Sexual Abuse, Alcohol Consumption, and Life Satisfaction Among Icelandic Adolescents: The Effects of Gender and Social Support

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Foreword

Submitted in partial fulfillment of the requirements of the BSc psychology degree, Reykjavík University, this thesis is presented in the style of an article for submission to a peer-reviewed journal.
Abstract

Sexual abuse can have severe, and long-term consequences. Therefore, it is critical to identify the factors that can prevent the negative effects of sexual abuse. This study examined whether social support buffers the effects of sexual abuse on alcohol consumption and life satisfaction among Icelandic adolescents. The study used a random sample of 2,070 Icelandic high school students. The results revealed that female adolescents were victims of sexual abuse more often, had lower life satisfaction, and higher perceived social support than male adolescents. There was no significant gender difference in alcohol consumption and no association between alcohol consumption and life satisfaction was found. However, sexual abuse among adolescents was a predictor for increased alcohol consumption and lower life satisfaction compared to non-victims. Social support did not buffer the effects of sexual abuse on either alcohol consumption nor life satisfaction. In conclusion, the results indicate that the primary impact on alcohol consumption and life satisfaction was sexual abuse.

Keywords: Psychology, sexual abuse, alcohol consumption, life satisfaction, social support

Útdráttur

Numerous studies have shown that sexual abuse is connected with psychological difficulties later in life (Brayden, Deitrich-MacLean, Dietrich, & Sherrod, 1995; Briere & Elliot, 2003; Fergusson, McLeod, & Horwood, 2013; Frazier, Conlon, & Glaser, 2001), whether they occur in more noticeable manners, such as alcohol consumption (Dube et al., 2006; Simantov, Schoen, & Klein, 2000), or less distinguishable ways, such as a general lack of satisfaction with everyday life (Covington & Kohen, 1984; Filipas & Ullman, 2006).

Although social support has been shown to have a direct influence on a victim’s adjustment to life, researchers have also found that there are individual differences in the need for support among victims of sexual abuse (Jonzon & Lindblad, 2004; Tremblay, Hébert, & Piché, 1999).

According to the World Health Organization (2002), sexual abuse is defined as the act of a violation or an abuse of power on behalf of an individual, and has been defined as all sexual activity, attempts to establish sexual activity, unwanted sexual acts, the attempt to buy sex, and other sexual acts that are directed against a person with force, regardless of the relationship with the victim (Krug, Dahlberg, Mercy, Zwi, & Lozano, 2002). Studies have shown that the prevalence rate of childhood sexual abuse in the U.S. is between 14–33% (Briere & Elliot, 2003; Finkelhor, Hotaling, Lewis, & Smith, 1990), and that females are far more likely than males to experience sexual assault, 22% versus 4–8%, respectively (Elliot, Mok, & Briere, 2004). These results are comparable to findings in Iceland, where the prevalence rate of sexual abuse is 14.6–16.7%, and about three times higher among women than men (Arnason, Gísladóttir, & Jónsson, 2016; Ólafsdóttir, 2003).

Research has revealed that sexual abuse, whether it takes place in childhood or adulthood, often brings about psychological difficulties that can result in low life satisfaction.
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(Brayden et al., 1995; Briere & Elliot, 2003; Covington & Kohen, 1984; Fergusson et al., 2013; Filipas & Ullman, 2006; Frazier et al., 2001; Lambert et al., 2014). Life satisfaction implies a cognitive, judgmental process of a person’s quality of life according to selected circumstances (Diener, Emmons, Larsen, & Griffin, 1985; Shin & Johnsons, 1978). A gender difference has been found in studies, with reporting of higher life satisfaction among males (Diener, 1984; Goldbeck, Schmitz, Besier, Herschbach, & Henrich, 2007). Yet, the fact that a lot of psychological concepts have been studied in connection to sexual abuse, research on life satisfaction is lacking.

Adolescence is a formative period when youth often initiate alcohol consumption. Research on early alcohol use has shown relations between trauma and alcohol-seeking behavior (Dube et al., 2006; Folkman & Lazarus, 1991; Hasking, Lyvers, & Carlopio, 2011; Ullman, Filipas, Townsend, & Starzynski, 2006). Studies have shown that victims of sexual abuse were more likely to report regular drinking, and that they were approximately two to three times more likely to initiate alcohol use in early adolescence (Dube et al., 2006; Simantov et al., 2000). Regular alcohol use among early adolescents is equal among gender with a steady increase in consumption during the years that follow, as they get older consumption increases among males (Danielson, Wennberg, Hibell, & Romelsjö, 2011; Gíslason, Yngvadóttir, & Benediktsdóttir, 1995; O’Malley, 2002; Windle, 2003).

Studies have shown that there is a relation between alcohol consumption and life satisfaction (Koivumaa-Honkanen et al., 2012). However, researchers have disagreed on the primary causal factor. In one longitudinal study by Newcomb, Bentler, and Collins (1986), their results indicated that early alcohol use led directly to lower life satisfaction. Conversely, research conducted by Zullig, Valois, Huebner, Oeltmann, and Drane (2001) showed that reduced life satisfaction was associated with an adolescent’s first alcohol drink. Meanwhile, other studies have found no relations between adolescents’ life satisfaction and greater
alcohol consumption (Clark & Kirisci, 1996; Grant, Wardle, & Steptoe, 2009). Thus, the
relation between life satisfaction and alcohol consumption is ambiguous. It needs to be
examined further, especially in connection to sexual abuse.

Social support is one factor that has been related to sexual abuse, alcohol
consumption, and life satisfaction. Social support is the perception of support received from
parents and peers (Tremblay et al., 1999) and is defined by Cobb (1976) as “information
leading the individual to believe that he or she is cared for, loved, esteemed, and valued.”
Social support has been shown to have a direct influence on adjustment to life among victims
of sexual abuse (Tremblay et al., 1999), and have Cohen and Willis (1985) suggested that
social support could have a great influence on one’s well-being if the level of support
matches the support needed to overcome the negative effects of sexual abuse. Parental
support plays a major role in the psychological symptomatology of children who are victims
of sexual abuse (Brayden et al., 1995; Cohen & Mannarino, 2000; Merrill, 2001; Tremblay et
al., 1999). However, during adolescence, peer support often becomes more important than
parental support. Yet, studies have revealed that peer support is not as effective as parental
support in one’s later adjustment to life for childhood sexual abuse victims (Baron & Kenny,
1986; Lambert et al., 2014; Merill, Thomsen, Sinclair, Gold, & Milner, 2001; Tremblay et al.,
1999). Tremblay et al. (1999) have suggested that peers, often at the same age as the victim,
do not have the knowledge and ability to respond to the demands of a child’s disclosure of
being sexually abused. Other studies have revealed that children who had been severely
abused perceived social support from friends less positively (Baron & Kenny, 1986;
Tremblay et al., 1999). There is also a gender difference in perceived social support, where
females perceive higher levels of support from both friends and family (Barbee et al., 1993;
Flaherty & Richman, 1989; Kendler, Myers, & Prescott, 2005). As it pertains to alcohol use,
research has shown that social support is connected to alcohol consumption among
adolescents, with peer support related to higher alcohol consumption and good parental support related to lower alcohol consumption (Barnes & Farrell, 1992; Wang, Hipp, Butts, Jose, & Lakon, 2015). In general, parental support has been shown to be a protective factor for victims of sexual abuse in both life satisfaction and alcohol use. Conversely, peer support has been demonstrated to have a detrimental effect, specifically related to the severity of the sexual abuse and greater consumption of alcohol.

The purpose of this study was to examine the impact of sexual abuse on alcohol consumption and life satisfaction, as well as the role of social support. Given the shortage of research, as well as the inconsistent findings of the studies that exist, especially regarding the idea of life satisfaction. The main aim of the present study was to examine: 1) female adolescents, are more often victims of sexual abuse, have higher levels of social support, drink less alcohol, and experience lower life satisfaction compared to male adolescents; 2) adolescents with a prior history of sexual abuse consume more alcohol and experience less life satisfaction compared to those who are non-victims; 3) adolescents with a prior history of sexual abuse who receive good social support drink less alcohol and experience higher life satisfaction compared to those who do not have acceptable support, and, finally; 4) that life satisfaction partially mediates the effect of sexual abuse on alcohol consumption.

**Method**

**Participants**

The participants in this study were respondents to the survey “Youth in Iceland,” conducted by the Icelandic Centre for Social Research and Analysis (ICSRA) in 2013. A total of 11,116 Icelandic students participated in the ICSRA questionnaire: 5,394 males, 5,590 females, and 132 did not disclose their gender. The response rate was 75.5% of all students enrolled in high school and attending class on the day when the ICSRA survey was given (Pálsdóttir et al., 2014). The sample used in the study was a random selection from all of the
respondents in the ICSRA’s survey. The current study’s sample consisted of 2,070 students: 989 males, 1,059 females, and 22 participants not disclosing their gender. Their ages ranged from 15 to 23 ($M_{age} = 17.50$, $SD_{age} = 1.44$). An information letter was sent to all parents of students under the age of 18 to introduce the questionnaire and to give the parents the opportunity to notify the school if they did not consent to their children’s participation in the survey (Appendix A). Students over the age of 18 were able to decide for themselves whether they would take part in the study.

**Measurements**

A detailed questionnaire was issued in 2013 by the ICSRA. It was initially developed in 1998 by the employees of Institute for Educational Research, in collaboration with Iceland’s Ministry of Education. However, since 1998, the questionnaire has been further refined by the ICSRA.

The instruments of this study were 20 questions from the ICSRA questionnaire. The questions that were used were the following:

**Background information.** The participants were asked about their ages and genders.

**Age.** Age was assessed using the question “In what year were you born?” The question was on a nine-point scale: $1 = 1998$, $2 = 1997$, $3 = 1996$, $4 = 1995$, $5 = 1994$, $6 = 1993$, $7 = 1992$, $8 = 1991$, and $9 = 1990$, and was recoded as: $1 = 15$, $2 = 16$, $3 = 17$, $4 = 18$, $5 = 19$, $6 = 20$, $7 = 21$, $8 = 22$, and $9 = 23$.

**Gender.** Gender was assessed using the question “Are you a male or a female?” and was on a two-point scale: $1 =$ female, and $2 =$ male.

**Sexual abuse.** Victimization of sexual abuse was assessed using five questions that have been shown to be a valid assessment in prior research (Ásgeirsdóttir, Sigfúsdóttir, Guðjónsson, & Sigurðsson, 2011; Ásgeirsdóttir, Guðjónsson, Sigurðsson, Sigfúsdóttir, 2010): “Has someone uncovered themselves in an improper way in front of you?”; “Has someone
fondled you, other than genitals, in an improper way?”; “Has someone fondled your genitals?”; “Has someone convinced, forced or imposed upon you to touch their genitals?”; and “Has someone convinced, forced or imposed upon you to have sex or sexual encounters with them?” The questions were on a five-point scale, 1 = never, 2 = 12 years or younger, 3 = 13–15 years, 4 = 16–17 years, and 5 = 18 years or older. The five questions were computed into one variable, “sexual abuse,” and given new values: 5 = never experienced sexual abuse, and 6–25 = have experienced sexual abuse.

Peer support. The perceived social support scale (PSS) was used to measure peer support and has prior research shown that PSS has good validity (Kristjánsson, Sigfús dóttir, James, Allegrante, & Helgason, 2011). Peer support was assessed using the question: “How easy or difficult would it be for you to get the following from your friends?” With a five-item structure consisting of “Caring and warmth,” “A discussion of personal matters,” “Advice about school,” “Advice regarding other chores (tasks),” and “Help with various chores (tasks).” The questions used a four-point scale: 1 = very hard, 2 = rather hard, 3 = rather easy, and 4 = very easy. The five questions were computed into a new variable, “peer support,” and given a new scale of 4–20. Good internal consistency was found with the coefficient alpha of \( \alpha = 0.894 \).

Parental support. The perceived parental support scale (PPS) was used to measure parental support, which has been shown to have good internal consistency and validity (Kristjánsson, Sigfús dóttir, Karlsson, & Allegrante, 2011; Kristjánsson et al., 2011). Parental support was assessed using the question: “How easy or difficult would it be for you to get the following from your parents?” With a five-item structure consisting of “Caring and warmth,” “A discussion of personal matters,” “Advice about school,” “Advice regarding other chores (tasks),” and “Help with various chores (tasks).” The questions used a four-point scale: 1 = very hard, 2 = rather hard, 3 = rather easy, and 4 = very easy. The five questions were
computed into a new variable, “parental support,” and given a new scale of 4–20. Excellent internal consistency was found with the coefficient alpha of $\alpha = 0.90$.

**Life satisfaction.** Life satisfaction was measured using the question “How well do the following statements apply to me?” This question was followed by “I am satisfied with my life” and “I am happy.” The questions were on a four-point scale: 1 = describes me pretty well, 2 = describes me well enough, 3 = describes me not well enough, and 4 = does not describe me at all. The five questions were computed into one variable, “life satisfaction,” and given a new scale of 2–8. Good internal consistency was found with the coefficient alpha of $\alpha = 0.891$.

**Alcohol consumption.** Consumption of alcohol among adolescents was assessed using the question “How many times have you drunk alcohol of any kind?” with an item structure of “the last 30 days.” The question was gauged on a seven-point scale: 1 = never, 2 = 1–2 times, 3 = 3–5 times, 4 = 6–9 times, 5 = 10–19 times, 6 = 20–39 times, and 7 = 40 times or more.

**Procedure**

The 2013 ICSRA questionnaire contained 95 questions. The questionnaires were sent to every high school in Iceland, and all students were asked to complete the survey on the same day. Detailed instructions were enclosed for teachers regarding the implementation of the survey. The information that was provided to the students concerned how each student should answer to their best ability, but to request help from the teacher if they were in doubt about any of the questions. The teacher also relayed the information that the participants could withdraw from participation at any time and emphasized that the questionnaire was anonymous—after being turned in, it would be placed in an unlabeled, untraceable envelope.
The data for this study was provided to the researcher by the ICSRA in electronic form via e-mail and included only questions connected to the relations between sexual abuse, alcohol consumption, life satisfaction, and social support.

**Data Analysis**

This research was a cross-sectional study, where quantitative methods were used to assess the effects of sexual abuse on alcohol consumption and life satisfaction, whether social support had a buffering effect, and if alcohol consumption and life satisfaction influenced one another. The independent variable was sexual abuse. The dependent, mediation, and moderation variables differed, depending on the specific hypothesis being tested.

Descriptive statistics and correlation analysis were calculated to specify variables and their relations. Two multiple linear regression models were applied to test the second hypothesis—whether sexual abuse was a predictor for alcohol consumption and life satisfaction. The assumptions of homoscedasticity and normality of the error distribution were not met. Moderation and mediation analyses were conducted using the Hayes Process tool (Hayes, 2013), based on a confidence interval of 5,000 bootstrap samples. Moderation was carried out to examine the third hypothesis—that sexual abuse would be a predictor for alcohol consumption and life satisfaction if moderated by peer and parental support—using four models. Mediation analysis was conducted to examine the fourth hypothesis—that sexual abuse was a predictor for alcohol consumption and life satisfaction if mediated for one another—using two models. The data was examined in electronic form using the statistical program SPSS Statistics.

**Results**

**Descriptive Statistics and Correlation Analysis**

Table 1 illustrates the descriptive statistics and correlations among the participants’ reporting of sexual abuse, alcohol consumption, life satisfaction, and social support. Among
the participants, there were 346 sexual abuse victims (17.90%) and 1,587 non-victims (82.10%). On average, the participants reported drinking alcohol one to two times over the last month ($M = 1.87$) and being fairly satisfied with life ($M = 6.47$). Perceived peer ($M = 3.38$) and parental support ($M = 3.53$) was found to be reasonably good among the Icelandic adolescents. An examination of correlations between the variables reveals that there were significant relations between sexual abuse and all variables except for perceived peer support ($p = .12$). The relations between life satisfaction and the consumption of alcohol was found to be insignificant ($p = .21$).

Table 1

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Range</th>
<th>$M$</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Sexual abuse</td>
<td>1947</td>
<td>1.00-2.00</td>
<td>1.18</td>
<td>0.39</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2 Life satisfaction</td>
<td>2018</td>
<td>2.00-8.00</td>
<td>6.47</td>
<td>1.51</td>
<td>-.14**</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3 Alcohol consumption</td>
<td>1988</td>
<td>1.00-7.00</td>
<td>1.87</td>
<td>1.04</td>
<td>-.14**</td>
<td>-.03</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4 Parental support</td>
<td>2013</td>
<td>1.00-4.00</td>
<td>3.53</td>
<td>0.63</td>
<td>-.14**</td>
<td>.37**</td>
<td>-.08**</td>
<td>-</td>
</tr>
<tr>
<td>5 Peer support</td>
<td>2016</td>
<td>1.00-4.00</td>
<td>3.38</td>
<td>0.64</td>
<td>-.04</td>
<td>.31**</td>
<td>-.10**</td>
<td>.44**</td>
</tr>
</tbody>
</table>

*Note. * $p < .05$; ** $p < .01$. $M$ = mean; SD = standard deviation.

Gender Ratio in Sexual Abuse, Alcohol Use, Life Satisfaction, and Social Support

The gender difference was examined among the variables of sexual abuse, alcohol consumption, life satisfaction, and social support (see Table 2 and Figure 1). A chi-square test of independence was performed to see if gender was connected to sexual abuse. The results show there was a significant difference between the two genders pertaining to sexual abuse, with female adolescents having a higher prevalence of sexual abuse, $X^2 (6, N = 2002) = 21.06, p = 0.002$. 
Table 2

Chi-square Values Applied to Determine Gender Difference in Sexual Abuse

<table>
<thead>
<tr>
<th>Gender</th>
<th>Victims</th>
<th></th>
<th></th>
<th>Non-Victims</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td></td>
<td>N</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>89</td>
<td>9.60</td>
<td></td>
<td>838</td>
<td>90.40</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>257</td>
<td>25.55</td>
<td></td>
<td>749</td>
<td>74.45</td>
<td></td>
</tr>
</tbody>
</table>

Additionally, independent samples t-tests were performed to see potential gender differences regarding alcohol consumption, life satisfaction, and both peer and parental support among Icelandic adolescents. No significant difference was found regarding gender and alcohol consumption; the results suggest that female ($M = 1.85$) and male ($M = 1.88$) adolescents drank approximately the same number of times over the last 30 days, $t(1969) = 0.68, p = 4.96$. Regarding social support, both peer support, $t(1997) = -10.98, p < .001$, and parental support, $t(1995) = -2.82, p = .005$, showed significant correlations with the adolescents’ specific gender. Female adolescents had higher social support compared to males, perceiving their social support to be good from both their peers ($M = 3.52$) and parents ($M = 3.57$). For their part, male adolescents perceived their social support to be fairly good, both from their peers ($M = 3.22$) and their parents ($M = 3.49$). The results from an independent samples t-test indicated that there was a gender difference in life satisfaction among Icelandic adolescents $t(2000) = 3.92, p < .001$, with the male adolescents ($M = 6.67$) scoring higher on life satisfaction compared to the female adolescents ($M = 6.34$). Thus, even though female adolescents had greater social support, males scored higher on the variable of life satisfaction.
Multiple Linear Regression

In this study, both alcohol consumption and life satisfaction were examined among Icelandic adolescents in order to investigate whether victims of sexual abuse consume more alcohol and experience less life satisfaction compared to non-victims. Two multiple regression analyses were conducted to explore alcohol consumption and life satisfaction among Icelandic adolescents based on predicting variables. The predictors were gender, sexual abuse, and social support.

Multiple linear regression model 1: Alcohol consumption. A multiple regression analysis was conducted to predict alcohol consumption vis-à-vis gender, sexual abuse, peer support, and parental support. The overall model was significant, $F(4, 1858) = 25.10, p < .001$, and accounted for 5.1% of the variance. The results are presented in Table 3 and indicate that gender, sexual abuse, peer support, and parental support were all significant predictors of alcohol consumption. The model illustrates the change of alcohol consumption on the alteration of one unit on the independent variable, given that the effects of all the other independent variables were held constant. The results show that female adolescents had lower
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alcohol consumption compared to male adolescents \( (b = -0.20, t = -4.08, p < 0.01) \) and if adolescent had been a victim of sexual abuse, their alcohol consumption was greater \( (b = 0.39, t = 6.27, p < 0.01) \). Adolescents who had high parental support had decreased alcohol consumption \( (b = -0.22, t = -5.16, p < 0.01) \); yet, if an adolescent had high perceived peer support, their alcohol consumption was greater \( (b = 0.29, t = 7.00, p < 0.01) \). To summarize, male adolescents, victims of sexual abuse and adolescents who perceived either their peer support as high or their parental support as low drank more alcohol in the last month.

Table 3

*Summary of Hierarchical Regression Analysis for Variables Predicting Alcohol Consumption*

<table>
<thead>
<tr>
<th></th>
<th>( b )</th>
<th>( SE ) ( b )</th>
<th>( \beta )</th>
<th>( t )</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>1.48</td>
<td>0.18</td>
<td></td>
<td>8.12</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Gender</td>
<td>-0.20</td>
<td>0.05</td>
<td>-0.10</td>
<td>-4.08</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Sexual abuse</td>
<td>0.39</td>
<td>0.06</td>
<td>0.15</td>
<td>6.27</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Parental support</td>
<td>-0.22</td>
<td>0.04</td>
<td>-0.13</td>
<td>-5.16</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Peer support</td>
<td>0.29</td>
<td>0.04</td>
<td>0.18</td>
<td>7.00</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

**Multiple linear regression model 2: Life satisfaction.** Multiple regression analysis was conducted to examine the relations between life satisfaction and the multiple potential predictor variables of gender, sexual abuse, peer support, and parental support. This multiple regression analysis was found to be statistically significant, \( F(4, 1873) = 113.59, p < .001 \) and accounted for 19.5% of the variance. When life satisfaction was predicted, the results show that sexual abuse, peer support, and parental support were all significant predictors (see Table 4). The model demonstrates the change of life satisfaction on the alteration of one unit of the independent variable, given that the effects of all of the other independent variables were held constant. The results demonstrate that female adolescents had lower life satisfaction compared to their male counterparts \( (b = -0.42, t = -6.29, p < 0.01) \), and that those adolescents who had been victims of sexual abuse had lower life satisfaction compared to non-victims \( (b \)
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= -.25, t = -2.95, p < 0.01). Higher perceived parental support (b = .68, t = 11.97, p < 0.01) and peer support (b = .55, t = 9.63, p < 0.01) was connected with an increase in life satisfaction. In summary, adolescents who were female, who had been victims of sexual abuse, or who perceived their peer and parental support as low, had less life satisfaction.

Table 4

Summary of Hierarchical Regression Analysis for Variables Predicting Life Satisfaction

<table>
<thead>
<tr>
<th></th>
<th>b</th>
<th>SE B</th>
<th>β</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>3.14</td>
<td>.25</td>
<td>5</td>
<td>12.82</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Gender</td>
<td>-.42</td>
<td>.07</td>
<td>-.14</td>
<td>-6.29</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Sexual abuse</td>
<td>-.25</td>
<td>.08</td>
<td>-.06</td>
<td>-2.95</td>
<td>.003</td>
</tr>
<tr>
<td>Parental support</td>
<td>.68</td>
<td>.06</td>
<td>.28</td>
<td>11.97</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Peer support</td>
<td>.55</td>
<td>.06</td>
<td>.23</td>
<td>9.63</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

Moderation Analysis

Four moderation models were used to examine whether social support (from either peers or parents) buffered the effects of sexual abuse on alcohol consumption and life satisfaction among Icelandic adolescents, given that the effects of all of the other independent variables were held constant (see Figure 2).

Figure 2. Conceptual model with the hypothesized moderation effect of perceived social support (peer and parental).
Moderation analysis model 1 and 2: Alcohol consumption. Moderation analysis was conducted to see if peer and parental support had an interactive effect between sexual abuse and alcohol consumption. Both parental support \( (b = .04, BCa CI [-0.19, 0.27], t = .31, p = .76) \) and peer support \( (b = -.07, BCa CI [-0.31, 0.16], t = -0.59, p = .56) \) were insignificant buffers for the relation between sexual abuse and alcohol consumption.

Moderation analysis model 3 and 4: Life satisfaction. Moderation analysis was conducted to see if peer and parental support had an interactive effect between sexual abuse and life satisfaction. Here again, both parental support \( (b = -.15, BCa CI [-0.44, 0.14], t = -1.05, p = .30) \) and peer support \( (b = -.21, BCa CI [-0.51, 0.09], t = -1.35, p = .18) \) were insignificant buffers for the relation between sexual abuse and life satisfaction.

Mediation Analysis

Two mediation models were tested to examine if sexual abuse among adolescents was a predictor for alcohol consumption and life satisfaction if mediated for one another, based on prior literature on the uncertainties of which precedes the other (Newcomb et al., 1986; Zullig et al., 2001).

Mediation analyses model 1 and 2: Alcohol consumption and life satisfaction. An insignificant indirect effect was found to exist between sexual abuse and the use of alcohol through the variable of life satisfaction among adolescents in Iceland, \( b = .004, BCa CI [-0.015, 0.023] \) (see Figure 3).

Additionally, an insignificant indirect effect was found to exist between sexual abuse and life satisfaction when examining the consumption of alcohol among Icelandic adolescent’s, \( b = -.005, BCa CI [-0.032, 0.019] \).
Figure 3. Mediation model with the mediation effect of life satisfaction.

**Discussion**

The current study offers several important insights into the relations between sexual abuse, social support, alcohol consumption, and life satisfaction among adolescents in Iceland. The primary aim of this study was to examine the impact sexual abuse had on alcohol consumption and life satisfaction, whether social support had a buffering effect on the relations, and if alcohol consumption and life satisfaction affected one another.

The results of the first hypothesis are consistent with previous studies. They show that female adolescents are victims of sexual abuse more often (Arnarson et al., 2016; Elliot et al., 2004; Ólafsdóttir, 2003), have lower life satisfaction (Goldbeck et al., 2007), and have higher perceived social support than male adolescents (Barbee et al., 1993; Flaherty & Richman, 1989; Kendler et al., 2005). The findings indicate that there is no significant gender difference in alcohol consumption among Icelandic adolescents, which is also consistent with prior research (O’Malley, 2002; Windle, 2003). This result could be due to the measurement of alcohol consumption, namely, regular use of alcohol over the last 30 days, which does not measure as well as long-term alcohol use when predicting for gender differences (Schulte, Ramo, & Brown, 2009). One noteworthy finding is that the results shifted regarding the gender difference in alcohol consumption when other variable, social support and sexual
abuse, were held constant. This could be due to the greater social support and sexual abuse among female adolescents, as both social support and sexual abuse are connected to higher alcohol consumption (Barnes & Farrell, 1992; Dube et al., 2006; Simantov et al., 2000; Wang et al., 2015). Thus, if social support and sexual abuse are not included in the relation between gender and alcohol consumption, alcohol consumption will be higher among male adolescents. However, sexual abuse, gender, and social support account for only 4.3% of the variance of alcohol consumption and 17.9% of the variance of life satisfaction. Since both percentages are relatively low, the models do not fit well; however, all the predictors of the models are statistically significant. Therefore, the results of the current study support the second hypothesis, namely, that if adolescents are victims of sexual abuse, they drink more alcohol and perceive their life satisfaction to be lower when compared to non-victims. These findings are consistent with previous studies that have found sexual abuse to be a predictor for both alcohol consumption (Dube et al., 2006: Simantov, 2000) and life satisfaction (Brayden et al., 1995; Fergusson et al., 2013; Frazier et al., 2001). Furthermore, social support was also found to be a significant predictor for both alcohol consumption and life satisfaction, which is also consistent with the findings of previous research (Barnes & Farrell, 1992; Tremblay et al., 1999; Wang, Hipp, Butts, Jose, & Lakon, 2015).

However, the results of the third hypothesis are inconsistent with previous studies, which stated that victims of sexual abuse who have good parental support are able to make positive life adjustments (Lambert et al., 2014; Tremblay et al., 1999; Baron & Kenny, 1986), and that social support was shown to have a significant relation to alcohol consumption among adolescents (Barnes & Farrell, 1992; Wang et al., 2015). The findings presented here show an insignificant moderated effect through parental and peer support on the association between sexual abuse and both alcohol consumption and life satisfaction. These results indicate that if an adolescent became a victim of sexual abuse, neither parental support nor
peer support has an especially protective effect for an increase in the consumption of alcohol and that, in general, this group will have lower life satisfaction. The insignificant moderated effect of social support on the relations between sexual abuse and both alcohol consumption and life satisfaction could be due to a restricted range, an unequal division into sub-groups, where most adolescents have high social support whether they have been victims of sexual abuse or not. For this reason, the power of the sub-samples could be low and, therefore, cannot reach a level of significance.

Further, the results of the current study do not support the fourth hypothesis: that life satisfaction partially mediates the effect of sexual abuse on alcohol consumption. This is due to the mediation and the dependent variables are not significantly correlated with one another, as an insignificant relation was found between alcohol consumption and life satisfaction. This is not in line with most prior research on this subject (Koivumaa-Honkanen et al., 2012; Newcomb et al., 1986; Zullig et al., 2001). However, the findings do support the previous work by Clark and Kirisci (1996) and Grant et al. (2009), who found no connection between alcohol consumption and life satisfaction.

The present study is not without limitations. First, the participants of this study were restricted to high school students, which reduced the severity value, as there is a high probability that those with psychological difficulties, which could stem from sexual abuse, were not registered in high school. Second, this study also shows correlations, rather than causality; this means that even though sexual abuse was correlated with alcohol consumption and life satisfaction, this does not necessarily imply that one causes the other. Third, this study is based on cross-sectional data, so it is not known what exceeded the other, life satisfaction or alcohol consumption. The fourth limitation is that because the assumptions were not all met, the violation of homoscedasticity could have created confidence intervals that were either too wide or too narrow, and violations of normality can cause problems for
determining whether a model’s coefficients are significantly different from zero. Therefore, any interpretation of the results must be done with caution. The causes for the assumption violations were that the dependent variables were positively skewed, as most Icelandic adolescents drink alcohol in moderation and have high life satisfaction. The fifth limitation concerns the processing of the data: when participants checked more than one option on the scale when asked about sexual abuse, the data was coded missing. Hence, participants who were revictimized over different periods of time were eliminated.

The strengths of this study lie, firstly, in the high response rate: Participants were all high school students in Iceland present on the day when the ICSRA questionnaire took place. This provided a 75.5% response rate. Such a large response rate in research representing a population is extremely rare. Secondly, there was the complete protection of confidentiality and anonymity for the participants. Thirdly, this study had a large sample size ($N = 2070$), providing a good representation of the population of Icelandic adolescents attending high school, thus limiting the influence of outliers. The fourth strength is the advantage of using a questionnaire, which provides both good statistical significance and precision in terms of measuring the data collected. The fifth strength is that the present study adds significant data to this general line of inquiry, especially regarding the relation of sexual abuse to life satisfaction.

In conclusion, of the variables investigated, the results of this work reveal that the primary influence on alcohol consumption and life satisfaction is sexual abuse. Thus, it is critical that prevention is aimed to hinder sexual abuse, not only for its own destructive aspects but also to increase life satisfaction and reduce alcohol use among adolescents. Future studies are needed to investigate other factors that may have an influence on alcohol consumption and life satisfaction among victims of sexual abuse.
References


adolescents smoke or drink? Identifying underlying risk and protective factors.


Appendix A

Consent letter to parents

Ágætu foreldrar / forráðamenn,


Könnunin lýtur sem fyrir að því að kæra lagi og liðan ungennana, félagslega þessi svo sem tengsl við foreldra og vini, þjóðvöru og tómassvæði, félagslið, liðin, einelti, viðmeyndusturnun, streit, maturæði, nám, bæringstjóðnunum, félagslega stöðu, svefn, leikur, undlega og likamlega liðan, leifarfrálega, skóla, félagsamræki, viðhorf til framhaldssamhverar og þeirra sem þvert til að ætla þekkingum um, og þróa lagi og liðan þessu aðildursvæða.

Könnunin er með því afhaflas og umin samkvæmt reglum um persónuvernd. Þannig er ekki hægt að rekja nein svæði til einstaklinga. Þegar nemendur hafa lokið við að fylla út spurningalistana eru þeir beinir að setja þá í þar til gerð umsókn og loka þeim undirlega.

Listarmenn eru svo sendir greiningarnálum sem skrá uppþyngingar um þessi að geta með nokkrum máti víðbrot þeir tilheyrta. Á rannsókninum lokið er spurningalínum eftir.

Samkvæmt venjuna uppþyngum við foreldra og forráðamenn um fyrirtækna og gefum þeim kost á því að öskum eftir að þær þeirra taki ekki þátt. Þannig er nemendum sjálflæst heimilt að áhreĭta að sama ekki spurningum við þau svo þjóðu. Þjóðið foreldrar / forráðamenn að þær þeirra taka þátt er það af hafa samband við Rannsóknir og greiningu eða viðkomandi skólar og liða vita. Verðlaunin þeirra göld koru uppþynginga til með að skila mikilvægum niðurstöðum, þeirra hangýnum og félagslegum líkt og fyrri kanninni af þessu tagi hafa gert.

Ef náðari uppþynginga er öskur þá vinsamlega hafað samband við starfsfolk Rannsóknir & greinningar með 826-3424 rannsokni@rannsokni.is eða í sínna 599 6431.

Með viðmast-hvítbrot
Starfsfolk Rannsóknir & greinningar