



ORIGINAL ARTICLE

Suicidal Ideation and its Correlates among Juvenile Delinquents in South Korea

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Abstract

Objectives: This study investigated suicidal ideation and its correlates among juvenile delinquents in South Korea.

Methods: Suicidal ideation, psychological health status, and health-related behaviors were assessed using a self-administered questionnaire in 1682 juvenile offenders aged between 15 and 18 years in 2012.

Results: The prevalence of suicidal ideation in juvenile delinquents was 15.2%. Girls were more likely to report suicidal thoughts than boys (30.3% vs. 12.7%). Suicidal ideation was more common among adolescents who were not living with their family prior to entering detention centers (22.6% vs. 13.2%) than their counterparts. The likelihood of suicidal ideation was significantly associated with problem drinking [odds ratio (OR) = 1.84], psychedelic drug use (OR = 2.04), feeling unhappy (OR = 3.05), feeling sad or depressed (OR = 13.37) after controlling for sociodemographic factors, other health behaviors and perceptions.

Conclusion: The present study provides evidence for an association between suicidal ideation and psychological health and health risk behaviors among juvenile delinquents. It also highlights the importance of mental health and behavioral interventions for this population to prevent suicidality.

1. Introduction

Suicide acts as a serious public health problem and a major risk factor leading to dangerously unhealthy lives [1]. According to the report of the Organization for Economic Cooperation and Development (OECD), an

association of wealthy and industrialized nations, in 2011, South Korea showed the highest suicide rate among the 30 OECD countries (33.3 deaths per 100,000) and had a 10-fold difference compared to Greece where suicide rates were the lowest (3.1 deaths per 100,000) [2]. In particular, suicide has been the first leading cause of death

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among Korean adolescents and young adults aged 15–24 years since 2002 [3]. Suicide is the major cause of death in youth in several countries. In the US, suicide is the third leading cause of death among adolescents aged 15–24 years. Among 15–24-year-olds, suicide accounts for 20% of all deaths annually [4].

Suicide is completed through several steps of suicidal ideas, plans, and action. Suicidal thought is believed to precede the onset of suicidal plans and action. Thus, it is considered to be one of the strong indicators of future suicide [5,6]. To prevent suicide, it needs interventions to prevent progression of thought to suicidal attempts [7–9]. Korea Youth Risk Behavior Web-based Survey (KYRBWS) in 2011 found that 19.3% of youth from third-grade in middle school to high school students had thoughts of suicide in the past 12 months [10]. In the United States, the Centers for Disease Control Youth Risk Behavior Surveillance in 2011 reported that 15.8% of youths in Grades 9–12 had seriously considered attempting suicide [4].

Adolescent exposure to delinquency is more dangerous in terms of suicidal ideation risk. Bjorkenstam et al [6] found that adolescents who were delinquents repeatedly were three times more likely to attempt suicide than other youths. Thompson et al [11] also found that delinquent youths tended to have more suicidal ideation than general youth. Juvenile delinquents are defined as the group at high risk for suicide because they are exposed to higher risks of suicide, suicidal attempts, and suicidal ideas than general adolescents [12]. These findings support that suicide problems are related to adolescent delinquent behavior.

Early identification of high-risk groups of adolescents will be important for the prevention of suicide. There have been many studies that define characteristics of adolescents who have suicidal ideation. Sex, poor sociality and family functioning, mood disorder, alcohol abuse, cigarette smoking, and illicit substance use were considered as influential factors of suicidal ideation [13–18]. Poor mental health status also has been a risk factor for suicidal ideation, and an issue in predicting the suicidal ideation [19]. Various studies have been done on the relationship of suicidal idea to health behavior characteristics that be extended to sleeping pattern and physical activity [20,21].

Juvenile delinquents have been pointed out as a high-risk group for suicidal thoughts and attempts but there is a paucity of data on their prevalence and correlates. Therefore, this study defined juvenile delinquents as a high-risk group, and the aims were: (1) to identify the prevalence of suicidal ideation among inmates in youth detention facilities; (2) to identify the differences in suicidal ideation, health behaviors, and perceptions between juvenile delinquents and general adolescents; and (3) to find the correlates of suicidal ideation among juvenile delinquents.

2. Materials and methods

2.1. Data

Data were collected from a self-report questionnaire at 10 juvenile correctional facilities in South Korea. The participants of the study were 1682 juvenile detainees aged 15–18 years, excluding 28 inmates who refused to respond to the survey questions. In collaboration with the Juvenile Division of the Korean Ministry of Justice, the survey was conducted twice in 2012, once in February–March, and once in August–September. The delinquents under probation for < 1 month were excluded from the study. Almost every juvenile delinquent participated in this survey, therefore, the study participants were the representative juvenile detainees in South Korea.

To compare the data of juvenile delinquents with those of general adolescents, participants in the Eighth KYRBWS in 2012 served as a general youth group. The Eighth KYRBWS at national level used two-stage cluster sampling, and a systematic sampling method within each stratum. Schools were a primary sampling unit and classes at different grades served as a secondary sampling unit. A total of 41804 general adolescents aged 15–18 years were recruited to complete the online survey. This study was approved by the Institutional Review Board of Korea Association of Health Promotion, Seoul, Korea (IRB No. KAHP-12-B-04).

2.2. Measurement of variables

Self-reported questionnaire items on suicidal ideation, health-related behaviors and perceptions were drawn from the Eighth KYRBWS questions. However, some items were revised to be suitable for use in the controlled environment of juvenile facilities. The suicidal ideation was measured using the question: “During the past year, did you ever seriously consider attempting suicide?” Measures on sociodemographic factors included sex, age, level of academic achievement, living with family prior to entering the correctional facilities, and level of household income. The levels of academic achievement and household income were classified as “high or above average”, “average”, and “below average or low”. The measures on living arrangements of adolescents prior to entering the juvenile facility were dichotomized into “lived with family” or “lived apart from family”.

In order to identify behavioral factors associated with suicidal thoughts, we measured smoking, problem drinking, psychedelic drug use, physical activity, and skipping breakfast which were shown to be related to suicidal phenomenon in previous studies [14,22]. For smoking, alcohol drinking and drug use, they were not allowed in the highly controlled detention centers, juvenile detainees were investigated their prior experiences of these risk behaviors prior to entering correctional facilities. Smoking status was assessed in four categories: smoked every day, smoked on some

days, quit smoking, and never smoked. Problem drinking was defined as experiencing two or more of the following problems: drinking alcohol to deal with stress or to hang out with friends; drinking alone; being worried about drinking by friends or family members; driving or riding in a car, bicycle, or automobile driven by someone who had been drinking alcohol; experiencing alcohol induced blackouts; and involved in an argument or fight while drunk.

Psychedelic drug use was assessed whether to have used butane gas, glue, stimulant drug, phlopon, amphetamines, narcotic, tranquilizers for mood change, hallucination, or weight loss. The physical activity level was assessed by the number of days engaging in moderate or vigorous physical activities. Participants were categorized into an active or inactive group. The active group was defined as adolescents doing at least 30 minutes of moderate intensity physical activity for ≥ 5 days/week, or at least 20 minutes of vigorous activity for ≥ 3 days/week. The frequency of skipping breakfast was assessed in the number of days per week skipped, and categorized into < 5 days/week or ≥ 5 days/week.

Health perceptions as the psychological health status were assessed as hypothesized correlates of suicidal ideation. Perceived happiness, body shape and health status were measured on a 5-point scale and classified into two categories. The perceived happiness was evaluated as participants' overall happiness from "very happy" to "very unhappy". The perceived body shape and health status were measured from "very thin" to "very fat" and from "very healthy" to "very unhealthy", respectively. Depressive thought was measured with a question asking about whether they experienced feeling sad or depressed for ≥ 2 weeks in a row during the past year.

2.3. Statistical analysis

Statistical analyses were conducted using SAS version 9.2 (SAS Institute Inc., Cary, NC, USA). The prevalence of suicidal ideation was compared across the sociodemographic factors, and the characteristics of health perception and behavior using the χ^2 test or t test according to data type. To compare the rates of suicidal thought, health perception and behavior in the juvenile inmates with those in general adolescents, we calculated standardized event ratios (SERs) using the indirect standardization method. The indirect standardization method was used over the direct method because of the possibility of no cases in any of the sex or age-specific cells [23–25]. The SER was defined as the ratio of observed number of events to expected number of events – provided that juvenile inmate group had the same risk level as adolescent group. Sex-adjusted and age-adjusted SERs with 95% confidence intervals (CIs) were calculated under the assumption of normal distribution. If the SER was > 1 , more events occurred in the

juvenile inmate group than general adolescent group. A test was based on the null hypothesis that the number of observed and expected events is equal. Logistic regression analysis was used to identify the correlates of suicidal ideation.

3. Results

3.1. Prevalence of suicidal ideation by the characteristics of juvenile inmates

The overall prevalence of suicidal ideation during the past year was 15.2% among the juvenile delinquents as shown in Table 1. Girls reported more suicidal ideation than boys (30.3% vs. 12.7%, $p < 0.0001$). Adolescents who lived apart from family prior to entering the juvenile justice system showed a higher rate of suicidal thoughts than those who lived with family members (22.6% vs. 13.2%, $p < 0.0001$). Adolescents whose self-reported household income was below average or low reported a higher rate of suicidal thoughts (19.1%) than the average or above average group ($p < 0.001$).

Prevalence of suicidal thought was over twice as high in inmates who had problem drinking and psychedelic drug use experiences than in inmates not having these risk behavior experiences ($p < 0.0001$ for all). Physically active inmates were less likely to experience suicidal thoughts compared to inactive inmates (17.9% vs. 11.6%, $p < 0.001$).

Unhappy or depressed adolescents were more likely to report suicidal ideation than their happy or never-depressed counterparts (44.9% vs. 10.8%, $p < 0.0001$ for perceived happiness, 38.9% vs. 3.8%, $p < 0.0001$ for depressive thoughts). Adolescents who felt unhealthy were more likely to consider suicide seriously than their healthy counterparts (32.5% vs. 13.5%; $p < 0.0001$).

3.2. Comparison of suicidal ideation, behavioral and psychological health between juvenile inmates and nationally representative adolescents

Nationwide, 18.4% of general adolescents responded that they had seriously considered attempting suicide during the past year, which was not significantly different from that of juvenile inmates (Table 2). Juvenile inmates were more likely to perceive them as very fat (SER = 1.16, $p < 0.001$) and very unhealthy (SER = 1.23, $p < 0.05$) than nationally representative adolescents.

With regard to health risk behaviors, inmates were more likely to experience smoking (SER = 2.52, $p < 0.0001$), problem drinking (SER = 1.72, $p < 0.0001$), and psychedelic drug use (SER = 19.02, $p < 0.0001$) compared to general adolescents. In general adolescents, physical inactivity, and skipping breakfast were more prevalent than in juvenile inmates (SER = 0.91, $p < 0.01$ for physical activity; SER = 0.63, $p < 0.0001$ for skipping breakfast).

Table 1. Sociodemographic, behavioral and psychological health characteristics of Korean juvenile inmates, 2012.^a

Categories	Total (n = 1682)	Suicidal ideation				p
		No n = 1427 (84.8%)		Yes n = 255 (15.2%)		
		n	(%)	n	(%)	
Sex						
Girl	238	166	(69.8)	72	(30.3)	<0.0001
Boy	1444	1261	(87.3)	183	(12.7)	
Age						
Mean ± SD	17.26 ± 1.09	17.26 ± 1.09		17.29 ± 1.13		0.0586
Academic achievement						
High or above average	93	74	(79.6)	19	(20.4)	0.3202
Average	317	272	(85.8)	45	(14.2)	
Below average or low	1263	1074	(85)	189	(15)	
Living arrangement^b						
Lived with family	1329	1153	(86.8)	176	(13.2)	<0.0001
Lived apart from family	345	267	(77.4)	78	(22.6)	
Household income						
High or above average	260	217	(83.5)	43	(16.5)	0.0002
Average	760	675	(88.8)	85	(11.2)	
Below average or low	650	526	(80.9)	124	(19.1)	
Health related behaviors						
Smoking^b						
No	31	28	(90.3)	3	(9.7)	0.4010
Yes	1634	1387	(84.9)	247	(15.1)	
Problem drinking experience^b						
No	289	268	(92.7)	21	(7.3)	<0.0001
Yes	1142	943	(82.6)	199	(17.4)	
Psychedelic drug use^b						
No	1491	1292	(86.7)	199	(13.4)	<0.0001
Yes	168	120	(71.4)	48	(28.6)	
Physical activity^c						
Active	727	643	(88.5)	84	(11.6)	0.0003
Inactive	954	783	(82.1)	171	(17.9)	
Skipping breakfast						
< 5 days	1404	1192	(84.9)	212	(15.1)	0.7840
≥ 5 days	273	230	(84.3)	43	(15.8)	
Mean ± SD	6.8 ± 2.39	6.83 ± 2.38		6.64 ± 2.46		0.2463
Psychological health						
Perceived happiness						
Happy	1450	1294	(89.2)	156	(10.8)	<0.0001
Unhappy	216	119	(55.1)	97	(44.9)	
Depressive thoughts						
No	1135	1092	(96.2)	43	(3.8)	<0.0001
Yes	542	331	(61.1)	211	(38.9)	
Perceived body shape						
Thin	1008	868	(86.1)	140	(13.9)	0.0692
Fat	671	556	(82.9)	115	(17.1)	
Perceived health status						
Healthy	1530	1324	(86.5)	206	(13.5)	<0.0001
Unhealthy	151	102	(67.6)	49	(32.5)	

^aThe frequencies may not add up to 100% due to no response; ^bPrior to entering juvenile reformatory; ^cPhysical activity; at least 30 minutes/day, 5 days/week of moderate exercise, or 20 minutes/day, 3 days/week of vigorous exercise. SD = standard deviation.

3.3. Correlates of suicidal ideation among juvenile inmates

The findings from the multiple logistic regression analyses for the association between suicidal ideation and

sociodemographic characteristics, without health behaviors (Model 1) and with health behaviors (Model 2) are presented in Table 3. In Model 1, inmates who were girls, lived apart from the family and perceived their household

Table 2. Comparisons of suicidal ideation, health related behaviors and psychological health between juvenile inmates and general adolescents in Korea, 2012.

Categories	Juvenile inmates		Expected events	General adolescents		SER	
	Observed events	Rate		Rate	SER ^a	95% CI	<i>p</i> ^c
Suicidal ideation (yes)	255	15.2	260.1	18.4	0.98	(0.86, 1.1)	0.7502
Health related behaviors							
Smoking ^b	1634	98.1	648.6	30.5	2.52	(2.4, 2.64)	<0.0001
Problem drinking ^b	1142	79.8	665.6	45.4	1.72	(1.62, 1.82)	<0.0001
Psychedelic drug use ^b	168	10.1	8.8	0.5	19.02	(16.14, 21.9)	<0.0001
Physical activity (inactive)	954	56.8	1048.6	69.7	0.91	(0.85, 0.97)	0.0022
Skipping breakfast (≥ 5 days)	273	16.3	430.3	25.1	0.63	(0.56, 0.71)	<0.0001
Psychological health							
Perceived happiness (unhappy)	216	13	213.7	13.8	1.01	(0.88, 1.15)	0.8756
Perceived depression	542	32.3	498.9	32.9	1.09	(0.99, 1.18)	0.0641
Perceived body shape (fat)	671	40	577.6	38.9	1.16	(1.07, 1.25)	0.0003
Perceived health status (unhealthy)	151	9	122.5	8.5	1.23	(1.04, 1.43)	0.0202

^aSER is observed events in juvenile inmates/expected events; ^bPrior to entering juvenile reformatory; ^cTest for SER = 1 (null hypothesis). CI = confidence interval; SER = standardized event ratio.

income as lower than average were more likely to have serious suicidal thoughts than their counterparts. The association between suicidal ideation and some socio-demographic variables remained significant after adding health risk behavior variables to Model 2. Even after controlling for sociodemographic variables, inmates who reported problem drinking and psychedelic drug use experiences were about two times more likely to express suicidal ideation than their counterparts [adjusted odds ratio (OR) = 2.43, $p < 0.001$ for problem drinking; adjusted OR = 2.13, $p < 0.001$ for drug use], while the association between physical activity and suicidal ideation was marginally significant (adjusted OR = 1.34, $p = 0.08$). The associations between suicidal ideation and sociodemographics, and physical activity became insignificant when health perception variables were added to Model 3. Of all the health risk behaviors, problem drinking and psychedelic drug use remained significant after controlling for all the other variables (adjusted OR = 1.84, $p < 0.05$ for problem drinking; adjusted OR = 2.04, $p < 0.01$ for psychedelic drug use). Two psychological health variables were significantly associated with suicidal ideation after controlling for other factors. Feeling unhappy and depressed were found to be more important than either perceived body shape or health status as predictors of suicidal ideation (adjusted OR = 3.05, $p < 0.0001$ for perceived happiness; adjusted OR = 13.37, $p < 0.0001$ for depressive thoughts).

4. Discussion

This study found a prevalence of 15.2% for suicidal ideation, which is consistent with previous research on

juvenile delinquency. The rate of suicidal ideation among inmates aged 14–22 years old in New South Wales, Australia was 14.6% and among inmates aged 10–18 years old in Ohio, USA was 17.9% [26,27]. The difference in the rate of suicidal ideation between juvenile detainees and nationally representative sample of adolescents in Korea did not differ in the present study. However, previous studies have consistently reported greater risk of suicidal ideation in delinquency than non-delinquency groups [28,29]. This result might reflect that suicide is the leading cause of death among Koreans from adolescence to the 30s.

Moderator analysis revealed that the risk of suicidal ideation was more prominent in girls, and in adolescents who did not live with family members prior to entering the correctional facilities. In some studies on juvenile reformatory students, girls were a higher-risk group for suicidal ideation than boys [29–32]. Although living with family did not guarantee healthy and happy lives, it had important meaning as a predictor of suicide ideation. These findings suggested that delinquent girls and youths who lived apart from their family members should be the priorities for the intervention to prevent suicide. However, their associations with suicidal thoughts disappeared when health perception variables were included in the model. We found that mental health factors functioned as mediators between suicidal ideation and sex or cohabiting with a family member. As suggested by Simons and Murphy [8] and Allison et al [33], girls and adolescents not cohabiting with their family showed a higher level of suicidal ideation than their counterparts because of the emotional and family problems such as depressive

Table 3. Multivariate logistic regression analyses for suicidal ideation among juvenile inmates.

Categories	Model 1*			Model 2*			Model 3*		
	Adjusted OR (95% CI) ^a	<i>p</i>		Adjusted OR (95% CI) ^a	<i>p</i>		Adjusted OR (95% CI) ^a	<i>p</i>	
Sex									
Boy	1			1			1		
Girl	2.73 (1.95–3.81)	<0.0001		2.22 (1.5–3.29)	<0.0001		1.53 (0.94–2.49)	0.0854	
Age	1.06 (0.92–1.21)	0.4395		1.08 (0.92–1.26)	0.3473		1.04 (0.87–1.24)	0.6787	
Academic achievement									
High or above average	1			1			1		
Average	0.64 (0.34–1.19)	0.2687		0.86 (0.42–1.74)	0.7032		0.73 (0.32–1.63)	0.3949	
Below average or low	0.66 (0.38–1.15)	0.2927		0.88 (0.47–1.68)	0.8185		0.85 (0.41–1.76)	0.9861	
Living arrangement									
Lived with family	1			1			1		
Lived apart from family	1.52 (1.11–2.09)	0.0091		1.53 (1.08–2.15)	0.0161		1.2 (0.8–1.79)	0.3850	
Household income									
High or above average	1			1			1		
Average	0.68 (0.45–1.02)	0.0018		0.64 (0.41–0.99)	0.0051		0.84 (0.5–1.41)	0.2118	
Below average or low	1.20 (0.80–1.79)	0.0107		1.04 (0.67–1.61)	0.1042		1.15 (0.7–1.91)	0.2266	
Health related behaviors									
Smoking^b									
No				1			1		
Yes				0.7 (0.14–3.39)	0.6537		0.98 (0.18–5.46)	0.9797	
Problem drinking^b									
No				1			1		
Yes				2.43 (1.5–3.94)	0.0003		1.84 (1.06–3.18)	0.0305	
Psychedelic drug use^b									
No				1			1		
Yes				2.13 (1.4–3.23)	0.0004		2.04 (1.23–3.39)	0.0059	
Physical activity^c									
Active				1			1		
Inactive				1.34 (0.96–1.88)	0.0847		1.29 (0.87–1.9)	0.2000	
Skipping breakfast									
< 5 days				1			1		
≥ 5 days				1.22 (0.8–1.85)	0.3611		0.93 (0.57–1.51)	0.7621	
Psychological health									
Perceived happiness									
Happy							1		
Unhappy							3.05 (2.03–4.59)	<0.0001	
Depressive thoughts									
No							1		
Yes							13.37 (8.76–20.41)	<0.0001	
Perceived body shape									
Thin							1		
Fat							1.02 (0.7–1.47)	0.9352	
Perceived health status									
Healthy							1		
Unhealthy							1.34 (0.81–2.24)	0.2580	

*Model 1 involved demographic factors (gender, age, academic record, living arrangement, household income); Model 2 involved factors of health related behaviors (smoking, problem drinking, psychedelic drug use, physical activity, skipping breakfast) with demographic factors; Model 3 involved psychological health factors (perceived happiness, depressive thoughts, perceived body shape, perceived health status) with health behaviors and sociodemographic factors. OR = odds ratio. CI = confidence interval; ^a95% CI for suicidal ideation vs non; ^bPrior to entering juvenile reformatory; ^cPhysical Activity; at least 30 minutes/day, 5 days/week of moderate exercise, or 20 minutes/day, 3 days/week of vigorous exercise

thoughts, and lack of family concerns and support. King et al [34] also indicated that the higher support or guidance by the parents, the lower the risk of suicidal ideation.

In this study, it was noticeable that detained youth showed higher rates of health risk behaviors than general adolescents. Smoking, problem drinking, and psychedelic drug use were more common in juvenile

inmates, whereas lack of physical activity and skipping breakfast ≥ 5 days were more common in general adolescents. Another study [35] presented similar rates of smoking and alcohol drinking (95%), and a higher rate of drug use than the results from our study (65.7% vs. 10.1%). It also indicated that inmates were six times higher in smoking, three times higher in alcohol drinking, and 2.8 times higher in drug use than general adolescents. Exposure to correctional environments may provide a chance to learn and practice healthy behaviors. Therefore, the education system and environmental support need to be present to take care of health risk behaviors of adolescent inmates.

Consistent with previous studies [22,36,37], problem drinking and psychedelic drug use experiences were positively related to suicidal ideation in the present study. Rihmer [38] found that adolescents were especially in the high-risk group for suicidal ideation when they were taking drugs. Delfabbro et al [14] also indicated that smoking, alcohol drinking, and drug use were the main risk factors for suicidal ideation of adolescents. The present study, however, could not find a significant association between suicidal thoughts and smoking because of the high prevalence of smoking (98.1%) among juvenile delinquents.

An adequate level of physical activity was related to a low level of suicidal ideation in this study, although it was marginally significant. Physical activity is known to have an effect on preventing suicidal thoughts through improving emotional as well as physical health [21,39,40]. Therefore, it is necessary to provide environmental support to promote physical activity for adolescents in juvenile correctional facilities as well as in schools.

Among the health perception variables, perceived happiness and depressive thoughts were significant predictors of suicidal ideation. The United States Department of Justice [41] suggests life stressors such as interpersonal conflict and disciplinary problems are associated with suicidal ideation in adolescents. Feeling happiness could prevent adolescents from engaging in high-risk behavior such as physical inactivity, binge drinking, smoking, and taking hard drugs and suicidal ideation [42,43]. Mental health issues such as stress or depression are considered as priority problems, which have to be dealt with to prevent suicidal thoughts or attempts. To decrease the risk of suicide in reformatories, regular mental health examination at the facilities should be conducted using a valid and reliable instrument. Furthermore, there is also a need for psychiatric services or programs [44].

The most obvious limitation of the current study was its cross-sectional design. We could not determine causality and directionality of the association between suicidal ideation and its correlates. Data analyzed in the study were solely based on self-report measures, although self-report measures were recognized as a reliable source of information with regard to delinquent

behavior. There might be some possibilities of under- or over-reporting bias when answering the sensitive questions on academic record, household income level, suicidal ideation, and health risk behavior. Another limitation of the study was that we could not apply precise measures for depression in adolescents. Having an experience of depressive thoughts, as defined in this study, might not be a valid measure of depression. Future studies should assess the depression with diagnostic criteria and information from other sources like parents. A series of questions were asked with different time frames, suicidal thoughts during the past year, health risk behaviors prior to entering reformatories, and health perceptions at the time of survey. Findings on their associations should be interpreted with caution. Despite its limitations, this study presented important predictors of suicidal ideation that must be taken into account in suicide prevention intervention. To the best of our knowledge, this study is the first to examine the suicidal ideation and its correlates on entire inmates in South Korea. For this reason, the findings can be generalized into the characteristics of Korean juvenile delinquency.

In conclusion, problem drinking, drug use, perceived happiness, and depressive thoughts were significant predictors for suicidal ideation among incarcerated adolescents in Korea. In order to advance the current knowledge of risk or protective factors on suicidality, more comprehensive sets of psychological variables related to suicidality should be integrated into the explanatory model. For the effective and efficient management of suicidal risk in juvenile delinquents, early detection of adolescents at risk and intervention programs with coping skills to deal with emotional and behavioral problems is required.

Conflicts of interest

All authors declare no conflicts of interest.

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