


ORIGINAL ARTICLE

Association between the Big Five personality traits and suicide-related behaviors in Japanese institutionalized youths

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Abstract

Aim: Inmates in correctional institutions experience higher rates of suicide attempt (SA), suicidal ideation (SI), and nonsuicidal self-injury (NSSI) than the general population. This study aimed to examine the association between the Big Five personality traits and suicide-related behavior, and to estimate the prevalence rate of such behaviors among Japanese institutionalized youth.

Methods: The participants were 436 youths who had been admitted to four juvenile classification homes (JCHs) between September 2021 and March 2023; they were asked to respond to a self-report questionnaire after obtaining informed consent.

Results: A total of 8.1% and 19.3%, 29.4% and 44.7%, and 46.3% and 75.3% of males and females had experienced SA, SI, and NSSI in their lifetime, respectively. Females reported significantly higher instances of suicide-related behaviors than males considering all suicide-related behaviors. Logistic regression analyses revealed that neuroticism significantly increased the odds ratios for SA, SI, and NSSI on controlling for sex, age, and number of admissions to JCHs. For NSSI, the odds ratio for agreeableness was significantly lower than 1, indicating a lower probability of NSSI.

Conclusion: The findings of our study demonstrate that neuroticism, one of the Big Five traits, was consistently and significantly associated with all suicide-related behaviors, including SA, SI, and NSSI, among youth offenders, while agreeableness was found as a protective factor only against NSSI. The results of this study might help correctional officers identify justice-involved youth at higher risk for suicide and allow the development of early interventions to prevent suicide.

KEYWORDS

Big Five personality, nonsuicidal self-injury, suicidal ideation, suicide attempt, youth offender

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INTRODUCTION

Suicide is the leading cause of death among young individuals in Japan, thus suicide prevention for this population is an urgent issue.¹ A group of youths who are often overlooked despite their high risk of suicide are juvenile delinquents. Although institutionalized youths are generally considered by the public as violent and harmful to the rights and interests of others, previous research has consistently indicated that they are also a high-risk group for suicide and self-injury.²⁻⁴ For example, higher rates of lifetime experience of suicide-related behaviors have been reported among correctional inmates than among the general population. A review of suicide-related behaviors among detained youth reported an adjusted risk of suicide that was three to 18 times higher than that of age-matched controls, although the prevalence of lifetime suicidal ideation (SI) varied from 16.9% to 59% and that of lifetime self-harm from 6.2% to 44%.⁵ A recent scoping review of the health of adolescents in custody⁶ found that the lifetime prevalence of suicide attempts (SAs) ranged from 4.0% to 29.4% for males and 20.8% to 51.1% for females among youths in custody, compared with 4.1% in the general population of adolescents, and further found that after release from custody, the risk of suicide is estimated to be two to nine times that in age- and gender-matched peers. Prior research⁷ has found psychiatric diagnosis, previous suicidal attempts, occupation of a single cell, absence of social visits, and alcohol misuse as suicide risk factors for inmates in correctional facilities, but to date, psychological factors have not been sufficiently examined.

In an attempt to examine risk factors for suicide from a psychological perspective, several studies have examined the relationship between personality traits and suicide in the general population of a community using the Big Five theory. The Big Five personality theory⁸ is a widely used framework in personality psychology that captures a person's personality in terms of five factors: neuroticism, extraversion, openness, agreeableness, and conscientiousness, known as the Big Five. Over several past decades, the Big Five model of personality has been regarded as one of the most popular and widely used frames of reference for understanding personality, and numerous studies have used the Big Five personality traits as a measure of personality.⁹ Several studies¹⁰⁻¹³ have examined the association between personality traits and suicide and self-harm in diverse populations, ranging from the general public to psychiatric patients, using the Big Five scale. In a literature review, among the Big Five personality traits, neuroticism and extraversion were considered the most promising for use in risk screening for SI, SAs, and completed suicide.¹⁴ Although the Big Five personality traits have been studied in a variety of populations, the number of studies conducted with correctional inmates is limited.¹⁵⁻¹⁷ Few studies have examined this association with suicide or self-injury, thus the relationship between the Big Five traits and suicidal behavior in such a high-risk population remains unclear. Since several studies have confirmed personality traits as prospective predictors of future SA,¹⁸ investigating whether such a relationship can also be found in the correctional inmate populations is warranted; establishing a

relationship between the two would contribute to understanding and preventing suicide-related behavior among offenders and juvenile delinquents.

Our study aimed to examine the relationship between suicide-related behaviors and personality traits to facilitate a more accurate understanding of suicide and self-injury among youth offenders, as well as to offer targeted support measures. The purposes of this study are two-fold. First, we intended to estimate the prevalence rates of SA, SI, and nonsuicidal self-injury (NSSI) among juvenile correctional inmates. Second, we aimed to examine the association between suicide-related behaviors and the Big Five personality traits.

METHODS

Settings and participants

Juvenile classification homes (JCHs) are juvenile correctional institutions under the supervision of the Correction Bureau, Ministry of Justice in Japan. The JCH, which is an institution whose main role is to detain delinquent minors awaiting a court hearing for a short period (approximately 3–4 weeks), conducts a detailed psychological assessment and informs the family court of the recommended disposition as well as the psychiatric condition, personality, background, and motives of the delinquent and the suggested treatment plan. As of April 2023, there were 52 JCHs in Japan. Since the study involves security risks and to ensure a sufficient number of participants, we sought cooperation from four JCHs where research collaborators work at the facility and where the capacity of the JCHs is relatively large.

The participants were youth admitted to the four JCHs between September 2021 and March 2023 and who agreed to provide data for the research purpose. The initial phase of data collection was carried out through April 2022; however, the number of female participants in the sample was only 47, which was much lower than expected. Subsequently, a larger sample size was deemed necessary for a statistically significant analysis. Considering the insufficient enrollment of female participants, an additional survey was launched in September 2022, which continued until March 2023, specifically targeting female participants. The final number of participants was 436 individuals (351 [80.5%] male and 85 [19.5%] female). The mean age was 17.09 years (standard deviation [SD] = 1.59) and 16.76 years (SD = 1.65) for males and females, respectively, with an age range of 12–19 years. According to the 2022 Annual Report of Correctional Statistics,¹⁹ the overall statistics of annual admissions to JCHs across the country confirm that the study participants did not significantly vary from the national trends in terms of their average age.

Procedure

In addition to the regular booklet to be completed in the room prior to the interview, an additional self-report questionnaire was distributed to

the youths. The questionnaires were left in each of the youths' rooms for them to complete individually, and thereafter were collected by the JCH staff. Youths who were emotionally unstable at the time of questionnaire administration or who were deemed to be at risk of being a security risk or of experiencing mental or physical illness due to the questionnaire administration during their stay and foreign nationals with limited Japanese language skills were excluded from answering the questionnaire.

Declarations were made on the cover of the questionnaire explaining its purpose and instructing participants to answer questions according to their wishes based on their own experience and thoughts. Appropriate assurances of anonymity and informed consent were made while allowing participants to withdraw from the study at any time. Those who marked the box "I give permission for the use of my questionnaire answers for research purposes while my personal data is protected" were included in the survey. Of the total respondents, 81.3% consented to the survey. The booklets were braided using needle-free staples to ensure that the staple needles used in the questionnaires were not used for self-injury in the room.

Measures

Suicide-related behavior

Participants were asked, "In your life, have you ever seriously considered committing suicide?" Those who answered "yes" were coded as having experienced SI. Participants were asked to select either yes or no for their lifetime experience of SI. Similarly, the participants were asked, "In your life, have you ever seriously thought of committing suicide, and did you ever attempt to do so in some way?" Responses to this question were dichotomized and coded as SA. Furthermore, to ascertain whether they had experienced NSSI, respondents were asked if they had ever intentionally harmed their own bodies with the motive of doing something other than killing themselves. It also sought to exclude acts performed with the intention of improving appearance or shaping. Participants were then asked to respond to each of the following 12 types of behavior as examples: (1) "cut" a body part with a cutter or something similar, (2) "burn" a body part with a cigarette or something similar, (3) "hit" the head or fist hard against a wall, (4) "pull out" hair, (5) "scratch" a body part using their nails until it bleeds, (6) "stab" a body part with a needle or other sharp object, (7) "bite" a finger or arm until it bleeds, (8) "pinching" to the point of bruising, (9) "rubbing" the skin with a file or similar object, (10) "peeling" off scabs that were just beginning to heal, (11) "carving" pictures and letters on the skin (excludes purposes for fashion), and (12) "others." This procedure was adopted because it has been pointed out that asking abstractly without listing specific acts may result in an underestimation of the experience rate of self-injury.²⁰ If any one of the above actions was applicable, the individual was classified as having had a lifetime experience of NSSI. In addition to the presence or absence of engagement in NSSI, the frequency for each item was also asked, and those who engaged in NSSI more than 10 times by either method were evaluated.

Big Five personality inventory

The Ten-Item Personality Inventory (TIPI²¹) is a widely used brief measure of the Big Five personality traits. Oshio et al.²² developed a Japanese version of the TIPI (TIPI-J) that demonstrated acceptable reliability and validity. The TIPI-J is a scale consisting of 10 items, with two items that measure each of the Big Five factors (extraversion, agreeableness, conscientiousness, neuroticism, and openness). Participants indicated the extent to which the sentence was applicable to them using a seven-point Likert scale. After processing the reversed items, the scores of the corresponding subscales were summed, and each subscale score was calculated, with higher scores indicative of higher levels of the specific trait. The Japanese version of the TIPI was developed using a sample of 902 university students (376 males and 526 females, mean age 19.2 years, SD = 1.5). Although several scales based on the Big Five personality theories have been developed in Japan, the TIPI-J was selected since it has a small number of items, is easy to administer, and has been tested for reliability and validity.²³

Demographic variables

Data on the age, sex, and number of JCH admissions were also collected during the survey. Age at the time of the survey and number of admissions were measured as continuous variables, while sex was coded as a dichotomous variable, with male as the reference category.

Ethical considerations

This study was approved by the Humanities and Social Sciences Research Ethics Committee of Ochanomizu University (approval number: 2021-63, 2022-115), and written consent to conduct the survey was obtained from the respective JCH. The information regarding suicide and self-injury is typically gathered upon the individual's admission to JCH, primarily for the purposes of security and psychological evaluations. The questionnaire was designed as an additional survey to collect more detailed information on topics related to suicide for administrative purposes at the JCH. The cover page of the questionnaire included a consent box, and only data from those who provided their consent for the use of their data in research were incorporated into the analysis anonymously. Furthermore, the participants were informed that they had the option to withdraw their consent at any time during their stay at the JCH. Consequently, the study was carried out with the explicit consent of the participants, even though they were minors.

Statistical analysis

Descriptive statistical analyses were conducted to present the lifetime experience rates of SI, SA, and NSSI by sex. Subsequently,

the findings from the present study were compared with those reported in previous studies on SI, SA, and NSSI. Additionally, the values of TIPI-J in the present study were evaluated by comparing them with previously reported findings, and effect sizes were determined using *t*-tests. Lastly, logistic regression analyses were performed to examine the relationship between the Big Five personality characteristics and each of the three suicide-related behaviors, with demographic factors controlled for as covariates.

RESULTS

Lifetime prevalence rate of suicidal behaviors by sex

Table 1 shows the lifetime experience rates of SA, SI, and NSSI in all the participants according to sex. Of the males and females, a total of 8.05% and 29.41%, 19.25% and 44.71%, and 46.33% and 75.29%, respectively, had experienced SA, SI, and NSSI in their lifetime. For all suicide-related behaviors, females reported significantly higher prevalence than males. The Nippon Foundation²⁴ conducted a large-scale web-based anonymous survey on suicide-related behaviors in 2021, targeting 20,000 people aged 13–79 years throughout Japan. For comparison with the general youth population, Table 1 also includes the results of the “15–19-year” age group of that national survey, which is close to the target age group of the participants in this study. Although strict comparisons are difficult because of different definitions of suicide-related behaviors, lifetime experience rates of SA and SI for males and SI for females in the delinquency group and the community sample appear to approximate

each other. However, 29.4% of the institutionalized females experienced SA, which was much higher than the 12.5% of their counterparts in the general group. The lifetime experience rate of NSSI was much higher for both institutionalized males and females than for their counterparts in society.

Table 2 shows the mean and SD for each subscale of the TIPI-J reported by the participants of this study. Additionally, values from the original sample, which were derived from a study conducted by Oshio et al.²² on university students, are also presented for comparison. Due in part to the large sample size, significant differences were found between the current sample and the original sample in all subscale scores. The delinquent group scored higher on four scales, except for neuroticism, with a large effect size for extraversion and a moderate effect size for openness. To confirm the consistency of the findings with previous research, the correlation coefficients between the items of the TIPI-J were calculated. The results showed significant negative correlations between the two corresponding items, with $r = -0.40$ ($p < 0.001$) for extraversion, $r = -0.29$ ($p < 0.001$) for agreeableness, $r = -0.40$ ($p < 0.001$) for conscientiousness, $r = -0.17$ ($p < 0.001$) for neuroticism, and $r = -0.22$ ($p < 0.001$) for openness. There was a theoretically expected significant negative correlation between the two items comprising each subscale. The magnitudes of the coefficients in this study were generally consistent with those reported in previous research, with the exception of neuroticism, which showed a coefficient lower than -0.28 , observed in Oshio et al.²² The correlations between subscales in the total sample varied from $r = -0.24$ (agreeableness and neuroticism) to $r = 0.34$ (extraversion and openness), which are not particularly high compared with the ranges of -0.32 to 0.24 reported

TABLE 1 Descriptive statistics for suicidal behaviors according to sex.

	Male (n = 351)	Female (n = 85)	Total (N = 436)	P-value (χ^2 or <i>t</i>)
<i>Current research</i>				
Age (in years)	17.09 (1.59)	16.76 (1.65)	17.02 (1.60)	0.098
JCH admissions	1.36 (0.78)	1.24 (0.50)	1.34 (0.74)	0.146
SA (%)	8.05	29.41	12.24	<0.001
SI (%)	19.25	44.71	24.25	<0.001
NSSI (10 \geq) (%)	23.46	38.82	26.53	0.004
NSSI (any of) (%)	46.33	75.29	52.11	<0.001
	Male	Female	Total	
<i>Nippon Foundation (2021)^a</i>				
SA (%)	7.8	12.5	10.1	–
SI (%)	24.5	40.7	32.2	–
NSSI (any of) (%)	15.5	24.9	20.1	–

Note: The values for age and JCH admissions are means. The values in the parenthesis in the rows for age, JCH admissions, and number of NSSI methods indicate the standard deviations.

Abbreviations: JCH, juvenile classification homes; NSSI, nonsuicidal self-injury; SA, suicide attempt; SI, suicide ideation.

^aResults are shown for only the “15–19-year” age group extracted from the Nippon Foundation’s survey. Sample sizes varied with items, with 1088 (570 males and 518 females) for SA, 1023 (535 males and 488 females) for SI, and 1096 (564 males and 531 females) for NSSI.

TABLE 2 Descriptive statistics for the Big Five personality traits for the current and community sample.

	Current sample (N = 436)		Original sample (N = 902)		P-value	Cohen's <i>d</i>
	M	SD	M	SD		
Extraversion	10.36	2.76	7.83	2.97	<0.001	0.88
Agreeableness	10.36	2.47	9.48	2.16	<0.001	0.38
Conscientiousness	7.17	2.66	6.14	2.41	<0.001	0.41
Neuroticism	8.40	2.61	9.21	2.48	<0.001	0.32
Openness	9.29	2.41	8.03	2.48	<0.001	0.52

Note: The values reported in the original sample column are derived from a study conducted by Oshio et al.²² among university students.

TABLE 3 Zero-order correlation matrix for the Big Five personality traits, SA, SI, and NSSI by sex.

	1	2	3	4	5	6	7	8
1. Extraversion	-	-0.01	-0.05	-0.15**	0.34**	-0.08	-0.12*	0.04
2. Agreeableness	-0.15	-	0.17**	-0.20**	0.05	-0.01	-0.09	-0.13*
3. Conscientiousness	0.05	0.32**	-	-0.17**	0.10	-0.05	-0.09	-0.09
4. Neuroticism	-0.15	-0.33**	-0.29**	-	-0.10	0.22**	0.36**	0.15**
5. Openness	0.37**	0.16	0.22*	-0.14	-	0.02	0.02	0.03
6. SA	-0.02	0.08	-0.19	0.14	0.10	-	0.61**	0.28**
7. SI	-0.04	0.06	-0.30**	0.16	0.13	0.72**	-	0.30**
8. NSSI	0.13	-0.024*	-0.29**	0.25*	0.08	0.37**	0.35**	-

Note: Correlation coefficients for males ($n = 351$) are presented above the diagonal, and those for females ($n = 85$) are presented below the diagonal.

Abbreviations: NSSI, nonsuicidal self-injury; SA, suicide attempt; SI, suicide ideation.

*** $P < 0.001$; ** $P < 0.01$; * $P < 0.05$.

in Oshio et al.²² Furthermore, the same patterns of correlations between subscales observed in previous studies were replicated in the present study. Specifically, neuroticism showed negative correlations with the other four factors, extraversion was positively correlated with openness, agreeableness was positively correlated with conscientiousness, and conscientiousness was positively correlated with openness. These findings suggest that the associations among the subscales in the current study are consistent with those reported in previous research.

Logistic regression analyses

Logistic regression was performed to investigate the association between the Big Five personality traits as independent variables and their lifetime experiences of SA, SI, and NSSI as dependent variables. Table 3 shows the correlation matrix for the Big Five personality traits, SA, SI, and NSSI, and Table 4 shows the results of logistic regression analyses. As shown in Table 4, neuroticism significantly increased the adjusted odds ratios (AORs) for all the dependent variables after controlling for possible confounders such as sex, age, and number of admissions to the JCHs. These results indicate that

each additional increase in the neuroticism score increased the odds of engaging in SA by 30% (AOR = 1.30, 95% confidence interval [CI] = 1.13–1.50), of SI by 39% (AOR = 1.39, 95% CI = 1.24–1.56), and those of NSSI by 12% (AOR = 1.12, 95% CI = 1.03–1.21). In addition, for NSSI, the AOR for agreeableness was significantly lower than 1, indicating a lower probability of NSSI (AOR = 0.91, 95% CI = 0.83–0.99). Furthermore, the association between openness and SI was also significant in the multivariable analysis (AOR = 1.15, 95%CI = 1.02–1.29). None of the other Big Five traits significantly predicted any of the dependent variables.

DISCUSSION

Overall, the results of this study suggest that SA, SI, and NSSI are widespread among Japanese juvenile delinquents. In particular, there were marked differences in the lifetime experience rates of NSSI between the present study and the national community sample for both males and females. There is no denying that this result could be interpreted as being influenced by the manner in which the questions were asked. Namely, the present study asked detailed questions based on the methods used, whereas a previous study²⁴ asked about

TABLE 4 Logistic regression analyses for lifetime SA, SI, and NSSI on controlling for the demographic variables.

	SA		SI		NSSI	
	AOR	95%CI	AOR	95%CI	AOR	95%CI
Sex (male = 0, female = 1)	5.92***	3.02–11.59	3.89***	2.20–6.85	3.60***	2.06–6.33
Age	1.23	0.98–1.54	1.14	0.96–1.35	0.98	0.86–1.11
Number of admissions to the JCH	1.33	0.91–1.93	1.12	0.81–1.56	1.31	0.99–1.73
Extraversion	0.97	0.85–1.09	0.92	0.84–1.01	1.05	0.97–1.14
Agreeableness	1.06	0.93–1.22	1.01	0.91–1.11	0.91*	0.83–0.99
Conscientiousness	0.92	0.81–1.04	0.91	0.82–1.00	0.93	0.86–1.01
Neuroticism	1.30***	1.13–1.50	1.39***	1.24–1.56	1.12**	1.03–1.21
Openness	1.13	0.97–1.31	1.15*	1.02–1.29	1.04	0.95–1.14
Nagelkerke's R ²	0.23		0.26		0.15	

Abbreviations: AOR, adjusted odds ratio, CI, confidence interval; JCH, juvenile classification homes; NSSI, nonsuicidal self-injury; SA, suicide attempts; SI, suicide ideation.

***P < 0.001; **P < 0.01; *P < 0.05.

single items. However, as shown in Table 1, 23.5% of males and 38.8% of females in this study reported engaging in one of the investigated methods concerning NSSI more than 10 times, which is higher than the percentage of the community sample that engaged in a NSSI method even once (15.5% of males and 24.9% of females).

The results also demonstrated that the lifetime experience rate of these suicidal behaviors was particularly high among institutionalized females, which is consistent with the results of a previous study of adult correctional inmates in Japan.²⁵ It is also noteworthy that even among delinquent boys, who are often regarded as more aggressive toward others rather than themselves, a proportion of suicide-related behaviors was reported, albeit lower than that among females who have committed such delinquent acts.

Considering the Big Five traits, our research suggests that a specific personality constellation is associated with SA, SI, and NSSI engagement. In summary, neuroticism was consistently and significantly associated with all suicidal risks, while agreeableness was found to be a protective factor only against NSSI. Meta-analytical research has clearly demonstrated that neuroticism is most strongly associated with psychopathology in the general population,²⁶ and the latest research²⁷ reported that higher neuroticism is both associated with and a risk factor for suicidal behavior. The results of the present study are consistent with these findings, and finding the same trend in juvenile delinquents adds new insight to the field. Neuroticism, defined as a tendency toward anxiety, depression, self-doubt, perfectionism, and other negative emotions, has been found to be frequently associated with poor mental health. Individuals with high neurotic tendencies are generally considered less adept at processing stressors and are more likely to interpret a fairly normal situation, such as a minor complaint, as hopelessly difficult to deal with, which may be linked to an increased risk of suicide. However, some studies relying on macro data have demonstrated a different trend, which showed that lower neuroticism was associated with higher completed suicide rates.²⁸ A more detailed study is warranted to identify the sources of these differences.

In the present study, agreeableness significantly contributed to lower odds ratios only for NSSI engagement. Agreeableness represents a tendency to be considerate and cooperative rather than suspicious and hostile toward others. Previous studies have demonstrated that agreeableness was negatively correlated with NSSI involvement in the general youth population,²⁹ and the results of the present study are consistent with these findings. Youths who might show higher agreeableness are likely to encounter less interpersonal conflict since they possess more empathy in terms of understanding other people's feelings and the ability to perceive what the other person wants, which may result in less involvement in NSSI as a coping strategy for interpersonal conflict. The results of this study may provide such an explanation. However, other research³⁰ found a different relationship and in the opposite direction to the present study, that is, episodic self-injurers reported higher levels of agreeableness when compared with noninjurers. The latest meta-analytical research²⁷ examining the association between the Big Five traits and suicide-related behaviors concluded that no clear results regarding agreeableness and suicidal behavior were found due to the heterogeneity of the studies. Moreover, the mechanisms underlying the results of this study, which were nonsignificant for SA and SI but significant only for NSSI, are unclear, thus further research is warranted.

The present study also found a positive relationship between openness and SI. The openness trait in the Big Five model refers to an individual's level of openness to new experiences, ideas, and perspectives. Individuals with elevated levels of openness typically exhibit a diverse range of interests and experiences, and often demonstrate sensitivity to their surroundings and emotions of others. Our results corroborate with those of prior research that established a link between openness and suicide ideation in a nationally representative sample from Germany.³¹ High levels of openness may render individuals more susceptible to negative emotions in interpersonal relationships, increasing the likelihood of experiencing

suicidal thoughts. However, it is crucial to recognize that external factors and scores on other traits might play a more significant role in the relationship between openness and suicide risk than the openness trait alone. Consequently, further investigation is needed to better understand this association.

The results of this study might help correctional officers identify institutionalized youths at higher risk for suicide and allow the development of early interventions to prevent suicide. Although numerous risk assessment tools have been developed to predict offenders' recidivism and violence, there is currently no established, empirically based suicide screening tool for correctional inmates. It has also been noted that there are various barriers to an effective suicide risk screening process in correctional facilities, including inmates' reluctance to expose their vulnerabilities, lack of trust in correctional service staff, and difficulty in devoting sufficient time to each inmate for a detailed assessment.³² In this regard, the TIPI-J scale is easy to administer in a timely manner and does not overtly question suicidal intent, thus it has the potential to be used as an adjunctive source of information for suicide risk assessment. As mentioned above, JCHs are institutions that detain juvenile delinquents for a short period of time and conduct psychological evaluations before the court makes a final decision, and many personality tests are conducted. Although these tests are not necessarily specific to suicide risk, they may be useful in assessing suicide risk. A single risk factor alone is not sufficient to identify individuals at high risk of suicide, and it is expected that consideration of the results of personality tests administered routinely at JCHs, in addition to historical factors, will lead to improved accuracy in risk assessment for suicide. Given that no single suicide prevention measure alone can be expected to be successful, efforts should focus on the psychological aspects of juvenile delinquents, in addition to environmental aspects of correctional facilities, such as limiting access to means of suicide. There is also a need for correctional practitioners to be adequately trained in recognizing and addressing the mental health needs of inmates. Furthermore, the results of this study suggest that female inmates who are incarcerated have a higher prevalence rate of suicide-related behaviors than male counterparts. Consequently, additional research is warranted to investigate gender-specific factors contributing to this disparity and the interaction between personality and gender, and the results would inform the development of more effective suicide prevention strategies.

This study has several limitations that must be acknowledged. First, the cross-sectional design of the study precludes any causal inferences from being made between personality traits and suicide-related behaviors. Second, underreporting of suicide-related behavior cannot be ruled out due to the nonanonymous format of the study. Third, despite several studies^{33,34} utilizing the TIPI-J in Japanese teenagers, the TIPI-J's reliability and validity in adolescents have not been thoroughly assessed. The findings of this study should be interpreted with caution due to the limited applicability of the TIPI-J to adolescents. Despite these limitations, the present study adds a unique contribution to

this area. To the best of our knowledge, this is the first study to examine the association between the Big Five traits and suicide-related behaviors among correctional inmates in Japan. The TIPI-J has a limited number of items, and the finding that the TIPI-J has the potential to be used as a screening tool for suicide-related behavior, while understanding personality with a limited number of items is highly useful in practice. Furthermore, the TIPI has been validated in various countries, and its strength is that it has a certain degree of comparability, which should be examined in future prospective follow-up studies.

AUTHOR CONTRIBUTIONS

Masaru Takahashi conceptualized and designed the study, drafted the initial manuscript, and reviewed and revised the manuscript. Kasumi Imahara, Yukiko Miyamoto, Kayoko Myojo, and Michiko Yasuda designed the data collection instruments, collected the data, and reviewed and revised the manuscript. Masaru Takahashi coordinated and supervised the data-collection process. The other authors, excluding Masaru Takahashi, critically reviewed the manuscript for important intellectual content. All the authors approved the final manuscript as submitted and agreed to be accountable for all aspects of the current work.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

The data set is not publicly available due to the contract with the Ministry of Justice, Japan.

ETHICS APPROVAL STATEMENT

This study was approved by the Humanities and Social Sciences Research Ethics Committee of Ochanomizu University (approval number: 2021-63, 2022-115), and written consent to conduct the survey was obtained from the respective JCH.

PATIENT CONSENT STATEMENT

The beginning of the survey form clearly stated that participation in the survey was voluntary, that no one would be disadvantaged if they did not participate, that participants did not have to answer questions that were difficult to answer, and that they could withdraw their consent at any time.

CLINICAL TRIAL REGISTRATION

None.

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