This study aimed to verify the mediating effects of attribution style, both external and internal, in the relationship between childhood trauma and former prisoners' recidivism. In 2017, recidivism data on 235 former prisoners who had received Korea Rehabilitation Agency (KRA)'s housing support service in 2014, and had responded to the childhood traumatic questionnaire and surveys on external and internal attributions, were retrieved from the KRA. The analysis revealed that greater childhood trauma was correlated both with higher external and lower internal attribution. Although the relationship between high childhood trauma and recidivism was significant, no significant relationship appeared between internal/external attribution and recidivism. Further, the analysis did not confirm the mediating effect of attribution on the relationship between childhood trauma and recidivism. This indicates that traumatic experiences during childhood increase former prisoners' external attribution, lower internal attribution, and lead to a higher probability of recidivism. These results demonstrate that interventions on childhood trauma may be effective in lowering recidivism because childhood trauma plays a key role in the former prisoners' reoffending and attributions that may influence the interpretation of their criminal behavior.

As of 2018, South Korea's rate of recidivism over the past 10 years had increased by 11.2% in all crimes except traffic offenses (Supreme Prosecutor's Office of Korea, 2017). Moreover, of the offenders apprehended in 2016, only 21.6% were first-time offenders, while 44.5% had previous convictions (Supreme Prosecutor's Office of Korea, 2017). Considering that 44.5% offenders had previous convictions, preventing recidivism was a critical issue in preventing crimes in South Korea. Over a 10-year period starting in 2008, while more than 20,000 prisoners were released annually, 22% of them were reincarcerated due to recidivism. The reincarceration rate in 2016 was the highest at 24.8% (Korea Ministry of Justice, 2017). In terms of the reincarceration rate per number of crimes, 9.8% first-time offenders, 25.6% second-time, 38.7% third-time, 47% fourth-time, and 61.3% offenders with histories of five or more incarcerations were reincarcerated (Korea Ministry of Justice, 2017). This indicates that repeated criminal offenses are likely in offenders, leading to a heightened risk of chronic crimes. Thus, there is an increasing need for research in counseling and psychotherapy to prepare interventions that lower recidivism rates.

Childhood Trauma and Recidivism

Childhood trauma refers to neglect or abuse from family members or caregivers (Sohn, 2017). Childhood abuse experiences are common phenomena observed in repeat offenders (Courtney & Maschi, 2013; Harlow, 1999; J. S. Levenson et al., 2016; Maschi et al., 2011), and are also more common in repeat offenders than first-time offenders (Dalsklev et al., 2019; Zhang & Zheng, 2018). Many previous studies have substantiated this finding with results showing that a childhood experience of abuse is an important risk factor for recidivism in criminals (Grella et al., 2005; Kerig & Becker, 2015; Teague et al., 2008; Topitzes et al., 2011). In particular, a recent study by Moore & Tatman (2016) showed that negative experiences during childhood are predictors of recidivism in adult offenders. As such, the childhood experience of abuse has been researched as an important variable in criminology (Kerig & Becker, 2015; Topitzes et al., 2011). The influence of childhood trauma on crimes and recidivism has also been investigated in South Korea (D. H. Lee et al., 2015; I. K. Lee, 2015; Min & Won, 2017). A number of studies on Korean prisoners have focused on the importance of predicting the risk factors for re-offending of prisoners, and exploring the adverse childhood experiences of prisoners in order for their stable rehabilitation (D. H. Lee et al., 2015; I.
K. Lee, 2015; Min & Won, 2017). However, since few Korean studies have investigated the specific mechanisms through which childhood trauma influences recidivism, this study aims at exploring this aspect. The current study may also contribute to the relatively limited knowledge base on recidivism of Korean former prisoners by focusing on the influence of childhood trauma on the possibility for repetitive criminal behaviors.

**Attribution and Recidivism**

External and internal attributions are possible variables that can explain the relationship between childhood trauma and recidivism. Attribution refers to the exploration of the causes of an event's outcome, and is associated with where or on whom the offenders place the blame for their criminal actions (Blumenthal et al., 1999). For example, while offenders with internal attribution have a tendency to blame themselves, those with external attribution try to avoid taking responsibility for the consequences of their criminal behavior by blaming factors such as poverty, drugs, and the victims; or they believe that their behaviors were chance-based. Rotter (1966), according to the social learning theory, divided attribution into external and internal attributions. Individuals who believe that they can control their own behavior through their capabilities and efforts tend to show internal attribution, while those who believe that their actions have resulted from external influences such as luck and other people tend to show external attribution. When explaining the lifestyle theory of crime, Walters (2012) stated that thinking and behavior formed through early experiences influence an individual's acquisition of a criminal lifestyle and included attribution as a major factor that forms an individual's criminal cognitive schema.

In particular, external attribution is an important factor in recidivism. A study that used data from the Swedish National Council for Crime Prevention, on differences in external attribution between recidivist and non-recidivist groups reported that external attribution was higher in the recidivist group than in the non-recidivist one (Tidefors et al., 2019). Moreover, Nwankwo et al. (2018)'s regression analysis of the relationship between attribution and recidivism among prison inmates in Abakaliki confirmed that recidivism increased with external attribution. Similarly, many previous studies conducted in various countries such as Germany (Armborst, 2017), the U.K. (McAnena et al., 2016), Nigeria (Nwankwo et al., 2018), and the U.S.A. (Wood et al., 2015) used attribution as an important psychological variable in their research on recidivism in offenders.

As with external attribution, the relationship between internal attribution and recidivism has been confirmed through many previous studies. Craig et al. (2008) reported that internal attribution in offenders, acts as a variable that decreases their risk of recidivism. Moreover, previous studies have found that offenders with an external attribution style have higher risks of recidivism compared to those with an internal attribution style (Fisher et al., 1998; Nwankwo et al., 2018). Further, internal attribution has been proposed as one of the important protective factors for preventing recidivism in multiple studies conducted in Nigeria (Nwankwo et al., 2018), Cape Town (Gaum et al., 2006), and UK (De Vries Robbé et al., 2015; Farmer et al., 2012). These previous studies support Rotter's (1966) theory that attribution strengthens functional behavioral changes and indicates that there is a correlation between internal attribution and recidivism.

**Childhood Trauma and Attribution**

Childhood trauma can influence attribution formation that helps to explain or justify one's motives, into adulthood (Gibb & Alloy, 2006; Vallee & Silovsky, 2002). In particular, sexual trauma during childhood causes overwhelming anger and influences the formation of internal attribution (Cantón-Cortés et al., 2015). Browne & Winkelman (2007) reported that childhood abuse and neglect are associated with internal attribution including self-blame. Additionally, various other studies have emphasized internal attribution as a protective and risk factor created by childhood abuse and neglect (Collishaw et al., 2007; Jackson & Deye, 2015; Keiley et al., 2001).

While some previous studies demonstrate that childhood trauma influences internal attribution, other studies report that childhood trauma is highly correlated with external attribution (Hovens et al., 2016; Roazzi et al., 2016). For instance, Hovens et al. (2016) conducted a study on 1,474 adults with depressive and anxiety disorders and through a linear regression analysis found that there was a highly significant correlation between childhood trauma and external attribution. Moreover, all four sub-scales—emotional neglect, psychological abuse, physical abuse, and sexual abuse—as well as the total scale had significant correlations with external attribution. Multiple previous studies that reported that attribution acts as a mediator in the relationship between childhood trauma and depression, anxiety, anger, and issues with emotional regulation (Collin-Vézina et al., 2015; Roazzi et al., 2016; Weindl et al., 2018), confirmed the pathways through which childhood trauma leads to external or internal attribution.

**The Current Study**

In addition to the finding that childhood experiences of domestic violence and violent crimes in adulthood are significantly correlated (Shin, 2013), former prisoners with childhood trauma may have a tendency to externalize responsibility for their criminal behaviors by blaming their victims, the justice system, offending circumstances, or the lack of support for their offenses, and become repeat offenders (Ware & Marshall, 2008). Moreover, to prevent recidivism in these former prisoners, it was necessary to explore the psychological relationship between their childhood trauma and their criminal offenses in adulthood. Furthermore, based on the findings explained above, if a stable relationship is found between childhood trauma and attribution, it would be worthwhile to explore the mediating effects of attribution in the relationship between childhood trauma and recidivism in former prisoners.

This study, therefore, seeks to examine the following two questions:

1. What is the relationship between childhood trauma, attribution, and recidivism?
2. What are the mediating effects of attribution in the relationship between childhood trauma and recidivism?

Materials and Methods

Participants and Procedures

The data were obtained via the commissioned research project from Korea Rehabilitation Agency (KRA). The KRA, an agency under the Ministry of Justice, is in charge of probation and rehabilitation for prisoners. This agency provides reentry programs such as housing support and vocational training to those who are classified as needing additional protection for self-reliance and reentry among the former-prisoners. The data used in this study were collected in two phases: 2014 (T1) and 2017 (T2), and it was the agency’s first long-term data of former prisoners. As each project was conducted in 2014 and 2017, a 3-year delay was selected. We also confirmed whether a 3-year longitudinal study would be sufficient to measure the recidivism of former prisoners through multiple research (Anderson, 2002; Houser et al., 2019; Katsiyannis et al., 2004; Zettler et al., 2015). These studies suggested that personal variables of former prisoners, such as mental health, severity of arrest, and individual background had a significant influence on the possibility of recidivism within 3 years after release. While the recidivism rate in South Korea was 24.7% in 2017 (Ministry of Justice of South Korea, 2017), in the current study it was 8% for the same period. Since this study’s recidivism rate was based on the probability that former prisoners who received support services from KRA would be reincarcerated for a new crime, re-released, and receive support service again in three years, there may have been a difference as compared to the national recidivism rates. In addition, of the participants, 36.7% had already been imprisoned twice or more. While conducting the surveys, the participants were provided with an explanation of the study’s purpose, and it was clearly stated in the questionnaires that their responses would be used solely for research purposes. In addition, they received explanations relating to the protection of private information and confidentiality as well as the research ethics for surveys, to elicit their honest responses. The specific methods to be followed for surveys and data treatment were also explained to the individuals conducting the surveys. The participants who completed the surveys were provided with $10 worth of gift vouchers, and all of them signed informed consent forms.

In 2014, surveys were conducted on former prisoners who had received correctional support services in nine areas (Seoul, Gyeonggi, North Gyeongsang, Incheon, Gangwon, Daejeon and Chungnam, Daegu and Gyeongbuk, Busan, and Gyeongnam) from the National Hope for Family Center, KRA, Ministry of Justice in an outsourced research project. Of these, we only included 408 participants who had received KRA’s housing support - a correctional service, that offers affordable housing for a maximum of 10 years to former prisoners who have family members to live with. To obtain data on recidivism, in December 2017, approximately three years later, the study confirmed through KRA whether the 235 former prisoners surveyed in 2014, had been reincarcerated and released from prison again, subsequent to the surveys. Thus, our study sample was left with 235 participants, whose reentry to the housing support service, had been identified by KRA in 2017.

Table 1 shows the sample’s sociodemographic characteristics: Women and men represented 14.9% (n = 35) and 85.1% (n = 200) of the sample, respectively. Their mean age at the time of assessment (2014) was 52.52 years (Standard deviation [SD] = 8.13; range 29 to 72 years). The leading three reasons for the former prisoners’ past incarceration were fraud or embezzlement (38.4%), robbery (8.1%), and murder (7.7%). Of the participants, about 14.5% were sentenced for offenses such as rash driving and arson; 54% were non-recidivist, and 18.7% and 8.1% had two and three incarceration experiences, respectively. Finally, the length of the incarceration sentence of participants was as follows: less than 1 year (30.2%), 1 ~ 2 years (25.5%), 2 ~ 5 years (19.6%), 5 ~ 10 years (11.1%), and 10 years or more (12.5%).

Childhood Trauma Questionnaire (CTQ) - (T1)

The CTQ, which was developed by Bernstein & Fink (1998), translated into Korean and revised by Y. K. Lee (2006), and supplemented by Jung (2008), was used to measure childhood trauma in former prisoners. It consisted of five subdomains: emotional abuse, emotional neglect, physical abuse, physical neglect, and sexual abuse. Each subdomain had five questions for a total of 25 questions in the questionnaire. Based on previous studies’ findings that sexual abuse should be identified as an independent area (Roth et al., 1997) since it is relatively rarer than other types of abuse and characterized by distinctive symptoms (Choi & Hwang, 2006), the five questions on sexual abuse were excluded to fit this study’s purpose. Finally, only physical abuse, emotional abuse, physical neglect, and emotional neglect were measured. Further, from 2011 to 2015, South Korea’s incidence rate of sexual abuse remained below 5% of the total types (Statistics Korea, 2017). For specific child abuse cases that took place in 2015, 45.6% were comorbid abuse, 17.5% were emotional abuse, 17.2% were neglect and abandonment, 16.1% were physical abuse, and 3.7% were sexual abuse. Thus, our decision to exclude the sexual abuse subscale in this study, was supported by South Korea’s social and cultural characteristics wherein the incidence rate of sexual abuse in childhood was significantly lower than that of other types of abuse. Each question assessed previous experiences of trauma from parents or other family members occurring at 18 years of age or younger. The CTQ is a self-reported questionnaire rated on a 4-point Likert scale (0: never, 3: often), with higher scores indicating more severe experiences of childhood trauma. In this study, Cronbach’s $\alpha$ was 0.92 for all the questions.

Attribution Style (T1)

To measure the attribution style of former prisoners, this study used the attribution style scale developed by H. Levinson (1981) and translated into Korean by Ahn (1986). This scale consisted of two subscales for external and internal attributions. External attribution further included other attribution and chance attribution. There were eight questions each, for internal, other, and chance attributions, with a to-
Table 1. Sample Characteristics

<table>
<thead>
<tr>
<th>Variables</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>200 (85.1%)</td>
</tr>
<tr>
<td>Female</td>
<td>35 (14.9%)</td>
</tr>
<tr>
<td>Education</td>
<td></td>
</tr>
<tr>
<td>Did not graduate from high school</td>
<td>75 (31.9%)</td>
</tr>
<tr>
<td>Graduated from high school</td>
<td>118 (50.3%)</td>
</tr>
<tr>
<td>Graduated from college</td>
<td>41 (17.4%)</td>
</tr>
<tr>
<td>Completed graduate school</td>
<td>1 (0.4%)</td>
</tr>
<tr>
<td>Income per month</td>
<td></td>
</tr>
<tr>
<td>Less than 1,000 USD</td>
<td>29 (12.3%)</td>
</tr>
<tr>
<td>1,000 USD - 2,000 USD</td>
<td>106 (45.1%)</td>
</tr>
<tr>
<td>2,000 USD - 3,000 USD</td>
<td>78 (33.2%)</td>
</tr>
<tr>
<td>3,000 USD - 4,000 USD</td>
<td>16 (6.8%)</td>
</tr>
<tr>
<td>4,000 USD - 5,000 USD</td>
<td>5 (2.1%)</td>
</tr>
<tr>
<td>over than 6,000 USD</td>
<td>1 (0.4%)</td>
</tr>
<tr>
<td>Religion</td>
<td></td>
</tr>
<tr>
<td>Religious</td>
<td>169 (71.9%)</td>
</tr>
<tr>
<td>Not religious</td>
<td>66 (28.1%)</td>
</tr>
<tr>
<td>Types of offenses</td>
<td></td>
</tr>
<tr>
<td>Fraud/Embezzlement</td>
<td>90 (38.4%)</td>
</tr>
<tr>
<td>Robbery</td>
<td>19 (8.1%)</td>
</tr>
<tr>
<td>Murder</td>
<td>18 (7.7%)</td>
</tr>
<tr>
<td>Assault</td>
<td>16 (6.8%)</td>
</tr>
<tr>
<td>Substance use or trade</td>
<td></td>
</tr>
<tr>
<td>Theft</td>
<td>10 (4.3%)</td>
</tr>
<tr>
<td>Rape</td>
<td>7 (3.0%)</td>
</tr>
<tr>
<td>Other offenses</td>
<td>34 (14.5%)</td>
</tr>
<tr>
<td>Data unavailable</td>
<td>26 (10.8%)</td>
</tr>
<tr>
<td>Number of incarcerations</td>
<td></td>
</tr>
<tr>
<td>First term</td>
<td>127 (54.0%)</td>
</tr>
<tr>
<td>Second term</td>
<td>44 (18.7%)</td>
</tr>
<tr>
<td>Third term</td>
<td>19 (8.1%)</td>
</tr>
<tr>
<td>Fourth term</td>
<td>8 (3.8%)</td>
</tr>
<tr>
<td>Fifth term or more</td>
<td>14 (6.1%)</td>
</tr>
<tr>
<td>Data unavailable</td>
<td>22 (9.3%)</td>
</tr>
<tr>
<td>Length of the incarceration sentence</td>
<td></td>
</tr>
<tr>
<td>Less than 1 year</td>
<td>71 (30.2%)</td>
</tr>
<tr>
<td>1~2 years</td>
<td>60 (25.5%)</td>
</tr>
<tr>
<td>2~5 years</td>
<td>46 (19.6%)</td>
</tr>
<tr>
<td>5~10 years</td>
<td>26 (11.1%)</td>
</tr>
<tr>
<td>10 years or more</td>
<td>29 (12.3%)</td>
</tr>
<tr>
<td>Data unavailable</td>
<td>3 (1.3%)</td>
</tr>
<tr>
<td>Total</td>
<td>235 (100%)</td>
</tr>
</tbody>
</table>

tal of 24 questions (e.g., When I make plans, I am almost certain to make them work; The direction of my life is determined by my seniors’ decisions rather than by my own; My life seems to be determined by chance.) The attribution style scale is a self-reported questionnaire rated on a 5-point Likert scale (1: strongly disagree, 5: strongly agree). Each question assesses the level to which respondents believe that they can control or regulate the problems occurring around them. Higher scores for internal attribution indicate that the respondents tend to blame themselves and take responsibility for the outcome of events happening to them. In contrast, higher scores for external attribution indicate that the respondents tend to believe that other individuals or chance, influence the outcome of events happening to them. In this study, Cronbach’s α for all questions, internal attribution, other attribution, and chance attribution was 0.82, 0.75, 0.72, and 0.70, respectively.

Recidivism (T2)

In this study, recidivism referred to cases where former prisoners received housing support services again, as of December 1, 2017, following recidivism and reincarceration since the survey in 2014. Recidivism that was based on
Table 2. Descriptive statistics and correlation between study variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Emotional abuse</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Physical abuse</td>
<td>.614**</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Emotional neglect</td>
<td>.484**</td>
<td>.388**</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Physical neglect</td>
<td>.532**</td>
<td>.551**</td>
<td>.526**</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Internal attribution 1</td>
<td>-.204**</td>
<td>-.203**</td>
<td>-.109</td>
<td>-.167**</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Internal attribution 2</td>
<td>-.186**</td>
<td>-.204**</td>
<td>-.216**</td>
<td>-.261**</td>
<td>.442**</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Internal attribution 3</td>
<td>-.088</td>
<td>-.105</td>
<td>-.114</td>
<td>-.170**</td>
<td>.378**</td>
<td>.613**</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Chance attribution</td>
<td>.106</td>
<td>.068</td>
<td>.204**</td>
<td>.201**</td>
<td>-.165*</td>
<td>-.306**</td>
<td>-.324**</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>9. Other attribution</td>
<td>.152*</td>
<td>.028</td>
<td>.232**</td>
<td>.171**</td>
<td>-.063</td>
<td>-.192**</td>
<td>-.198**</td>
<td>.538**</td>
<td>-</td>
</tr>
</tbody>
</table>

M 1.53 1.41 1.88 1.63 3.74 4.15 4.19 2.31 2.25
SD 0.64 0.68 0.84 0.55 0.72 0.64 0.74 0.58 0.60
Skewness 1.41 2.41 0.72 0.97 -.41 -.58 -.93 0.00 -.04
Kurtosis 1.35 5.69 -.52 0.89 -.03 0.34 1.07 -.13 -.02

C.f. *p<.05. **p<.01.

To confirm the tendency and normality of the data, Kline's (2015) kurtosis of 10 and skewness of 3 were used as SEM criteria. All the study variables had adequate tendency and normality in terms of their skewness and kurtosis. Frequent analysis of recidivism revealed that 219 (92%) of the participants had not been reincarcerated after 2014, while 19 (8%) had been reincarcerated.

Statistical Analysis

The data were analyzed using SPSS 21.0 and Mplus 8.0 (Muthén & Muthén, 1998-2017) as follows. First, the univariate normality and tendency were confirmed by using SPSS 21.0 to analyze descriptive statistics and the correlation between the study variables (recidivism, childhood trauma, internal attribution, and external attribution). Second, the model's goodness of fit as well as the factor loading of measurement variables comprising the latent variables were confirmed using Mplus 8.0 for confirmatory factor analysis, to test the study model's goodness of fit. Third, the structural relationship between childhood trauma, internal attribution, external attribution, and recidivism were assessed using Mplus 8.0 for structural equation modeling (SEM). Fourth, the statistical significance of each mediating effect was tested, using bootstrapping.

Results

Descriptive Analyses

The research variables childhood trauma, attribution style, and recidivism were analyzed in terms of mean, SD, skewness, kurtosis, and frequency; and correlation coefficients between the variables were also confirmed. The descriptive statistics of study variables and the correlation coefficients between the variables are presented in Table 2.

Measurement Model

Prior to the study model's verification, since internal attribution is a univariable, as suggested by Russell et al. (1998), item-parceling was used to make it a latent variable. The eight questions assessing internal attribution were divided into three item parcels to form measurement variables, and the item parcels were assigned to have equal factor loading through an exploratory factor analysis. The model's confirmatory factor analysis revealed a comparative fit index (CFI) of .971, a standardized root mean square residual (SRMR) of .044, and root mean square error of approximation (RMSEA) of .050 (90% confidence interval [CI] =.019-.076); these satisfied the criteria of SRMR and RMSEA below .06 and CFI above .95, as suggested by Hu & Bentler (1999) and MacCallum et al. (1996), thus demonstrating the study model's appropriateness for the data.

Structural Model

Mplus 8.0 was used to analyze binary variables as dependent variables. Table 3 and Figure 1 show the path coefficient of the final study model. In terms of the path co-
Table 3. Path coefficients of the structural model

<table>
<thead>
<tr>
<th>Pathway</th>
<th>$\beta(B)$</th>
<th>S.E.</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Childhood trauma $\rightarrow$ internal attribution</td>
<td>-0.326(-0.253)</td>
<td>0.071</td>
<td>-3.581***</td>
</tr>
<tr>
<td>Childhood trauma $\rightarrow$ external attribution</td>
<td>0.236(0.243)</td>
<td>0.086</td>
<td>2.826**</td>
</tr>
<tr>
<td>Childhood trauma $\rightarrow$ recidivism</td>
<td>0.184(0.186)</td>
<td>0.085</td>
<td>2.194*</td>
</tr>
<tr>
<td>Internal attribution $\rightarrow$ recidivism</td>
<td>-0.044(-0.057)</td>
<td>0.125</td>
<td>-0.462</td>
</tr>
<tr>
<td>External attribution $\rightarrow$ recidivism</td>
<td>-0.100(-0.098)</td>
<td>0.111</td>
<td>-0.884</td>
</tr>
</tbody>
</table>

c.f. *p<.05, **p<.05, ***p<.001.

![Figure 1. Path coefficients in mediation model of external attribution](image)

Efficient, the pathways from childhood trauma to internal attribution ($\beta = -0.325, p<.001$) and external attribution ($\beta = 0.236, p<.005$) were statistically significant. Moreover, the pathway from childhood trauma to recidivism ($\beta = 0.184, p<.05$) was significant. In contrast, the pathways from internal attribution to recidivism ($\beta = -0.044, p>.05$) and from external attribution to recidivism ($\beta = -0.100, p>.05$) were insignificant.

The sample size required for testing the statistical significance of each mediating effect was set as 10,000, and bootstrapping was used for analysis. Statistical significance was assessed through interval estimation at a 95% CI. In the relationship between childhood trauma and recidivism, the mediating effect of external attribution was not statistically significant. In the relationship between childhood trauma and recidivism, the mediating effect of internal attribution was also not statistically significant.

**Discussion**

The present study, which was a three-year follow-up study to confirm whether the mediating effects of attribution style influenced childhood trauma in former prisoners on recidivism, was aimed at identifying the relationship between childhood trauma, attribution and recidivism, and verifying whether the attribution style (external and internal) mediates the relationship between childhood trauma and recidivism. The results demonstrated that higher childhood trauma had significant effects on higher possibility for recidivism, higher external attribution, and internal attribution, while both attributions did not have any significant mediating effect in the relationship between childhood trauma and recidivism.

**Associations Between Childhood Trauma and Recidivism**

This study identified that higher childhood trauma was associated with higher possibility for recidivism. This indicates that individuals with multiple experiences of childhood trauma tend to show repetitive criminal behaviors and become recidivist. This finding supported previous studies...
that reported that childhood trauma experiences predicted the risk of re-offending among former-prisoners (Bowen et al., 2018; Malvaso et al., 2018; Moore & Tatman, 2016). In addition, it is in line with the result that former-prisoners with childhood trauma have a higher recidivism rate than those not with childhood trauma (Baglivio et al., 2016; Sergentanis et al., 2014). Through many previous literatures, it was confirmed that childhood trauma experience is a crucial risk factor of re-offending of prisoners (Bowen et al., 2018; Malvaso et al., 2018; Moore & Tatman, 2016). In particular, E. Y. Kim et al. (2016) confirmed that Korean prisoners who experienced physical neglect during childhood abuse had a significant relationship with repetitive crime. In addition, it was reported that inmates who experienced abuse in childhood showed higher aggression and higher rates of recidivism than those who did not experience abuse (Baglivio et al., 2016; Sergentanis et al., 2014). Abuse and traumatic events experienced in childhood affect beliefs about the world and are reported to be linked to criminal behavior (Maschi et al., 2011). As such, many previous studies as well as the findings in the current study show that childhood abuse experience is a link in a vicious cycle, has various negative effects on life, and is an important variable that may affect the recidivism of prisoners.

**Associations Between Childhood Trauma and Attribution**

When the structural relationships between the study variables were confirmed, higher childhood trauma was associated with higher tendency for external attribution and lower tendency for internal attribution. This finding coincides with previous research findings that childhood trauma results in stronger external attribution (Hovens et al., 2016; Roazzi et al., 2016) and in opposition to the findings that individuals with childhood trauma develop stronger internal attribution to overcome the resulting psychological suffering (Cantón-Cortés et al., 2015; J. E. Kim et al., 2015). The relationship between childhood trauma and external attribution found in this study is substantiated by the finding that childhood trauma may influence the formation of an attribution style that helps to explain or justify one’s motives (Gibb & Alloy, 2006; Valle & Silovsky, 2002). The contrasting finding regarding childhood trauma and internal attribution may be because previous studies were mostly conducted on victims, whereas this study targeted former prisoners. 

**The Mediating Role of Attribution**

In the relationship between childhood trauma and recidivism, internal and external attribution were not found to have a mediating effect. This indicates that individuals with multiple experiences of childhood trauma tend to show low internal attribution and high external attribution, but this means that this tendency does not affect their re-offending behavior. The finding agrees with a previous report that individuals who grew up experiencing abuse tend to attribute their violent behavior to other individuals; whereas criminal offenders who grew up experiencing abuse tend to hold the victims of their offenses responsible for causing their criminal actions (Henderson & Hewstone, 1984). Another previous study reported that the formation of a cognitive schema that externally attributes one’s own wrongdoings, leads criminal offenders to believe that their criminal actions had justifiable reasons, rather than feeling guilty or regretting their actions (Chambers et al., 2008). The present study confirmed this finding in an extension of childhood experiences of abuse but did not confirmed the role of attribution styles on the relationship between childhood trauma and recidivism.

A number of previous studies have reported the results of studies that the attribution style of criminals has a significant influence on their criminal behavior, but on the other hand, some studies explain that a significant correlation between internal/external attribution and recidivism may not appear due to various factors (Cima et al., 2007; Dietz, 2020; Gibbons et al., 2005). For example, criminals may try not to admit that their behavior was a crime by denying or minimizing their criminal behavior itself (Cima et al., 2007), and attributing to mental factors to explain their crime (Gibbons et al., 2005). In addition, in the study of Dietz (2020), it was reported that external attribution had no significant correlation with effect of offense and responsibility for offense, and internal attribution also reported that no significant correlation with responsibility for offense was confirmed. Based on these findings that indicate that there are various interpretations of the attribution styles affecting the recidivism of criminals, it is necessary to explain the relationship that the attribution styles of Korean criminals have on their criminal behavior, considering more diverse factors.

**Practical Implications**

In the present study, the pathways from childhood trauma to recidivism, from childhood trauma to external attribution, and from childhood trauma to internal attribution were significant, holding two points of significance. First, when individuals experience trauma in childhood, it is necessary to provide them with immediate interventions to promote proper cognitive development. This finding suggests that protection in childhood is crucial in preventing development that leads them toward crimes. Furthermore, this finding is significant in that it proposes possibilities for intervention to prevent crimes and recidivism despite neglect and abuse in childhood. Cicchetti et al. (1995), who demonstrated that experiences of abuse during childhood may still lead to appropriate adjustment in adolescence and adulthood, emphasized the importance of ego-resiliency, ego-control, and self-esteem in alleviating the negative influence of trauma during childhood. In addition to supporting previous findings, the present study verified the mediating effects of attribution styles in the relationship between childhood trauma in former prisoners and their repeated criminal actions in adulthood, and used these to suggest specific variables related to the negative influences and protective factors against trauma during childhood.

Second, the findings of this study indicate that active counseling interventions for the attribution styles of former prisoners may be effective in stopping the cycle of repeat crimes in prisoners who had experiences of trauma in child-
hood as well as in former prisoners with strong external attribution. Although this study did not confirm a significant correlation between attribution and repeat offenders, it can be considered in that the childhood trauma experienced by criminals has a significant influence on their attribution style may affect the interpretation of their criminal behavior. For instance, in "Changing Criminal Thinking," Sharp (2000) stated that criminal action is a result of fallacies in thinking, and it leads to the formation of negative attitudes or mood which in turn results in negative behavior. As examples of this thinking fallacy, Sharp presents rationalization, justification, excuse, blaming, accusation, and victimization. As such, the attribution style of criminals is an important aspect in various theories of criminology, and the present study observed this in former South Korean prisoners. The present findings are significant in that they suggest specific directions for psychological interventions in former prisoners within the context of South Korean reintegrative counseling.

Lastly, the results also indicate that active counseling interventions for childhood trauma of former prisoners may be effective to stop the cycle of repeated crimes in current and former prisoners. In South Korea, the need for a system to assess the risk of recidivism in prisoners and control recidivism continues to be reported (Son, 2013; Yoo, 2010). In the United States, criminals are assessed and managed based on the Transition from Prison to Community Initiative (TPCI) model, which is the basis of the Reentry program (Mitchell & Parent, 2006). In particular, the first principle of TPCI is to predict future behavior and the risk of recidivism based on the current facts. To this end, childhood abuse and trauma of prisoners are crucial factors in evaluating the risk of recidivism, and are used to evaluate the repetitive criminal behaviors and to run correctional programs. Former prisoners’ experiences of childhood abuse and trauma are considered as important variables in Korean research dealing with recidivism (D. H. Lee et al., 2015; I. K. Lee, 2015; Min & Won, 2017), however, it is difficult to say that it is considered as a factor that can evaluate the risk of recidivism of criminals. This study is significant in that it provides a scientific background for Korean version of reentry program to establish prevention of recidivism as a specific goal rather than providing simple psychological interventions.

**Conclusion**

This study’s findings are significant because its results were obtained by surveying childhood traumatic experiences and the attribution style of former prisoners in 2014, by following up on their recidivism between 2014 and December 2017. The relationship between the psychological variables and recidivism were analyzed using these longitudinal data. In South Korea, research on former prisoners has been limited, and there is a lack of studies focusing on their recidivism. The present study is also significant since it is the first longitudinal study that investigated the causative relationship between psychological variables and recidivism in former South Korean prisoners along with the mediating effects of attribution in this relationship.

Psychological research and the development of therapeutic theories based on the research findings are key aspects of reintegrative counseling for former prisoners. In this context, the present study is significant because it verified the effects of the childhood trauma that is considered to be important in many reintegrative counseling programs as well as lowering recidivism. Considering the wide-ranging damage caused by even a single criminal action, fundamental solutions for crimes are required. Such solutions can only be found by taking deep interest in the offenders.

**Limitations**

This section outlines this study’s limitations and suggestions for future studies. Its first limitation is that when following up on the former prisoners’ recidivism after three years, due to legal issues we were unable to confirm their actual recidivism rate but could only confirm the recidivism rate in those who were reincarcerated and released within these three years. Hence, the recidivism rate of prisoners who were currently under reincarceration could not be investigated. It is, therefore, necessary to continue the follow-up by cooperating with the reintegration services for better follow-up. Second, since the participants had relatively stable support resources such as a housing support service, it was difficult to generalize the findings. Moreover, most participants were males, further limiting generalization. Hence, it is necessary to confirm the results in various population segments. Third, since childhood trauma and attribution style were measured using self-reported questionnaires, a measurement bias could exist. Accordingly, various measurement tools should be used to overcome this limitation in future studies. Fourth, it investigated external attribution in all the participants, even though the role of external attribution could differ depending on the cause of incarceration (fraud, robbery, murder, rape, etc.). Reintegrative programs for criminals are designed based on theories on the causes for each crime, and there are numerous different theories on each crime. In other words, external attribution may have different roles in recidivists depending on the cause of their crime, and this is a highly important factor that should be taken into account when designing reintegrative programs. This study is limited in that it could not confirm whether the results may have differed based on the reasons for incarceration. Thus, future studies should confirm the effects of external attribution in each type of crime. Its other limitation is that the mean score of the CTQ was relatively low (ranging from .43 to .94). From 2011 to 2015, South Korea had only one case of child abuse per 1,000 children, as against nine to ten cases per 1,000 children in the U.S., indicating that South Korea has a much lower child abuse rate than the U.S. (Statistics Korea, 2017). Specifically, in the U.S., there were 9.4 cases of child abuse per 1,000 children in 2014, whereas only 1.1 cases of child abuse per 1,000 children were reported in South Korea. However, while the incidence rate in the U.S. hovers between 9.1 to 9.4 with no significant change, South Korea’s rate has increased significantly from 0.6 to 1.1, and this study attempted to address child abuse in Korea. A point that should also be considered is that in these two countries there are differences in the institutional child abuse process and socio-cultural perception of child abuse. Lastly, partici-
pants in this study could systematically differ from the general population of former prisoners in South Korea, as they are those classified to receive financial support from public institutions after release.

Contributions

Contributed to conception and design: LDH, JHY. Contributed to acquisition of data: LDH. Contributed to analysis and interpretation of data: JHY. Drafted and/or revised the article: JHY. Approved the submitted version for publication: LDH.

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Competing interests

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Data accessibility statement

The datasets generated during and/or analyzed during the current study are not publicly available, as this data is restricted by the KRA because of personal data protection and criminal information. Please contact the corresponding author with any questions.

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