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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- 9 ABSTRACT

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10 This study aimed to investigate the impact of parenting attitudes on the suicide risk of 11 adolescents in South Korea, and to verify the moderating effect of out-of-school youth status. 12 Utilising data from the Mental Health Survey of Korean Adolescents (2021), conducted by the 13 National Youth Policy Institute, 5,937 school youths (SYs) and 752 out-of-school youths (OSYs) 14 were selected for this study. Multiple regression analysis was used to analyse the relationship 15 between parenting attitudes and the impact on the suicide risk of adolescents along with the 16 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 17 18 attitude of warmth, autonomy support, and rejection had a significant effect on the risk of suicide 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,

26 Impact Statement

27 This study addresses a critical issue in South Korea, where adolescent suicide rates are 28 alarmingly high, especially among out-of-school youths (OSYs). By investigating the 29 relationship between parenting attitudes and suicide risk among adolescents, the research 30 provides valuable insights into the understanding of how different parenting styles influence 31 suicidal tendencies. Furthermore, the study identifies the moderating role of OSY status, 32 highlighting that OSYs are more vulnerable to negative parenting behaviors such as 33 rejection and chaos, which significantly increase their suicide risk. On the other hand, 34 positive parenting behaviors like structure can mitigate suicide risk more effectively among 35 OSYs compared to school youths (SYs). We believe that these findings can contribute to the 36 development of targeted interventions for both groups, suggesting that differentiated 37 parenting education programs should be implemented to address the specialized and unique 38 needs of OSYs. We also address that this study can support policy development aimed at 39 providing mental health resources and crisis intervention, especially for those adolescents 40 with a high-risk of suicide, particularly OSYs, as they often have insufficient access to 41 institutional support systems.

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I. INTRODUCTION

45 Suicide among adolescents is one of the major social problems worldwide. According to Keeley 46 (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 47 48 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 49 50 adolescent suicide. According to the Ministry of Health and Welfare (2023), as of 2020, the mean 51 rate of adolescent suicide mortality (per 100,000 population) in OECD member countries is 6.0, 52 while that of Korea is 11.7, which is almost double the OECD average, and ranks 3rd among 53 OECD member countries in adolescent suicide rate. In addition, for the last 10 consecutive years, 54 suicide has been the number one cause of death among Korean adolescents, and the number of 55 adolescents who took their own lives has been steadily increasing since 2017 (Department for 56 Women and Families, 2022), clearly showing the grave reality of suicide among adolescents.

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

as adolescents and selected as research subjects (National Human Rights Commission, 2018).

69 Parents are responsible for raising adolescents as they grow into adult members of society and 70 are the ones who have the most direct and significant influence on them. Therefore, the parenting 71 attitude of these parents, which encompasses the general attitude, behaviour, and thinking that 72 parents adopt while raising their children, serves as a predictor of delinquent behaviours of 73 adolescents (Kim & Han, 2014). This influence also applies to adolescents' suicide risk. Per the 74 reports of relevant previous studies, parental abuse and neglect were associated with suicidal 75 ideation in adolescents (Nilsen & Conner, 2003; Draper et al., 2008; Nelson & Galas; 2006; 76 Swogger et al., 2011; Jeong, 2021), and in the case of adolescents lacking support from their 77 parents, their relationship with parents had a direct impact on their suicidal ideation and suicidal 78 behaviour (Lewinsohn et al., 2001; Bostik & Everall, 2007; Woo et al., 2010). In addition, adolescents who seriously thought about suicide attempts had lower parental support and more 79 80 severe parent-child conflict than those who did not have such suicidal thoughts (Wright, 1985); 81 moreover, physical and sexual childhood abuse from parents was reported to be closely related to 82 the suicide of adolescents (Esposito & Clum, 2002). These results of previous studies indicate that 83 the parenting attitude of the youths' parents is a major predictor of suicide risk in adolescents.

84 From the perspective of encouraging the motivation of adolescents, Skinner et al., (2005) 85 categorized the parenting attitudes into six sub-types: 'warmth, autonomy support, structure, 86 rejection, coercion, and chaos'. Warmth refers to the genuine caring, consideration, and emotional 87 support given to the child by the parents. Rejection is the conceptual opposite of warmth and refers 88 to parents showing indifference, hostility/aversion, and overt communication of negative feelings 89 such as criticism, derision, and irritability toward their children. Autonomy support refers to 90 primary caregivers or parents helping and supporting children in solving problems on their own 91 and making decisions and choices. Contrary to autonomy support, coercion shows key features 92 like authoritarian and autocratic parenting styles, and refers to suppressing the voices of children, 93 involving restrictive overcontrolling with rules and expectations set by parents. Structure refers to

94 the provision of clear goals, rules and expectations, and resources, including information such as 95 the predictability of desired or undesired outcomes and feedback; at home, the primary caregivers 96 or parents play the role of leaders. Chaos is the conceptual opposite of structure in which parents 97 show inconsistent behaviour and standards to their children depending on their moods or situations. 98 In addition, according to Self-Determination Theory (SDT), adolescence is a period in which three 99 psychological needs, namely autonomy, competence, and relatedness, are satisfied, and parental 100 parenting attitudes affect the satisfaction of these needs (Assor et al., 2004). Positive parenting 101 factors have a positive effect on the psychological development of adolescents by satisfying these 102 needs, while negative parenting attitudes are reported to significantly increase their emotional 103 instability (Vansteenkiste & Ryaam, 2013; Otterpohl et al., 2019). As can be seen from these six 104 dimensions, parenting attitude is composed of conceptually opposite dimensions, but in terms of 105 relations among these dimensions, trends show that warmth and rejection, which are opposing 106 concepts, are both low or both high at the same time (Skinner et al., 2005), which points out to the 107 need for comprehensive considerations of both positive parenting factors (warmth, autonomy 108 support, structure) and negative parenting factors (rejection, coercion, chaos). However, existing 109 literature investigating the relationship between parenting attitude and the suicide risk of 110 adolescents has the limitation of not including such a comprehensive analysis (Jung & Seo, 2014; 111 Kim & Kim, 2020; Donath et al., 2014; Darvishi et al., 2023). This study, therefore, aimed to 112 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. 113

In addition, gender (Beautraits 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.

118 Out-of-school youths (OSYs) have a higher risk of suicide compared to school youths (SYs) as 119 they are more likely to experience drug involvement, family strain, emotional distress, and 120 exposure to violence (Thompson et al., 1994; Thompson & Eggert, 1999), and they have been 121 reported to have higher frequency of suicidal ideation and suicide attempts (Daniel et al., 2006; 122 Jeong, Park, & Kim, 2010). Furthermore, for school-age adolescents, school is generally the place 123 where they spend most of their time during the day, and along with academic knowledge, they 124 acquire skills of socialization through interpersonal relationships with different people, which 125 cannot be learned at home(Shaffer, 2009). As a result, it is a place where the youths are greatly 126 influenced by relationships with other people beyond their relationship with parents (Lee, 2008). 127 However, OSYs spend relatively more time at home and are more influenced by their parents (Park 128 & Yoon, 2021). Considering these aspects of OSYs, it is expected that OSY status will have a 129 moderating role between parenting attitudes and the suicide risk of adolescents. However, previous 130 studies related to adolescent suicide have mainly looked into cases of adolescents attending school 131 (Jung & Seo, 2014; Kim & Kim, 2020; Park & Yoon, 2021; Donath et al., 2014; Darvishi et al., 132 2023). Moreover, previous studies have only included OSYs as participants (Daniel et al., 2006; 133 Szlyk, 2020; Jo et al., 2023; Lee & Lee, 2023); even if they included both SYs and OSYs, they 134 performed a simple comparison of how individual factors affect the suicide risk of adolescents 135 (Jeong et al., 2010; Kim, 2021). Thus, there have been few previous studies that examined and 136 verified the changes in suicide risk according to the SY/OSY status of adolescents.

137 This study aims to analyse the effect of parental parenting attitudes on the suicide risk of adolescents and verify whether out-of-school youth (OSY) moderate this relationship. To this end, 138 139 parential parenting attitudes were classified into six types: warmth, autonomy support, structure 140 provision, rejection, coercion, and inconsistency. The effect on the suicide risk of adolescents was 141 evaluated, and the differences between school adolescents and out-of-school adolescents were 142 analyzed. The significance of this study is that it proposes practical intervention measures to reduce 143 the suicide risk of adolescents and provides basic data for parent education program and policy 144 support.

II. DATA AND METHODS

147 1. Research model

148 In this study, we aimed to investigate how parenting attitude affects the suicide risk of 149 adolescents and examine whether OSY status has a moderating effect in this relationship. Figure 150 1 below shows the research model for this study including variables.

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152 2. Data

153 The Mental Health Survey of Korean Adolescents (2021), collected by the National Youth 154 Policy Institute, was used for this study. The data was aimed at collecting basic information of 155 the major mental health problems experienced by adolescents in Korea and providing evidence 156 for the development of government policies and programs related to the mental health of Korean 157 adolescents. The original sample consisted of a total of 6,689 adolescents, including 5,937 school 158 youths (SYs); 2,039 upper grades of elementary school students, 1,948 middle school students, 159 and 1,950 high school students, and 752 OSYs. The SYs were extracted by stratified cluster 160 sampling, and OSYs by convenience sampling. This study was a cross-sectional study that 161 utilized data collected at a specific time. That is, the survey was conducted for the period of 162 approximately one month from July to August 2021 and by means of a self-administered online 163 survey. All research participants were given the consent form for the data collection and use of 164 personal information, with only those adolescents who agreed to all consent matters being 165 included in this study. In total, 5,937 SYs and 752 OSYs were selected as respondents for final 166 analysis using the data of the Mental Health Survey of Korean Adolescents.

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168 3. Variables

169 1) Dependent variable: suicide risk

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

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177 2) Independent variables: parenting attitudes

178 The independent variables in this study were the types of parenting attitudes, and the Korean 179 version of the Parents as Social Context Questionnaire for Adolescents (PSCQ A), a scale 180 developed by Skinner et al. (2005) with the application of a motivational model, was used, which 181 was translated, adapted, and validated for Korean adolescents by Kim and Lee (2017). Parenting 182 attitudes consists of a total of six types; warmth, autonomy support, structure, rejection, coercion, 183 and chaos, with 24 questions in total. Among these dimensions, higher scores for warmth, 184 autonomy support, and structure indicate a higher level of positive parenting attitude, whereas 185 higher scores for rejection, coercion, and chaos indicate a higher level of negative parenting 186 attitude. Parenting attitude was assessed on a four-point scale (Never = 1, Rarely = 2, Somewhat 187 = 3, Very much = 4). For parenting attitudes, the average score for each dimension was used. As 188 for the scale, Cronbach's α for parenting attitudes was .784, and by dimension, Cronbach's α 189 was .940 for warmth, .922 for autonomy support, .856 for structure, .794 for rejection, .806 for 190 coercion, and .830 for chaos.

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

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

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195 4) Control variables

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

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200 4. Statistical analysis

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

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III. Results

207 1. Sociodemographic characteristics of participants

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

216 2. Differences in key variables by OSY status

217 For testing the differences in key variables depending on the OSY status, an independent 218 t-test was performed (See Table 2). The differences were revealed as follows: the student 219 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 220 221 (M=1.90, SD=.69), inconsistency (M=1.78, SD=.68), and suicidal tendencies (M=.13, 222 SD=.42). The out-of-school adolescents were found to have warmth (M=3.15, SD=.80), 223 autonomy support (M=3.19, SD=.78), structure provision (M=2.83, SD=.80), rejection 224 (M=1.71, SD=.73), coercion (M=1.99, SD=.77), inconsistency (M=1.96, SD=.78), and 225 suicidal tendencies (M=.46, SD=.87). The analysis results showed that the parenting 226 attitude types of warmth ($p \le .001$), autonomy support ($p \le .001$), structure ($p \le .001$), rejection 227 $(p \le .001)$, coercion $(p \le .01)$, and chaos $(p \le .001)$, and suicide risk $(p \le .001)$ all showed 228 statistically significant differences. The parenting attitude types of warmth, autonomy 229 support, and structure were significantly higher in SYs than in OSYs, whereas the types of 230 rejection, coercion, and chaos were significantly higher in OSYs than in SYs. The suicide 231 risk was also significantly higher in OSYs than in SYs.

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

246 Furthermore, the results of the analysis showed that OSY status, a moderator variable, did not 247 have a significant effect on the suicide risk. In the case of interaction terms, structure \times OSY 248 status (Coef.=-.108, p<.01), rejection × OSY status (Coef.=.152, p<.001), and chaos × OSY 249 status (Coef.=.099, p<.01) had a significant effect on the suicide risk. That is, among the types 250 of parenting attitudes, the moderating effect of OSY status was confirmed to be significant in the 251 relationships between structure, rejection, chaos, and suicide risk. On the other hand, for the other 252 types of parenting attitude, the moderating effect of OSY status was confirmed to be non-253 significant, as can be seen in the relationships between warmth, autonomy support, coercion, and 254 suicide risk.

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

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

The specific trend in the moderating effect of OSY status in the relationship between chaos among parenting attitudes and suicide risk is presented in Figure 4. The graphical presentation confirmed that the suicide risk increased more rapidly with increasing rejection in the case of 266 OSYs than in SYs.

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IV. CONCLUSION AND SUGGESTIONS

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

273 The analysis results were as follows: First, in terms of the differences in key variables, among 274 types of parenting attitudes, warmth, autonomy support, and structure were significantly higher 275 in SYs, while rejection, coercion, chaos, and suicide risk were significantly higher in OSYs. 276 Previous studies using the same scale as this study also reported that negative parenting attitude 277 has a direct effect on juvenile delinquency (Kim et al., 2023; Baek, 2022). Moreover, the results 278 indicated that there is a necessity for differentiated measures of interventions for the OSY 279 population, as they have a higher likelihood of exposure to suicide risk factors (Lee & Lee, 2023; 280 Chung et al., 2010).

281 Second, in the relationship between key variables and suicide risk, female adolescents had a 282 higher suicide risk than male adolescents. The results support the findings of previous studies 283 showing that female adolescents are more vulnerable to the problem of suicide (Kim & Hong, 284 2012; Beautraits et al., 2006). In terms of the dimensions of parenting attitude, the lower the 285 warmth, the lower the autonomy support, and the higher the rejection, the higher the suicide risk 286 of adolescents. This finding supports the reports from some of the previous studies that 287 emphasized the importance of parenting attitude as a predictor of suicide risk (Choi & Kim, 288 2019; Choi & Cho, 2016; Kim & Han, 2014; Wright, 1985; Hollis, 1996), which indicates that 289 measures with emphasis on primary environmental conditions/factors need to be established.

Third, the moderating effect of OSY status was confirmed in the relationship between 290 291 parenting attitude and suicide risk. Looking into the individual types of parenting attitude, the 292 higher the structure among parenting attitude, the more the suicide risk of OSYs decreased 293 compared to that of SYs. In addition, with the parenting attitudes of increasing rejection and 294 chaos, the suicide risk of OSYs increased more rapidly than that of Sys. These results were 295 significant in that the findings supplemented the limitations of previous studies that mainly 296 focused on SYs (Kim et al., 2023; Lee & Lee, 2023) or those studies that analysed SYs and 297 OSYs separately (Chung et al., 2010); they revealed specific factors that showed differences per 298 the characteristics of SY and OSY populations.

299 The suggestions based on the above results of this study are as follows: First, programs for 300 parenting attitude education need to be developed to reduce the suicide risk of adolescents. 301 Considering that one of the reasons for the increase in the Korean adolescent suicide rate to 2.7 302 per 100,000 population involves factors of the home/family environment, such as parental 303 attitudes, behaviour, and thinking (Korea Disease Control and Prevention Agency, 2022; Kim & 304 Han, 2014), development of education programs for parents will serve as an effective measure 305 for primary prevention of adolescent suicide. From the results of this study, among the 306 dimensions of parenting attitude, warmth, autonomy support, and rejection were shown to be 307 important predictors of suicide risk in adolescents. Thus, the significant contribution of this study 308 lies in that analysis was made for sub-types of parenting attitudes, unlike the approaches in 309 existing studies. That is, the findings indicate that it is necessary to implement a program that 310 takes into account warmth, autonomy support, and rejection in parenting attitude education for 311 parents of adolescents at risk of suicide and to emphasize the direction of the appropriate 312 parenting attitude. Recently, in Korea, policy support for crisis intervention programs for 313 adolescents at high risk of suicide/self-harm has been expanded, such as an "Intensive 314 Psychological Clinic for High-risk Adolescents." (Lee & Lee, 2023). Through a comprehensive 315 psychological assessment by experts, measures for a rapid initial response and intervention for

316 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, 317 318 not establishing systems for examining underlying factors to reduce the risk of adolescents' 319 suicide can be viewed as a limitation, since previous education programs on the issue of 320 adolescent suicide have mainly covered parenting attitudes such as abuse and neglect (Park, 321 2014). Therefore, the development of parent education programs enabling the enhancement of 322 warmth and autonomy support and reduction of rejection among parenting attitude types is 323 expected to have a positive effect on reducing suicide risk among adolescents.

324 Second, strategies and measures for suicide prevention intervention for OSYs need to be 325 established at the governmental level. The results of this study showed that there was a 326 moderating effect of OSY status in the relationship between structure, rejection, chaos, and 327 suicide risk, among parenting attitudes. OSYs, who spend most of their time at home, are not 328 only relatively more influenced by their parents (Lee & Lee, 2023), but also are left with an 329 environment with more difficulties in access to institutional education compared to SYs. Thus, 330 different environmental characteristics between different adolescent populations may show 331 different patterns in terms of the expression of suicidal thoughts/behaviour; moreover, 332 considering the suicide rate of OSYs not counted in official statistics, the actual rate of adolescent 333 suicide may be even higher.

334 Recently, organizations and institutions related to adolescents are making attempts to run 335 outreach programs to provide early interventions for OSYs at risk of suicide, but guidelines for 336 crisis responses have not been prepared. To this end, direct support and services for OSY suicide 337 prevention should be linked at the governmental level, and guidelines for early intervention 338 should be established. As shown in the results of this study, among the types of parenting 339 attitudes of structure, rejection, and chaos were associated with the suicide risk of OSYs, and 340 there can be a difference in the influence of parenting attitude factors on the suicide risk between 341 SYs and OSYs. Therefore, the dissemination of education programs for parenting attitudes

342 343 focusing on structure, rejection, and chaos will provide direct and practical help in providing differentiated interventions for OSYs.

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345 *Limitations of the study*

346 Due to the nature of secondary data used in this study, there were limitations in using a variety 347 of control variables, and age groups could not be categorized further. That is, in the data of the 348 Mental Health Survey of Korean Adolescents used in this study, there were no variables other 349 than gender, age, and household income level that could be used as control variables. In addition, 350 age was categorized only into middle school age or under and high school age. Accordingly, it 351 is expected that in future follow-up studies, if more diverse control variables can be used and age 352 data becomes available as a continuous variable, the results will provide clearer insights into a 353 variety of factors or variables influencing adolescent suicide risk. In addition, since the exact size 354 of out-of-school youth, one of the subjects of this study, was unable to be estimated, it was 355 difficult to identify the population, and thus, random sampling was unable to be conducted as 356 with school youth. This inevitably led to limitations in the representativeness, bias, and 357 comparability of the sample. It was thus expected that follow-up studies would clearly identify 358 the population of out-of-school youth so that there are no problems with the representativeness 359 and comparison of the sample through random sampling.

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

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369	Ethics Statement All methods were performed in accordance with the Declaration of					
370	Helsinki. This report was exempted from approval by the institutional review boards (IRB) of					
371	the Clinical Research Ethics Committee of Jeonbuck national University (IRB number: JBNU					
372	2024-03-021). Every participant gave a written consent prior to their participation in the study					
373	Data Availability The data that support the findings of this study are openly available at					
374	https://www.nypi.re.kr/archive/mps					
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533 Tables

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

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

535 Note: N=numbers, %=percentage

1	<i>Vanial</i> elaa	To	tal	SYs (N	=5,937)	OSYs (I	N=752)	t(sig)
variables		М	SD	М	SD	М	SD	– ((sig.)
	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***
rent – ng	Structure	3.04	.70	3.07	.68	2.83	.80	7.752***
itud [_] e	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 Table 2. Differences in key variables by OSY status (N=6,689)

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

541 OSY status

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

542 ** p*<.05, *** p*<.01, **** p*<.001

543 Figure captions



544

545 Fig 1. The study model

546



8 Fig 2. Analysis of interactions: structure × out-of-school youth status











Fig 4. Analysis of interactions: chaos × out-of-school youth status