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The Role of Alcohol Abuse in the Intergenerational Transmission of Domestic Violence

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Abstract

The intergenerational transmission of domestic violence entails violent behavior within close relationships that is passed on to younger generations. Alcohol abuse and violence are strongly linked in the literature, making it a risk factor for perpetrating and passing on domestic violence. It is hypothesized that parental alcohol use can both directly and indirectly, through the perpetration of child abuse, affect alcohol use in their offspring, specifically when parents have severe adverse childhood experiences. The sample for this study was gathered by the Dutch Verwey-Jonker Instituut. The Dutch sample consisted of 1024 families who were reported for domestic violence to a domestic violence organization. 1150 parents and 362 children between the age of 8-18 participated. Sample characteristics were mostly representative of the Dutch population. Mediation analyses showed no mediational effect of child abuse, but instead showed two significant direct effects of child abuse and parental alcohol use on alcohol use in children, specifically in the group of parents without severe adverse childhood experiences. Parental alcohol use and child abuse significantly predicting alcohol use in children contributes to a large body of research highlighting the prevalence of alcohol abuse in domestic violence. Despite this, interventions for alcohol abuse are often not started or completed. Future research should aim to broaden our understanding of the influence of alcohol use in domestic violence and more interventions targeting alcohol abuse should be developed, implemented and evaluated. This could be an important step in breaking the intergenerational transmission of domestic violence.

Keywords: Domestic violence, child abuse, alcohol abuse, cycle of violence, adverse childhood experiences, childhood trauma

Introduction

Domestic violence as a cyclical concept

Domestic violence can be defined as a pattern of behavior that is used to gain or maintain power and control over another person in the form of physical, sexual, emotional, economic or psychological abuse (United Nations, n.d.) and it entails partner or spouse abuse, child abuse, elder and vulnerable adult abuse and sibling violence (Barrier, 1998). Domestic violence is a problem worldwide. One in four adults was physically abused as a child (World Health Organization, n.d.) and across a lifetime one in three women experienced physical or sexual violence of which the majority stems from intimate partner violence (IPV) (World Health Organization, 2021). The cycle of violence, which assumes that abused and neglected children may become violent offenders themselves in adolescence and adulthood (Widom & Osborn, 2021), may help explain these alarmingly high numbers. In a domestic setting this cyclical concept can be defined as the intergenerational transmission of domestic violence. While it is likely that many factors, like gender (Hou, Yu, Fang & Epstein, 2016), attachment security (Hare, Miga & Allen, 2009) and social learning processes and normalization of abusive behavior (Wagner, Jones, Tsaroucha & Cumbers, 2019), contribute to the intergenerational transmission of domestic violence, alcohol abuse is of particular interest in this study. In this study domestic violence will be limited to child abuse.

Alcohol abuse and (domestic) violence

Alcohol abuse is often involved in domestic violence and cases of domestic violence in which alcohol is involved tend to be more severe (Fonseca, Galduróz, Tondowski & Noto, 2009). In general, alcohol use is often linked to violent behavior (Boles & Miotto, 2003), yet there is no consensus on the strength of the relationship between alcohol use and violence (Klostermann & Fals-Stewart, 2006). Evidently, not everyone who consumes alcohol becomes aggressive or violent (Boles & Miotto, 2003), so how are alcohol use and violence related to each other?

Different theories try to capture the strength of the relationship between alcohol use and violence, ranging from causal to no direct relationship at all. The disinhibition theory (Graham, 1980) presents a causal relationship between alcohol use and aggression. It presumes that alcohol affects parts of the brain that control socially unaccepted behaviors, which can cause an individual to become aggressive (Graham, 1980). In addition, Nörstrom & Pape (2010) emphasize individual differences in

this causal effect, suggesting that alcohol only causes aggression in individuals who have the tendency to suppress their anger. Other theories propose a direct relationship between alcohol and aggression. Beck & Heinz (2013) summarize multiple individual factors, as found in other studies, that are associated with an increased probability of alcohol-induced aggression, like sex, high underlying irritability, lack of empathy or personality traits like sensation seeking. Psychological and physical changes due to alcohol may also increase the likelihood of aggression (Graham, 1980). For example, alcohol may result in an inaccurate perception of risks, changes in thinking, individuals interpreting their environment differently, alcohol may lead to short-term and long-term physiological changes and emotional changes. Furthermore, social learning is assumed to play a key role in individual differences in alcohol-induced violence, through alcohol outcome expectancies (AOEs) (Beck & Heinz, 2013). Expectancy theory presumes that the repeated perception between certain behaviors and their outcomes are eventually stored in memory as expectancies, which can influence future decisions (Smith & Goldman, 1994). This can also apply to alcohol consumption. Kachadourian, Homish, Quigley and Leonard (2012) describe two versions of alcohol expectancy theory. The first one assumes that alcohol consumption can become an excuse for deviant behavior. The second one assumes that individuals may hold the belief, learned through their own experiences or vicariously through others, that the consumption of alcohol will increase the likelihood of violent behavior in both themselves and others. When consuming alcohol, these beliefs are activated and could lead to aggressive behavior in certain individuals. Some even argue that AOE's override pharmacological effects, genetics, sociocultural factors and other individual factors (Kachadourian et al., 2012; Smith & Goldman, 1994). Lastly, the spurious model explains that there is no direct relationship between domestic violence and alcohol abuse, because the relationship can be explained by other factors that both influence domestic violence and alcohol abuse (Leonard & Quigley, 1999). Klostermann and Fals-Stewart (2006) give the following example: "...individuals who are young may have a tendency to be violent and also have a tendency to drink; thus, drinking and violence may appear to be directly related when, in fact, they are not." (p. 590). However, there is substantial scientific support for a direct association or even a causal link between alcohol use and violence (Nörstrom & Paper, 2006).

In addition, various stages in alcohol use can be related to violence. First, alcohol intoxication

is marked by symptoms like slurred speech, incoordination and impairment in attention or memory after a recent ingestion of alcohol (American Psychological Association, 2013). Aggression is most commonly linked to alcohol intoxication (Boles & Miotto, 2003) for multiple reasons. As mentioned before, the disinhibition theory (Graham, 1980) states that alcohol disinhibits socially undesirable behavior, which can lead to aggressive behavior. Moreover, according to the attention allocation model (Steele & Josephs, 1988) alcohol intoxication impairs perceptual and cognitive processing, which require attention, leading intoxicated persons to perceive fewer cues and these cues are also not properly integrated in and related to existing knowledge. Emotions and behaviors are therefore based on more salient and immediate aspects of experiences (Steele & Josephs, 1988). Hence, alcohol may facilitate aggression in a hostile situation, because the focus is more on salient provocative stimuli instead of less salient inhibitory stimuli (Peter & Michelle, 2007). Alcohol also enhances the mental state of the consumer, which can lead to increased aggression (Sontate et al., 2021). Second, chronic alcoholism, or as described in the DSM-5 as alcohol use disorder, is a problematic pattern of alcohol use leading to clinically significant impairment that can range in severity depending on how many symptoms are present (American Psychological Association, 2013). Alcohol-related aggression also occurs in the context of chronic alcoholism and alcohol dependence (Beck & Heinz, 2013). Chronic alcoholism can lead to personality changes, like a stronger tendency to blame others and engaging in more verbal and physical conflicts (Lavine, 1997, as cited in Boles & Miotto, 2013). Third, alcohol withdrawal, also common in chronic alcoholics (Boles & Miotto, 2003), happens when a person stops consuming alcohol after heavy and prolonged alcohol use, which can lead to symptoms like autonomic hyperactivity, insomnia and anxiety (American Psychological Association, 2013). The irritability and agitation that individuals experience during alcohol withdrawal may lead to aggressive behavior (Boles & Miotto, 2003). Thus, alcohol-related violence can range from a onetime event during intoxication to repeated violent behavior as a result of chronic alcoholism or dependence. However, not all people become violent after alcohol consumption. It is important to look more closely at which individuals might be at risk for perpetrating alcohol-related domestic violence.

Alcohol abuse and childhood trauma

Childhood trauma provides a plausible explanation for why some people abuse alcohol in adulthood. There seems to be a strong association between (early) traumatic experiences and alcohol abuse in adulthood (Brady & Back, 2012; Mirsal, Kalyoncu, Pektaş, Tan, & Beyazyürek, 2004). Evidence shows that early childhood trauma often precedes alcohol abuse later in life (Brady & Back, 2012; Mirsal et al., 2004). Adults who abuse alcohol seem to have experienced significantly more emotional abuse, emotional neglect, physical abuse and sexual abuse in childhood than adults who do not abuse alcohol, indicating that traumatic experiences are common in alcohol abusing adults (Mirsal et al., 2004). Alcohol is often consumed to cope with trauma-related symptoms (Brady & Back, 2012), negative emotions (Weiss, Goncharenko, Raudales, Schick & Contractor, 2021) and various sources of stress (Keyes, Hatzenbuehler & Hasin, 2011). Compared to adulthood trauma, childhood trauma is associated with an earlier onset of alcohol use in adolescence and a quicker progression to heavy drinking (Waldrop, Ana, Saladin, McRae & Brady, 2007). On a neurobiological level, early childhood trauma may lead to changes in the hypothalamic–pituitary–adrenal axis, involved in the development of addictive disorders, leading to a higher stress reactivity (Brady & Back, 2012). Early childhood trauma may also affect the development of the mesocorticolimbic dopamine system, making these individuals more vulnerable for developing an alcohol addiction or other substance-related disorders. Finally, some individuals may have a genetic predisposition towards becoming dependent on alcohol, yet environmental stressors seemingly determine whether these genes are expressed (Brady & Back, 2012).

Alcohol abuse, child abuse and consequences

Parents can also have a history of childhood trauma (Siverns & Morgan, 2019). Based on the, previously mentioned, strong association between childhood trauma and alcohol abuse (Brady & Back, 2012; Mirsal et al., 2004) it seems plausible that these parents are at risk for abusing alcohol. In turn, parental alcohol use can influence alcohol use in children. Several studies show that parental alcohol abuse is directly related to alcohol abuse in children (Duncan, Duncan & Strycker, 2003; Hops, Duncan, Duncan & Stoolmiller, 1996). Duncan et al. (2003) found that having only one high alcohol using parent is sufficient to influence alcohol use in their children. Social learning seems to be an important factor in the relationship between alcohol use in parents and alcohol use in children. Firstly, children may model

their parent's substance use (Duncan et al., 2003). Acceptance of a substance by parents, availability of the substance at home or even parents offering a substance to their child can positively influence substance use in their offspring (Duncan et al., 2003). Second, alcohol expectancy theory states that parental alcohol use may contribute to greater drinking in their children through learned AOE's (Smith & Goldman, 1994). To recap, expectancy theory presumes that the repeated perception of certain behaviors and a specific outcome creates expectancies about these behaviors and associated outcomes, which influence future decision making. Alcohol expectancies are not only formed through one's own experiences but can also be acquired through modeling and vicarious learning (Smith & Goldman, 1994). This indicates that children can form AOE's before they even start drinking. For example, parents, who rely on alcohol for relaxation or facilitating social interactions and are in the possession of few alternative coping mechanisms, may enforce positive AOE's in their children. In turn, these children are more likely to experience these positive effects which reinforces their drinking habits (Smith & Goldman, 1994). On the other hand, individuals may acquire the expectancy that alcohol leads to violent behavior (Beck & Heinz, 2013). A study showed that the expectancy that alcohol would lead to aggression predicted alcohol-related aggression in men over time (Kachadourian et al., 2012). Parental alcohol abuse likely contributes to the formation of both positive and negative AOE's that reinforce drinking habits in their children.

Alcohol abuse in parents and alcohol use in children may also be indirectly related through child abuse. Parents who abuse alcohol are at risk of perpetrating child abuse (Freisthler, 2011; Widom & Hiller-Sturmhöfel, 2001). A study conducted with a large sample of abusive and neglectful parents showed that forty percent of physically abusive parents met the criteria for an alcohol or drug disorder in their lifetime and they reported more drug and alcohol disorder symptoms than the control group (Kelleher, Chaffin, Hollenberg & Fischer, 1994). A dose-response relationship between parents their drinking patterns and alcohol-related child harm may apply, meaning that when episodic drinking goes from non-heavy to heavy, reported alcohol-related child harm increases (Esser et al., 2016). Consecutively, having experienced child maltreatment is associated with increased alcohol consumption (Priolo-Filho & Williams, 2019), earlier onset of alcohol use and lifetime alcohol dependence (Moustafa et al., 2018). This brings us to a full circle. As mentioned previously, parents with adverse childhood

experiences are also more likely to abuse alcohol (Brady & Back, 2012). Without proper interventions it is possible that parents with severe traumatic childhood experiences transmit their problematic drinking behavior onto their offspring, who in turn may become parents themselves later in life and display the same habits and accompanying behavior.

Thus, parental alcohol use can impact alcohol use in children in multiple ways. Studies have focused on the direct effect of alcohol use in parents on alcohol use in children (Duncan et al., 2003; Hops et al., 1996; Smith & Goldman, 1994), on the effect of parental alcohol use on child maltreatment (Tamutienė, 2018; Widom & Hiller-Sturmhöfel, 2001) and on the effect of child maltreatment on alcohol abuse in children (Moustafa et al., 2018; Widom & Hiller-Sturmhöfel, 2001). However, little studies have taken both pathways into account, including the direct effect of alcohol use in parents on alcohol use in their offspring and the indirect effect of alcohol use in parents on alcohol use in children, through child abuse. While Sheridan (1995) has accounted for both direct and indirect effects of substance use in parents on substance use in their offspring, no studies were found that researched these effects simultaneously for alcohol use alone in the context of domestic violence. Including both pathways might increase understanding of how these concepts are related.

The current study

There are roughly 200.000 victims of domestic violence every year in the Netherlands of which 16% can be directly related to alcohol abuse (De Wit et al., 2018). However, a study in the Netherlands on domestic violence showed that only one to two percent of parents, of which either themselves or their partners abuse alcohol, received help from addiction care (Steketee, Tierolf, Lünemann & Lünemann, 2020). Other studies have also highlighted that treatment of parental substance abuse is often not pursued or completed, even though it is a major contributor to child abuse (Choi & Ryan, 2006; Kelleher, 1994). Therefore, more attention to this subject is needed. The current study includes both direct and indirect pathways of alcohol use in parents to alcohol use in their offspring to hopefully gain more insight into how these concepts are related and how they contribute to the intergenerational transmission of domestic violence in the Netherlands. The hypotheses for this study are as follows:

The main hypothesis:

- Parents with a history of childhood trauma are more likely to abuse alcohol than parents without a history of childhood trauma. Alcohol abuse, specifically among these traumatized parents, might either directly influence alcohol abuse in their children or indirectly through the perpetration of child abuse.

The subhypotheses:

- Parents with a history of childhood trauma show higher levels of alcohol use than parents who do not have a history of childhood trauma.
- Parents who abuse alcohol are more likely to engage in child abuse than parents who do not abuse alcohol.
- Children of parents who abuse alcohol are more likely to use alcohol than children whom their parents do not use alcohol.
- Children who experienced child abuse show higher levels of alcohol use than children who do not experience child use.

Method

Participants

The participants were part of a large longitudinal study conducted by het Verwey-Jonker Instituut (VJI) in the Netherlands (Steketee, Tierolf, Lünemann & Lünemann, 2020). The study assessed the results of interventions through Safe Home¹, aimed to diminish domestic violence and improve wellbeing of parents and children, in thirteen regions of the Netherlands. Only participants of the first measure of the second cohort are included in this study. In the first measure of the second cohort N=1024 families participated. N=1150 parents participated who filled out the questionnaires on themselves and on in total N=1545 children between ages 3 and 18 and N=362 children between ages 8 and 18 participated on their own. The sample of participants was mostly representative of the Dutch population, but only showed higher rates on poverty and unemployment compared to the Dutch population. In 29% of the families the father filled out the questionnaire, meaning that most participating parents were mothers. On average mothers (M=33) were younger than fathers (M=38). Parents had varying migration backgrounds, Dutch (69.3%), Antillean (3.1%), Moroccan (3.7%), Surinam (6.5%), Turkish (1.1%), Indonesian (2.7%) or other (13.7%). The proportion of parents with a migration background was slightly higher in this study compared to the Dutch population due to the inclusion of more culturally diverse areas. Education levels are representative for the Dutch sample, 9% finished primary education, 20% finished MAVO/LBO, 43% finished HAVO/VWO/MBO and 22% finished HBO or university. 47% of the families experienced poverty at the time, defined by earning less than €1.500 net pay a month, compared to 14% in the Dutch population. 53% experienced unemployment, defined by working less than 12 hours a week in a paid job, compared to 5% in the Dutch population. Among the participating children 51% were girls and 49% were boys. Children who filled out the questionnaires were on average 12,7 years old, children who were reported on by parents were on average 9,7 years old. Migration background for children was comparable to the migration background of the parents. 62% of children lived with one parent, mostly their mother, 25% lived with both biological parents and 13% lived in a blended family with a stepfather or -mother.

¹ The Dutch name for Safe Home is *Veilig Thuis* and it is the only organization in the Netherlands where domestic violence and/or child abuse should and can be reported.

Material

A relevant subset of questionnaires was used for this study. Childhood trauma in parents was assessed with the Adverse Childhood Experiences questionnaire (ACE; Dube, Felitti, Dong, Chapman, Giles & Anda, 2003). The ACE ($\alpha=.78$) consists of 10 questions on traumatic events in the first 18 years of life that can be answered with 'yes' or 'no'. The 10 questions encompass emotional abuse, physical abuse, sexual abuse, emotional neglect, physical neglect, witnessing abuse towards their mother, family members who are addicted to alcohol or other substances, family members with a mental illness, family members who have been incarcerated and losing a parent to separation or divorce. Child abuse was assessed with two versions of the Conflict Tactics Scale Parent-Child (CTSPC; Straus, Hamby, Finkelhor, Moore & Runyan, 1998), translated to Dutch by Lamers-Winkelmann. The first version is for parents and consists of the subscales non-violent disciplining, psychological aggression, physical violence and neglect. The second version is for children 8 years and older, consisting of the subscales non-violent disciplining, psychological aggression, physical violence and witnessing violence between parents. Every item on the CTSPC ($\alpha=.86$) is scored on an 8-point Likert scale, ranging from 'this never happened' (0) to 'this happened more than 20 times in the past year' (7). Alcohol use in parents was assessed with the Alcohol Use Disorder Identification Test for Consumption (Audit-C). The Audit-C ($\alpha=.67$) is a modified version of the Audit and consists of 3 items that are scored on a 5-point Likert scale. The questions are 'how often do you drink an alcoholic beverage?', 'how many standard alcoholic drinks do you consume on average on a day that you drink?' and 'how often do you drink six or more alcoholic beverages on one occasion?'. The item measuring the amount of drinks someone consumes on a drinking day ranges from '1 or 2' (0) to '10 or more' (4). The other two items are scored on a range from 'never' (0) to 'at least 4 times this week' (4). Self-reported alcohol use in children between 8-18 years old was assessed with the European School Survey Project on Alcohol and Other Drugs (ESPAD). Only the four items related to alcohol use were used in this study. Example of items are 'have you ever consumed alcohol' and 'how often have you consumed alcohol in the past four weeks?'.

Procedure

Prospective participants of the second cohort study were approached through Safe Home. The individuals that were approached through Safe Home were reported in the past year for either partner

violence or child abuse. The reporter could either be involved in the domestic violence or could be an outsider, like a neighbor, who suspected or witnessed domestic violence. First, prospective participants received a letter with information about the study. Then they were approached by students working for Safe Home who explained more about the study. When people decided to participate, their contact information was written down and their permission to share this contact information with the VJI was recorded. Then an appointment was made with a student assistant working for the VJI, with whom contact information was shared. The appointments consisted of house visits, mostly at the house of the participants, but due to COVID-19 restrictions towards the end the participants filled in the questionnaires online at home, while they were assisted by student assistants on the phone. For live house visits there was a buddy system. If a student went to a participant their house, they arranged a buddy with whom they had contact throughout the appointment, to ensure safety. At the time of the appointment the student assistant guided participants through the questionnaires and was available for questions or discussing other difficulties. Participants filled out the questionnaires under a participant number to ensure anonymity. At the end participants had to sign another permission form so the VJI was allowed to use their data for the study. Time spent on filling out the questionnaires ranged from 60-120 minutes for parents and from 20-45 minutes for children. Afterwards parents received €20 for participating, children received €10. All students, either carrying out the (online) house visits or approaching prospective participants by phone, received training and supervision.

Lastly, privacy of the contact information of participants was thoroughly covered in this study. At the start, all students needed to sign a confidentiality form and only got access to necessary information, like a secured list of prospective participants or contact information of participants for house visits. Students had to delete this information as soon as they did not need it anymore.

Data reduction and analysis plan

The study conducted by the VJI originally had a descriptive longitudinal research design. However, the current study only used one measure, making it a simple descriptive design to assess the role of alcohol abuse in the intergenerational transmission of domestic violence.

Data reduction. The AUDIT-C was modified by transforming scores into the amount of alcoholic drinks per week. First, scores on the three questions were recoded into amount of drinks per week and amount of drinks in one sitting. Then the total amount of alcoholic drinks per week was calculated by multiplying scores on the first and second question and adding scores of the third question. Alcohol use in children was assessed with the item of the ESPAD measuring the amount of consumed alcoholic drinks in the past month. To create a total frequency scale of child abuse in the past year, only the items of the CTSPC measuring assault and psychological abuse were included. For the main analyses, child abuse as reported by children was used. Parents might not have wanted to fully disclose their abusive behavior, therefore child abuse as reported by children was likely more accurate than child abuse as reported by parents. ACE scores were transformed into a dichotomous variable to assess the total model in groups of parents with and without severe childhood trauma. A score of 4 or more on the ACE greatly increases the risk for developing medical conditions, mental health conditions, risky behaviors and impaired functioning (Schiraldi, 2021). Therefore, parents were divided into a group of parents with a score of 3 or less and into a group of parents with a score of 4 or more.

Data analysis. All data were analyzed using SPSS (version 27.0) and Hayes' PROCESS macro (Hayes, 2022) to conduct the mediation analyses. An alpha level of .05 was applied to test significance of the analyses. Regarding the subhypotheses, two subhypotheses were assessed with independent samples t-tests and the other subhypotheses were tested with a correlation and a simple regression analysis. For the main hypothesis, first a multiple regression analysis was conducted to get an overall idea of the predictive value of the variables. The dependent variable was the amount of alcoholic drinks per month for children. The independent variables were alcoholic drinks per week for parents, child abuse and ACE score parents. Then mediation analyses were conducted to test both direct and indirect pathways from alcohol abuse in parents to alcohol abuse in children, including child abuse as a mediator. This mediation model was tested within the group of parents with an ACE score of 3 or less and within the group of parents with an ACE score of 4 or more.

Results

Assumptions

Before conducting the analyses, assumptions for linear regression were assessed. No outliers were removed from the sample, because in this study severe cases of alcohol use in children were important to take into account. Normality of the dependent variable, the amount of alcoholic drinks per month children, was tested with a Shapiro-Wilk test ($p < .001$), histogram and Q-Q plot. Although the data was not normally distributed, according to the Central Limit Theorem the assumption of a normal distribution is met if the sample size is large enough. This was the case, with 1150 participating parents and 362 participating children. The assumption of multicollinearity was also met, meaning no correlations between predictor variables were larger than .80, all VIFs were well below 10, with the largest VIF=1.012. A scatterplot of the residuals of each value against the residuals of the predicted value showed no distinct shapes that could indicate a violation of homoscedasticity. However, the variance of the residuals did not seem completely equal at each level of the predicted value either, which could have influenced the results. Lastly, the assumption of linearity was assessed. A correlation matrix of the independent variables, namely child abuse, ACE score parents and alcoholic drinks per week parents, and the dependent variable, alcoholic drinks per month children, showed that all independent variables were significantly correlated to the dependent variable ($p < .05$). However, ACE score parents was negatively correlated ($r(287) = -.129$, $p = .03$) to the amount of alcoholic drinks per month for children, but because ACE score parents will be used as a dichotomous selection variable in the main analyses it was not removed.

Internal consistency

Cronbach's alpha was calculated for all questionnaires used in the analyses. The following Cronbach's alphas were calculated, for the ACE $\alpha = .81$, for the AUDIT-C $\alpha = .74$, for the CTSPC as reported by children $\alpha = .92$ and for the items from the ESPAD measuring alcohol consumption in children $\alpha = .69$. A Cronbach's alpha of $\alpha = .69$ is considered questionable, which could be due to the fact that the items measured alcohol consumption over different time periods, including the past 2 weeks, the past 4 weeks and alcohol use in a lifetime. Participants might have consumed alcohol at least once

in their life, but not specifically in the past 2 or 4 weeks. Because of this and the fact that α was remarkably close to acceptable, analyses were conducted as usual.

Descriptive statistics

Alcohol use in parents was measured through the amount of alcoholic drinks per week. On average parents reported consuming almost 4 alcoholic drinks per week ($M=3.79$; $SD=5.54$). Alcohol use in children was measured through the amount of alcoholic drinks per month. On average children reported consuming approximately 2.5 drinks per month ($M=2.54$; $SD=5.58$). Out of 244 children between ages 12-18 years old, 47.7% reported having consumed alcohol at least once in their life. Although the variable alcoholic drinks per month was used in the main analyses, it seemed useful to get a better understanding of how problematic children their drinking behavior was. Table 1 illustrates that the vast majority of children did not report problematic drinking behavior.

Table 1

Severity of problematic drinking among children in the past two weeks

Severity of self-reported alcohol consumption	Children between 8-18 years old	
	<i>N</i>	%
Not problematic	218	89.34
Incidentally problematic	21	8.61
Often problematic	4	1.64
Structurally very problematic	1	.41
Total	244	100.00

Note. For children, an incident of problematic drinking is defined as having consumed 5 or more drinks on one occasion in the past two weeks. Not problematic indicates there were no incidents, incidentally problematic indicates there were 1-2 incidents, often problematic indicates there were 3-5 incidents and structurally very problematic indicates that there were at least 6 incidents.

Childhood trauma in parents was assessed with the ACE. A score of 4 or higher on the ACE greatly increases the risk for developing medical conditions, mental health conditions, risky behaviors

and impaired functioning (Schiraldi, 2021). Table 2 shows that out of 1165 participating parents 25,7% reported having experienced at least four adverse childhood experiences.

Table 2

Severity of adverse childhood experiences in parents

Adverse childhood experiences in parents		
	<i>N</i>	<i>%</i>
Three or less	866	74.33
Four or more	299	25.67
Total	1165	100.00

Note. This table presents the distribution of self-reported adverse childhood experiences in parents divided in two groups of low and high ACE scorers.

Lastly, child abuse was assessed with the CTSPC. Although, the main analyses only included child abuse as reported by children, child abuse as reported by parents was included in testing one of the subhypotheses. On average children reported roughly 14 incidents of child maltreatment in the past year ($M=13.98$; $SD=30.69$), including assault and psychological abuse. Parents reported on average almost 8 incidents of child abuse in the past year ($M=7.53$; $SD=18.47$).

Statistical Analyses

Testing relationships among variables

The first subhypothesis stated that parents with a history of childhood trauma show higher levels of alcohol abuse than parents who do not have a history of childhood trauma. For this hypothesis an independent samples t-test was conducted to compare alcohol use in parents with an ACE score 3 or less and in parents with an ACE score 4 or more. A significant difference ($t(701.44)=2.10$; $p=.037$) in alcoholic drinks per week was found between parents with an ACE score of 3 or less ($M=3.97$; $SD=5.94$) and parents with an ACE score 4 or more ($M=3.29$; $SD=4.23$). This difference was in the opposite direction as to what was expected.

The second subhypothesis stated that parents who abuse alcohol engage more in child abuse than parents who do not abuse alcohol. For this t-test a grouping variable that divides participants into problematic and non-problematic drinkers was used. Child abuse included assault and psychological abuse in the past year. Although in the main analyses only child abuse as reported by children was used,

child abuse as reported by parents was also considered in testing this subhypothesis. The sample size for parents reporting child abuse was much higher than the sample size for children reporting child abuse, so it seemed interesting to check for any differences. An independent samples t-test for child abuse, as reported by children, shows that non-problematic drinkers ($M=16.05$; $SD=33.37$) scored significantly higher ($t(346.60)=2.17$; $p=.030$) on child abuse than problematic drinkers ($M=10.06$; $SD=21.68$), which is the opposite as to what was expected. An independent samples t-test for child abuse, as reported by parents, showed that parents who are problematic drinkers ($M=8.55$; $SD=17.01$) did not score significantly higher ($t(1689)=-1.82$; $p=.068$) on child abuse than parents who are non-problematic drinkers ($M=6.85$, $SD=18.91$).

The third subhypothesis stated that children of parents who abuse alcohol are more likely to abuse alcohol than children whom their parents do not abuse alcohol. To test the strength of this relationship a correlation was calculated. Alcohol use in parents and alcohol use in children were significantly positively correlated ($r(274)=.158$, $p=.009$).

The fourth subhypothesis stated that children who experience child abuse show higher levels of alcohol use than children who do not experience child abuse. The relationship between child abuse, including assault and psychological abuse, and alcohol use in children was tested with a simple regression analysis. Child abuse significantly explained a small portion of the variance of amount of alcoholic beverages in children per month ($F(1, 282)=8.993$, $p=.003$, $R^2=.031$). The regression coefficient ($B=.034$, $t(281)=2.999$, $p=.003$) indicated that an increase of 1 incident in child abuse corresponded to an increase of .034 alcoholic beverages per month for children.

Testing the main model

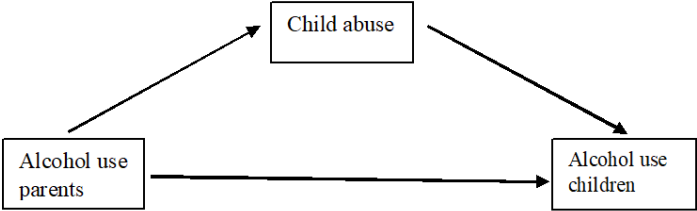
The main hypothesis stated that parents with a history of childhood trauma are more likely to abuse alcohol than parents who do not have a history of childhood trauma. Alcohol abuse among traumatized parents might either directly influence alcohol abuse in their children or indirectly through the perpetration of child abuse. For the variables, alcohol use in parents encompassed the amount of alcoholic drinks per week, child abuse included assault and psychological abuse as reported by children and alcohol use for children was measured by the amount of alcoholic beverages per month. Severity of childhood trauma was reflected by the dichotomous ACE variable, dividing parents in groups of an ACE

score of 3 or less, indicating no (serious) trauma, and an ACE score 4 or more, indicating serious trauma.

First, a multiple regression analysis was conducted to get an overall idea of the predictive values of the model and variables. The multiple regression analysis showed that alcohol use in parents, parental childhood trauma and child abuse significantly predicted roughly 8% of the variance in alcohol use in children ($F(3, 267)=7.45, p<.001, R^2= .077$). For the individual variables, both parental alcohol use ($B=.206, t(270)=3.123, p=.002$) and child abuse ($B=.035, t(270)=3.088, p=.002$) significantly predicted alcohol use in children. Only the ACE variable did not significantly predict alcohol use in children ($B=-1.329, t(270)=-1.705, p=.089$). Then the hypothesis was tested with mediation analyses, including alcohol use in parents as a predictor variable, alcohol use in children as the outcome variable and child abuse as a mediator, using Hayes' PROCESS macro in SPSS (Hayes, 2022). This model, as seen in figure 1, was tested for a group of parents with an ACE score of 3 or less and for a group of parents with an ACE score of 4 or more.

Figure 1

Mediation model showing hypothesized direct and indirect effects of parental alcohol use



Note. This model was tested within a group of parents with an ACE score 3 or less and withing a group of parents with an ACE score 4 or more.

An assumption for mediation is that there is a linear relationship between the predictor variable and the mediator. In the group of parents with an ACE score of 3 or less the analysis showed that there was no significant relationship between alcohol use in parents and child abuse ($F(1, 190)=.779, p=.379, R^2=.004$), which excluded child abuse as a possible mediator. However, child abuse ($B=.036, t(189)=2.603, p=.010$) and alcohol use in parents ($B=.234, t(189)=2.675, p=.008$) both as predictors in a multiple regression model did significantly predict a small proportion of the variance in alcohol use in

children ($F(2, 189)=6.547, p=.002, R^2=.065$). This means that the total model was significant with two direct effects, including alcohol use in parents and child abuse on alcohol use in children

In the group of parents with an ACE score of 4 or more there was also no significant relationship between alcohol use in parents and child abuse ($F(1, 77)=.381, p=.539, R^2=.005$), meaning that in both groups of ACE-scorers child abuse did not mediate the effect of alcohol use in parents on alcohol abuse in children. Again, as separate predictors in a multiple regression analysis alcohol use in parents and child abuse significantly predicted a small proportion of alcohol use in children ($F(2, 76)=3.303, p=.042, R^2=.080$), however upon closer inspection of the predictor variables, child abuse ($B=.027, t(76)=1.797, p=.074$) did not significantly predict alcohol use in children and alcohol use in parents only approached significance ($B=.120, t(76)=1.959, p=.054$). Even though the total model was significant, the individual predictors did not have a significant direct effect on alcohol use in children. Lastly, it is worth noting that the sample size was much larger in the group of ACE score of 3 and lower ($N=192$) than the sample size in the group of ACE score of 4 and higher ($N=79$).

Discussion

The current study analyzed the role of alcohol abuse in the intergenerational transmission of domestic violence. The main question was whether alcohol use in parents influences alcohol use in their children directly, indirectly, through the mediation of child abuse, or both. Before answering the main research question, relationships among the variables were assessed. Parents with and without severe adverse childhood experiences were compared in their alcohol use, problematic and non-problematic drinking parents were compared in the perpetration of child abuse, associations were assessed between alcohol use in parents and alcohol use in children and between child abuse and alcohol use in children.

Contrary to expectations, parents without a history of severe adverse childhood experiences scored significantly higher on alcohol use. Upon closer inspection however, they only drank .68 alcoholic drinks more per week than parents with a history of severe adverse childhood experiences. One could argue that even though this difference was significant in the analysis, in real life three quarters of a drink is not a huge difference. Nonetheless, that still indicates that parents with a traumatic childhood did not consume more alcohol than parents without a traumatic childhood, which is surprising considering the fact that many studies support the notion that individuals with adverse childhood experiences are at a risk for developing alcohol use problems (Crouch, Radcliff, Strompolis & Wilson, 2018; Enoch, 2011; Goodman, Grouls, Chen, Keiser & Gitari, 2017; Magnusson, Lundholm, Göransson, Copeland, Heilig & Pedersen, 2012) and this relationship is even described as robust (Brady & Back, 2012). Although this result signifies that parents with severe adverse childhood experiences did not drink more alcohol than parents without these experiences in this sample, this finding might also be attributed to a methodological cause. This hypothesis was based on studies that specifically assessed traumatic experiences in samples of alcoholics (Brady & Back, 2012; Mirsal et al., 2004) and a study that linked childhood and adulthood trauma to alcohol abuse (Waldrop et al., 2007). It is likely that studies conducted in a population of alcoholics will find many people with adverse childhood experiences and vice versa. In the current study however, both adults with and without a traumatic childhood were included. In fact, in the entire sample of parents, roughly 25% of parents scored four or more on the ACE questionnaire, compared to roughly 75% of parents who scored three or less, making them less at risk for developing severe mental and physical conditions, impaired functioning and risky

behaviors than people with an ACE score of four or more (Schiraldi, 2021). Within those 25% of parents with a traumatic childhood, alcohol abuse might have been more obvious than when parents with and without a traumatic childhood are compared in their alcohol use. Furthermore, many other factors than adverse childhood experiences are associated with the development of alcohol-related disorders, like genetics (Edenberg & Foroud, 2013), gender and sociocultural origin (Carter & Rogers, 1996), temperament (Tarter & Vanyukov, 1994) and environment (Lavik, Huseby & Rud, 1985), that might have contributed to higher alcohol use in the group of parents without a severely traumatic childhood.

Regarding the relationship between parental problematic drinking and the perpetration of child abuse, when children reported child abuse, non-problematic drinkers perpetrated more child abuse than problematic drinkers. While many studies identify alcohol abuse as a risk factor for child abuse (McKenzie & Scott, 2012; Swahn, Culbreth, Staton, Self-Brown & Kasirye, 2017; Tamutienė, 2018; Widom & Hiller-Sturmhöfel, 2001), child abuse does not solely occur in the context of alcohol abuse. Examples of other factors related to child abuse are having a mother with mental disorder (Konishi & Yoshimura, 2015), certain personality traits (Ammerman, Kolko, Kirisci, Blackson & Dawes, 1999), poverty (Neela & Mohua, 2007) and low social support (Ono & Honda, 2017). Therefore, this result does not necessarily mean that alcohol abuse and child abuse are not related, but it might mean that other factors not included in this study could have contributed to the variance in child abuse. Furthermore, the difference in reported child abuse between problematic and non-problematic drinker disappeared when parents reported child abuse, meaning there was no difference between problematic and non-problematic drinkers in the occurrence of child abuse, indicating again that other factors than alcohol abuse can contribute to child abuse. Apparently in this sample problematic drinking was not strongly related to child abuse.

Alcohol use in parents and alcohol use in children were directly related in this study. A positive and significant correlation was found between alcohol use in parents and alcohol use in children. Although the correlation was low, this finding is in line with the literature suggesting that parental alcohol use is positively associated with alcohol use in their offspring (Duncan et al., 2003; McNeal & Amato, 2000; Smith & Goldman, 1994).

Concerning the association between child abuse and alcohol use in children, a simple regression

analysis showed that an increase in reported child abuse predicted a small increase in alcohol consumption in children per month. Even though child abuse only explained roughly eight percent of the variance in alcohol use in children, the outcome agrees with the literature. Experiencing one or multiple types of child abuse as a child is associated with alcohol abuse later in life (Kisely, Mills, Strathearn & Najman, 2020; Priolo-Filho & Williams, 2019; Southwick Bensley, Spieker, Van Eenwyk & Schoder, 1999; Widom & Hiller-Sturmhöfel, 2001).

This study used a novel approach, because it took into consideration both direct and indirect pathways from alcohol use in parents to alcohol use in children, including child abuse as a mediator. The proposed model assumed that child abuse would mediate the association between alcohol use in parents and alcohol use in children, specifically in the group of parents with an ACE score of four or more. Analyses showed that in both groups of parents, ACE score of three or less and ACE score of four or more, the assumption for mediation, a significant linear relationship between the predictor variable and mediator, was not met. Therefore, child abuse could not have mediated the relationship between alcohol use in parents and alcohol use in children. Furthermore, as discussed previously, parental alcohol abuse did not lead to more child abuse. Alcohol use and child abuse evidently were not strongly related in this sample, as opposed to findings in other studies (Tamutienė, 2018; Widom & Hiller-Sturmhöfel, 2001). On the other hand, the total model, including alcohol use in parents and child abuse as predictors for alcohol use in children without mediation, was significant in both groups of parents. However, individual predictors were only significant in the group of parents with an ACE score of three or less. Contrary to what was expected, the predictors were not significant for parents with a severely traumatic childhood. This indicates that in this sample, alcohol abuse and child abuse predicted a small portion of the variance in alcohol use in children independently from whether parents had a traumatic childhood or not. Studies have found associations between parental trauma and perpetrating child abuse (Montgomery, Just-Østergaard & Jervelund, 2019), between adverse childhood experiences and alcohol abuse (Brady & Back, 2012; Mirsal et al., 2004;), but this study showed that alcohol abuse and child abuse can predict alcohol use in children outside of the context of parental childhood trauma.

Summarizing, child abuse did not mediate the effect of alcohol use in parents on alcohol use in children. Instead, there were two direct effects from child abuse and alcohol abuse in parents to alcohol

use in children, which is in line with the literature, and this mainly occurred in parents without a severely traumatic childhood. Although the model explained only a small portion of the variance in alcohol use in children, this study showed that parental alcohol use and child abuse can negatively impact alcohol use in their offspring.

The biggest methodological limitation in this study was the low alcohol consumption per month in children. Almost 90% of children did not report problematic alcohol use, over half of the participating children had never consumed alcohol in their life and consuming an average of 2.5 drinks per month is not considered binge drinking. Although in practice this is great news, in this study it might have affected the strength of the predictive value of parental alcohol use and child abuse. While abuse history is associated with early initiation of substance and alcohol use (Southwick Binsley et al., 1999; Waldrop et al., 2007), it is possible that actual problematic drinking and its consequences become more visible at a later stage in life. Waldrop et al. (2007) showed that age of heaviest drinking in children with childhood trauma does not occur on average until the age of approximately twenty-two years old. Other studies have highlighted the severity of alcohol use in college students (Kisely et al., 2020; Priolo-Filho & Williams, 2019). Moreover, problematic drinking in college students is associated with the perpetration of IPV (Hove, Parkhill, Neighbors, McConchie & Fossos, 2010; Simons, Gwin, Brown & Gross, 2008). Therefore, future research could address this limitation by implementing follow up measures with children in their college years or choose a sample of college students instead. Predictors and consequences of alcohol abuse might be more prominent in this age category.

As discussed in the introduction, domestic violence is a term that includes many types of abuse. Another limitation of this study was that only one type of domestic violence was assessed, namely child abuse and more specifically physical and psychological abuse. It is possible that other results will be found in associations between alcohol use in parents, children and any other type of domestic violence. For example, IPV is often related to alcohol abuse in both parents and children (Hove et al., 2010; Sipilä, Hakulinen, Helminen, Seppänen, Paavilainen & Koponen, 2018). Managing alcohol use in cases of IPV may also be useful in breaking the intergenerational transmission of domestic violence. Future studies should take into consideration the associations between alcohol abuse and different types of domestic violence because they might need different treatment approaches.

These findings suggest that interventions aimed to break the intergenerational transmission of domestic violence could benefit from not only eliminating child abuse, but also from managing alcohol use in both parents and children. In fact, a recent study showed that family alcohol use could even be a greater contributor to alcohol use disorders in males than childhood trauma (Chen, Pan, Xu, Huang, Li & Song, 2021), emphasizing the importance of treatment for alcohol use disorders. Furthermore, although alcohol use might not have been problematic for the majority of children in this sample, it does not mean it will not become problematic later in life and contribute to the perpetration of domestic violence. On the other hand, the results suggest that treating traumatic experiences in parents should not necessarily be the main focus of interventions for domestic violence. Based on the findings in this study, alcohol abuse by parents and children and child abuse can occur in the absence of severe parental childhood trauma. Therefore, treatment of parental trauma might not lead to a reduction in their alcohol abuse and perpetration of child abuse. That is not to say that parents will not benefit from treatment for their traumatic childhood experiences, but in the context of the intergenerational transmission of domestic violence it might not be the most efficient route.

In conclusion, the intergenerational transmission of domestic violence is a complex concept that involves many contributing factors, of which alcohol abuse is only one. However, both this study and previous research have shown that alcohol use by parents can directly influence alcohol use in children. Although the current study did not find a strong link between alcohol use and child abuse, previous studies have highlighted the high prevalence of alcohol use in cases of domestic violence and many studies have found a strong link between alcohol and violent behavior. Alcohol can therefore be seen as a risk factor for the perpetration of domestic violence. In line with previous work, this study draws attention to the fact that interventions for alcohol and other substance abuse are often not started or completed, despite the fact that they have been identified as major contributors to domestic violence. Future research should aim to broaden our understanding of the complex interplay between alcohol use and domestic violence and develop, implement and evaluate interventions for alcohol abuse in cases of domestic violence. This could be a necessary step in breaking the intergenerational transmission of domestic violence.

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