higher the score, the higher the suicide risk. Cronbach's α of the suicide risk screening
 174 tool was .862.

175

176 2) Independent variables: parenting attitudes

177 The independent variables in this study were the types of parenting attitudes, and the Korean
 178 version of the Parents as Social Context Questionnaire for Adolescents (PSCQ_A), a scale
 179 developed by Skinner et al. (2005) with the application of a motivational model, was used, which
 180 was translated, adapted, and validated for Korean adolescents by Kim and Lee (2017). Parenting
 181 attitudes consists of a total of six types; warmth, autonomy support, structure, rejection, coercion,
 182 and chaos, with 24 questions in total. Among these dimensions, higher scores for warmth,
 183 autonomy support, and structure indicate a higher level of positive parenting attitude, whereas
 184 higher scores for rejection, coercion, and chaos indicate a higher level of negative parenting
 185 attitude. Parenting attitude was assessed on a four-point scale (Never = 1, Rarely = 2, Somewhat
 186 = 3, Very much = 4). For parenting attitudes, the average score for each dimension was used. As
 187 for the scale, Cronbach's α for parenting attitudes was .784, and by dimension, Cronbach's α
 188 was .940 for warmth, .922 for autonomy support, .856 for structure, .794 for rejection, .806 for
 189 coercion, and .830 for chaos.

190

191 3) Moderator variable: out-of-school youth status

192 The moderator variable was OSY status, with SY set to 0 and OSY set to 1.

193

194 4) Control variables

195 The control variables used in this study are gender (male=0, female=1), age (middle school
196 age or under=0, high school age=1), and household income level (set from 1 to 7 points, Very
197 low=1, Average=4, Very high=7).

198

199 4. Statistical analysis

200 For data analysis, Stata 15.0 SE was used. Frequency analysis was conducted for analysis of
201 the sociodemographic characteristics of the participants. An independent t-test was conducted to
202 test the differences in key variables according to OSY status. Through multiple regression
203 analysis, the impact of parenting attitude on the suicide risk of adolescents and the moderating
204 effect of OSY status were assessed.

205

III. Results

206 1. Sociodemographic characteristics of participants

207 Upon examining the socio-demographic characteristics of the participants, 3,343 (50.0%)
208 adolescents were male and 3,346 (50.0%) were female; by age, 4,060 (60.7%) respondents were
209 in the middle school age or under, and 2,629 (39.3%) were in the high school age, confirming
210 that there were more respondents who were in the middle school age or under than in the high
211 school age. By household income level, those who answered 'average' accounted for the highest
212 number at 2,989 respondents (44.7%), and there were more adolescents with above-average
213 household income levels than those with below-average household income levels.

214

2. Differences in key variables by OSY status

For testing the differences in key variables depending on the OSY status, an independent t-test was performed (See Table 2). The differences were revealed as follows: the student adolescents were shown to have warmth ($M=3.44$, $SD=.66$), autonomy support ($M=3.42$, $SD=.64$), structure provision ($M=3.07$, $SD=.68$), rejection ($M=1.54$, $SD=.62$), coercion ($M=1.90$, $SD=.69$), inconsistency ($M=1.78$, $SD=.68$), and suicidal tendencies ($M=.13$, $SD=.42$). The out-of-school adolescents were found to have warmth ($M=3.15$, $SD=.80$), autonomy support ($M=3.19$, $SD=.78$), structure provision ($M=2.83$, $SD=.80$), rejection ($M=1.71$, $SD=.73$), coercion ($M=1.99$, $SD=.77$), inconsistency ($M=1.96$, $SD=.78$), and suicidal tendencies ($M=.46$, $SD=.87$). The analysis results showed that the parenting attitude types of warmth ($p<.001$), autonomy support ($p<.001$), structure ($p<.001$), rejection ($p<.001$), coercion ($p<.01$), and chaos ($p<.001$), and suicide risk ($p<.001$) all showed statistically significant differences. The parenting attitude types of warmth, autonomy support, and structure were significantly higher in SYs than in OSYs, whereas the types of rejection, coercion, and chaos were significantly higher in OSYs than in SYs. The suicide risk was also significantly higher in OSYs than in SYs.

3. Model Analysis

The results of the analysis on the moderating effect of OSY status in the relationship between parenting attitude and suicide risk of adolescents are presented in Table 3. The power for suicide risk was 16.2% ($R^2=.162$), and the regression equation was statistically significant ($F=80.710$, $p<.001$). As a result of analysing the relationship between key variables, among the control variables, gender (Coef=.082, $p<.001$) had a significant effect on suicide risk. That is, the suicide risk was significantly higher in women than in men.

239 Among independent variables that included dimensions of parenting attitude, warmth
 240 (Coef. = -.066, $p < .001$), autonomy support (Coef. = -.043, $p < .01$), and rejection (Coef. = .104, $p < .001$)
 241 were shown to have a significant effect on the suicide risk of adolescents. That is, with lower warmth
 242 and autonomy support or with higher rejection, the suicide risk increased. On the other hand,
 243 structure, coercion, and chaos involved the dimensions of parenting attitude that did not have a
 244 significant impact on suicide risk.

245 Furthermore, the results of the analysis showed that OSY status, a moderator variable, did not
 246 have a significant effect on the suicide risk. In the case of interaction terms, structure \times OSY
 247 status (Coef. = -.108, $p < .01$), rejection \times OSY status (Coef. = .152, $p < .001$), and chaos \times OSY
 248 status (Coef. = .099, $p < .01$) had a significant effect on the suicide risk. That is, among the types
 249 of parenting attitudes, the moderating effect of OSY status was confirmed to be significant in the
 250 relationships between structure, rejection, chaos, and suicide risk. On the other hand, for the other
 251 types of parenting attitude, the moderating effect of OSY status was confirmed to be non-
 252 significant, as can be seen in the relationships between warmth, autonomy support, coercion, and
 253 suicide risk.

254 The specific trend in the moderating effect of OSY status in the relationship between structure
 255 among parenting attitude and suicide risk is presented in Figure 2. The graphical presentation
 256 confirmed that the suicide risk decreased more rapidly with increasing structure in the case of
 257 OSYs than in SYs.

258 The specific trend in the moderating effect of OSY status in the relationship between rejection
 259 among parenting attitudes and suicide risk is presented in Figure 3. The graphical presentation
 260 confirmed that the suicide risk increased more rapidly with increasing rejection in the case of
 261 OSYs than in SYs.

262 The specific trend in the moderating effect of OSY status in the relationship between chaos
 263 among parenting attitudes and suicide risk is presented in Figure 4. The graphical presentation
 264 confirmed that the suicide risk increased more rapidly with increasing rejection in the case of

265 OSYs than in SYs.

266

267 IV. CONCLUSION AND SUGGESTIONS

268 The purpose of this study was to examine and verify the moderating effect of OSY status in
269 the effect of parenting attitudes on the suicide risk of adolescents. To this end, a total of 5,937
270 SYs and 752 OSYs were analysed using the data from the Mental Health Survey of Korean
271 Adolescents conducted by the National Youth Policy Institute.

272 The analysis results were as follows: First, in terms of the differences in key variables, among
273 types of parenting attitudes, warmth, autonomy support, and structure were significantly higher
274 in SYs, while rejection, coercion, chaos, and suicide risk were significantly higher in OSYs.
275 Previous studies using the same scale as this study also reported that negative parenting attitude
276 has a direct effect on juvenile delinquency (Kim et al., 2023; Baek, 2022). Moreover, the results
277 indicated that there is a necessity for differentiated measures of interventions for the OSY
278 population, as they have a higher likelihood of exposure to suicide risk factors (Lee & Lee, 2023;
279 Chung et al., 2010).

280 Second, in the relationship between key variables and suicide risk, female adolescents had a
281 higher suicide risk than male adolescents. The results support the findings of previous studies
282 showing that female adolescents are more vulnerable to the problem of suicide (Kim & Hong,
283 2012; Beautrais et al., 2006). In terms of the dimensions of parenting attitude, the lower the
284 warmth, the lower the autonomy support, and the higher the rejection, the higher the suicide risk
285 of adolescents. This finding supports the reports from some of the previous studies that
286 emphasized the importance of parenting attitude as a predictor of suicide risk (Choi & Kim,
287 2019; Choi & Cho, 2016; Kim & Han, 2014; Wright, 1985; Hollis, 1996), which indicates that
288 measures with emphasis on primary environmental conditions/factors need to be established.

289 Third, the moderating effect of OSY status was confirmed in the relationship between
290 parenting attitude and suicide risk. Looking into the individual types of parenting attitude, the
291 higher the structure among parenting attitude, the more the suicide risk of OSYs decreased
292 compared to that of SYs. In addition, with the parenting attitudes of increasing rejection and
293 chaos, the suicide risk of OSYs increased more rapidly than that of Sys. These results were
294 significant in that the findings supplemented the limitations of previous studies that mainly
295 focused on SYs (Kim et al., 2023; Lee & Lee, 2023) or those studies that analysed SYs and
296 OSYs separately (Chung et al., 2010); they revealed specific factors that showed differences per
297 the characteristics of SY and OSY populations.

298 The suggestions based on the above results of this study are as follows: First, programs for
299 parenting attitude education need to be developed to reduce the suicide risk of adolescents.
300 Considering that one of the reasons for the increase in the Korean adolescent suicide rate to 2.7
301 per 100,000 population involves factors of the home/family environment, such as parental
302 attitudes, behaviour, and thinking (Korea Disease Control and Prevention Agency, 2022; Kim &
303 Han, 2014), development of education programs for parents will serve as an effective measure
304 for primary prevention of adolescent suicide. From the results of this study, among the
305 dimensions of parenting attitude, warmth, autonomy support, and rejection were shown to be
306 important predictors of suicide risk in adolescents. Thus, the significant contribution of this study
307 lies in that analysis was made for sub-types of parenting attitudes, unlike the approaches in
308 existing studies. That is, the findings indicate that it is necessary to implement a program that
309 takes into account warmth, autonomy support, and rejection in parenting attitude education for
310 parents of adolescents at risk of suicide and to emphasize the direction of the appropriate
311 parenting attitude. Recently, in Korea, policy support for crisis intervention programs for
312 adolescents at high risk of suicide/self-harm has been expanded, such as an “Intensive
313 Psychological Clinic for High-risk Adolescents.” (Lee & Lee, 2023). Through a comprehensive
314 psychological assessment by experts, measures for a rapid initial response and intervention for

adolescents at high risk of suicide have been prepared, but counselling programs for parents and follow-up management services are still in the early stages (Kim & Han, 2014). Furthermore, not establishing systems for examining underlying factors to reduce the risk of adolescents' suicide can be viewed as a limitation, since previous education programs on the issue of adolescent suicide have mainly covered parenting attitudes such as abuse and neglect (Park, 2014). Therefore, the development of parent education programs enabling the enhancement of warmth and autonomy support and reduction of rejection among parenting attitude types is expected to have a positive effect on reducing suicide risk among adolescents.

Second, strategies and measures for suicide prevention intervention for OSYs need to be established at the governmental level. The results of this study showed that there was a moderating effect of OSY status in the relationship between structure, rejection, chaos, and suicide risk, among parenting attitudes. OSYs, who spend most of their time at home, are not only relatively more influenced by their parents (Lee & Lee, 2023), but also are left with an environment with more difficulties in access to institutional education compared to SYs. Thus, different environmental characteristics between different adolescent populations may show different patterns in terms of the expression of suicidal thoughts/behaviour; moreover, considering the suicide rate of OSYs not counted in official statistics, the actual rate of adolescent suicide may be even higher.

Recently, organizations and institutions related to adolescents are making attempts to run outreach programs to provide early interventions for OSYs at risk of suicide, but guidelines for crisis responses have not been prepared. To this end, direct support and services for OSY suicide prevention should be linked at the governmental level, and guidelines for early intervention should be established. As shown in the results of this study, among the types of parenting attitudes of structure, rejection, and chaos were associated with the suicide risk of OSYs, and there can be a difference in the influence of parenting attitude factors on the suicide risk between SYs and OSYs. Therefore, the dissemination of education programs for parenting attitudes

341 focusing on structure, rejection, and chaos will provide direct and practical help in providing
342 differentiated interventions for OSYs.

343

344 *Limitations of the study*

345 Due to the nature of secondary data used in this study, there were limitations in using a variety
346 of control variables, and age groups could not be categorized further. That is, in the data of the
347 Mental Health Survey of Korean Adolescents used in this study, there were no variables other
348 than gender, age, and household income level that could be used as control variables. In addition,
349 age was categorized only into middle school age or under and high school age. Accordingly, it
350 is expected that in future follow-up studies, if more diverse control variables can be used and age
351 data becomes available as a continuous variable, the results will provide clearer insights into a
352 variety of factors or variables influencing adolescent suicide risk. In addition, since the exact size
353 of out-of-school youth, one of the subjects of this study, was unable to be estimated, it was
354 difficult to identify the population, and thus, random sampling was unable to be conducted as
355 with school youth. This inevitably led to limitations in the representativeness, bias, and
356 comparability of the sample. It was thus expected that follow-up studies would clearly identify
357 the population of out-of-school youth so that there are no problems with the representativeness
358 and comparison of the sample through random sampling.

359 **Author Contribution Statement** Kyu-Hyoung Jeong constructed the research model and
360 wrote the research methods and results Sung-Hee Lee was responsible for the translation and
361 final review of the paper. A-Ran Park wrote the conclusions based on the findings Do-Hun Song
362 wrote the introduction and edited the manuscript. All authors reviewed and approved the final
363 version of the manuscript.

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368 **Ethics Statement** All methods were performed in accordance with the Declaration of
 369 Helsinki. This report was exempted from approval by the institutional review boards (IRB) of
 370 the Clinical Research Ethics Committee of Jeonbuk national University (IRB number: JBNU
 371 2024-03-021). Every participant gave a written consent prior to their participation in the study

372 **Data Availability** The data that support the findings of this study are openly available at
 373 <https://www.nypi.re.kr/archive/mps>

374

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- 530
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532 **Tables**

533 Table 1. Sociodemographic characteristics of participants (N=6,689)

| | Variables | N | % |
|------------------------|----------------------------|-------|------|
| Gender | Male | 3,343 | 50.0 |
| | Female | 3,346 | 50.0 |
| Age | Middle school age or under | 4,060 | 60.7 |
| | High school age | 2,629 | 39.3 |
| Household income level | 1 Very low | 32 | 0.5 |
| | 2 | 174 | 2.6 |
| | 3 | 528 | 7.9 |
| | 4 Average | 2,989 | 44.7 |
| | 5 | 1,620 | 24.2 |
| | 6 | 890 | 13.3 |
| | 7 Very high | 457 | 6.8 |

534 Note: N=numbers, %=percentage

535

536 Table 2. Differences in key variables by OSY status (N=6,689)

| Variables | Total | | SYs (N=5,937) | | OSYs (N=752) | | t(sig.) | |
|--------------------|------------------|------|---------------|------|--------------|------|---------|------------|
| | M | SD | M | SD | M | SD | | |
| Parenting attitude | Warmth | 3.40 | .68 | 3.44 | .66 | 3.15 | .80 | 9.237*** |
| | Autonomy support | 3.40 | .66 | 3.42 | .64 | 3.19 | .78 | 7.876*** |
| | Structure | 3.04 | .70 | 3.07 | .68 | 2.83 | .80 | 7.752*** |
| | Rejection | 1.56 | .64 | 1.54 | .62 | 1.71 | .73 | -5.895*** |
| | Coercion | 1.91 | .70 | 1.90 | .69 | 1.99 | .77 | -2.980** |
| | Chaos | 1.80 | .69 | 1.78 | .68 | 1.96 | .78 | -6.089*** |
| Suicide risk | | .16 | .50 | .13 | .42 | .46 | .87 | -10.266*** |

537 * $p < .05$, ** $p < .01$, *** $p < .001$

538

539 Table 3. Impact of parenting attitude of adolescents on the suicide risk and moderating effect of
 540 OSY status

| | Variables | Coef. | S.E. |
|-----------------------|---------------------------------------|-----------|------|
| | Constant | .357 | .058 |
| Control variable | Gender(ref. male) | .082*** | .011 |
| | Age (ref. middle school age or under) | -.013 | .013 |
| | Household income level | -.009 | .005 |
| Independent variables | Warmth (A) | -.066*** | .015 |
| | Autonomy support (B) | -.043** | .016 |
| | Structure (C) | -.019 | .012 |
| | Rejection (D) | .104*** | .012 |
| | Coercion (E) | .014 | .012 |
| | Chaos (F) | .018 | .012 |
| Moderator variable | OSY status (G) | .099 | .128 |
| Interactions | A × G | .065 | .041 |
| | B × G | -.050 | .043 |
| | C × G | -.108** | .033 |
| | D × G | .152*** | .032 |
| | E × G | -.014 | .034 |
| | F × G | .099** | .033 |
| | R ² | .162 | |
| | F (sig.) | 80.710*** | |

541 * $p < .05$, ** $p < .01$, *** $p < .001$

Figure captions

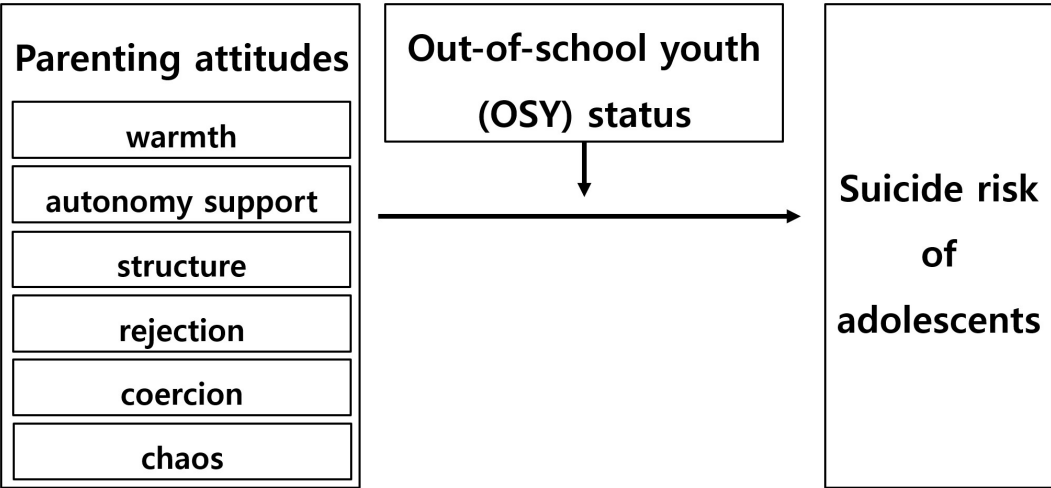


Fig 1. The study model

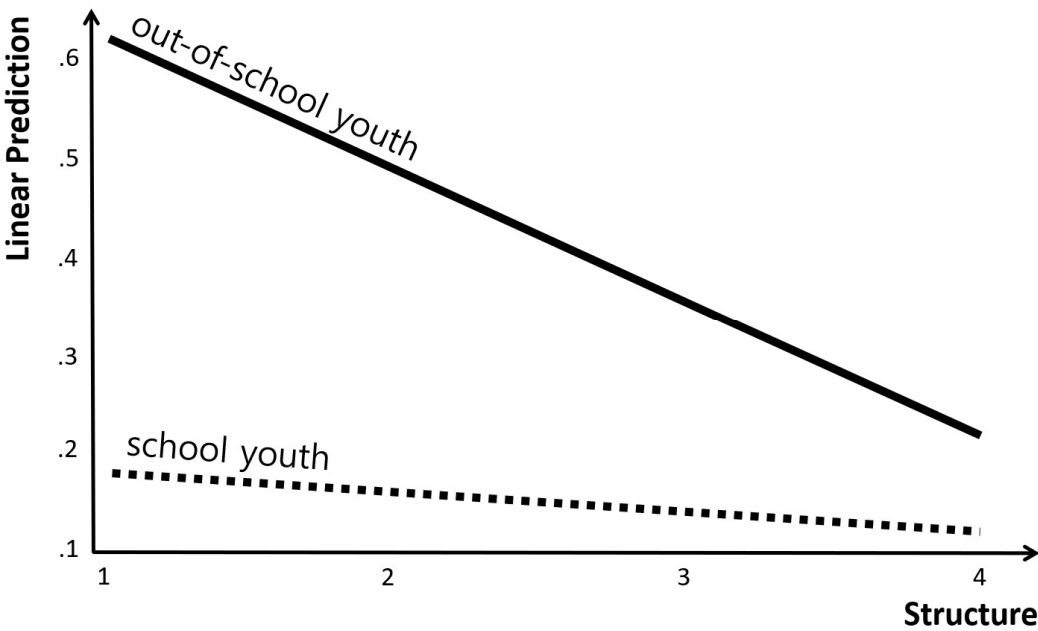
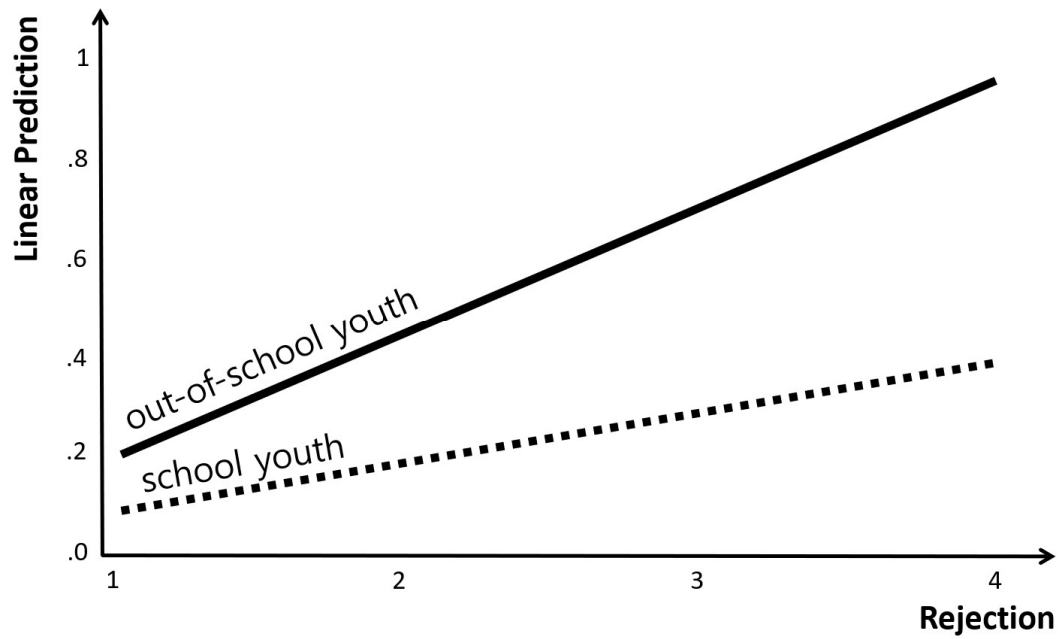


Fig 2. Analysis of interactions: structure \times out-of-school youth status



548
549 Fig 3. Analysis of interactions: rejection \times out-of-school youth status

550



551
552 Fig 4. Analysis of interactions: chaos \times out-of-school youth status