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Psychological abuse, substance abuse distress, dissatisfaction with friendships, and incident psychiatric problems

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ABSTRACT

Objective: The aim of this study was to assess the mediating role of dissatisfaction with friendships in adulthood in the associations between psychological abuse in childhood, substance abuse distress in childhood, and incident psychiatric problems (IPPs) in adulthood over 13 years of follow-up.

Methods: We used data collected from 1994 to 2008 within the framework of the Tromsø Study (N = 9502), a representative, longitudinal, prospective cohort study. Poisson regression analysis was used to assess the associations between psychological abuse, substance abuse distress, dissatisfaction with friendships in adulthood, and IPPs in adulthood. Indirect effects and proportion mediated (%) were assessed with the difference-in-coefficients method.

Results: Psychological abuse (relative risk [RR] = 1.66, 95% confidence interval [CI]: 1.45–1.89) and substance abuse distress in childhood (RR = 1.38, 95% CI: 1.18–1.62) were associated with an increased risk of dissatisfaction with friendships in adulthood. Dissatisfaction with friendships in adulthood was associated with an increased risk of IPPs in adulthood (RR = 1.71, 95% CI: 1.33–2.20). Moreover, dissatisfaction with friendships in adulthood mediated 9.31% (95% CI: 4.25–14.57) of the association between psychological abuse in childhood and IPPs in adulthood, and 9.17% (95% CI: 4.35–16.33) of the association between substance abuse distress in childhood and IPPs in adulthood.

Conclusions: Dissatisfaction with friendships in adulthood mediates a minor proportion of the associations between psychological abuse, substance abuse distress, and IPPs in adulthood. Interventions aimed at decreasing dissatisfaction with friendships may dampen some of the effect of psychological abuse and substance abuse distress in childhood on IPPs in adulthood.

1. Introduction

Psychological abuse in childhood often emerges as the most significant adverse childhood experience (ACE) in terms of its long-term effects on health and well-being in adulthood [1–4]. For instance, a recent report showed that psychological abuse in childhood explained a greater proportion of the variation in internalizing symptoms (depression and anxiety), health-related quality of life, and subjective well-being in adulthood, than physical abuse in childhood, parental education, socioeconomic conditions in childhood, and alcohol intake in adulthood [1]. It was also found that, compared to those exposed to physical abuse in childhood, those exposed to both psychological abuse and substance abuse distress in childhood (i.e., distress caused by problematic familial substance use) had significantly higher internalizing symptoms and lower subjective well-being in adulthood [1]. These findings suggest that psychological abuse and substance abuse distress in childhood maybe more important for health and well-being in adulthood than socioeconomic adversity and physical abuse in childhood (see also [2]). However, comprehensive studies are still needed to determine the mediating and protective mechanisms that act on these associations [5–8].

The risky families model [9], emotional dysregulation model [10], and biological embedding hypothesis [11,12] all suggest that ACEs influence incident psychiatric problems (IPPs) in adulthood by provoking socio-emotional impairments [6,7]. These impairments include symptoms and behaviours like, impulsivity, poor social skills, mistrust, reactive aggression, excessive reassurance-seeking, or hostility, and individuals with these impairments are more likely to be rejected by their normally-functioning peers [13,14]; as a consequence, affected individuals may suffer from social isolation or loneliness [1,6,7]. For example, previous studies reported an association between ACEs and outcomes like poor social competence, oppositional behavior [15], lower levels of self-esteem [13], poor interpersonal relationships, increased impulsive risk-taking behavior [16], affect dysregulation, poor self-image [17], and attributions [18]. Other evidence [1] has shown that psychological abuse and substance abuse distress in childhood

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explains up to 20% of the variation in perceived social support in adulthood. These findings suggest that deficits in social skills and socio-emotional impairments caused by psychological abuse and substance abuse distress in childhood not only reduces or hampers the capacity for developing and maintaining a social support network, but also that affected individuals may have a greater need for social relations [6,19].

A functional social behaviour depends on a person's capacity for social interaction, which is an important part of maintaining a social support network and social relationships with peers [6,7,18]. The biological embedding hypothesis [11,12] suggests that associations between psychological abuse, substance abuse distress, and IPPs and are partly driven by scarring, or embedding that limits one's ability to maintain and develop social relationships [6,7]. As Pearlin et al. ([20], p.211) noted, "… early abuse could exert harmful influences on one's scholastic performance, the regularity and quality of work, the ability to form and maintain supportive social relationships, leisure activities, self-concepts, or decision making processes". Indeed, previous studies have shown that psychological abuse in childhood can lead to high emotional reactivity in adulthood [21,22]. For instance, previous studies have shown that psychological abuse in childhood (even when substance abuse distress in childhood is controlled for [23]) is associated with problem behaviours and antisocial behaviours [24,25], which in turn may influence emotion dysregulation and maladaptive emotion regulation patterns in adulthood [6,7,26]. Behavioural problems and externalizing behaviours (e.g., aggression) may create an inability to maintain and develop social relationships, which may influence IPPs in adulthood via feelings of loneliness and social isolation [1,6,7,10,27–29]. Other evidence suggests that deficits in emotion regulation mediate the association between psychological abuse, substance abuse distress, and a wide range of psychiatric problems in adulthood [10,26,30–33].

A key question in developmental psychopathology and psychology of social relations is whether dissatisfaction with friendships in adulthood (i.e., perceived inadequacy of the quality and quantity of friendships) has a mediating role, i.e., do ACEs affect one's perception of desired (or needed) quality and quantity of friendships, which in turn affects IPPs in adulthood (conceptualised as the indirect effect) [1,6,7]. It is of theoretical importance to answer this question if we want to determine the possible etiological role dissatisfaction with friendships in adulthood plays in the development of psychiatric problems [1,6,7,34,35]. Dissatisfaction with friendships refers to the distressing feeling that accompanies discrepancies between one's desired and actual quality and quantity of friendships [6,7]; it is a subjective phenomenon, i.e., it is not necessarily synonymous with 'lack of social support' or 'objective social isolation', as a person may perceive dissatisfaction with friendships even when an ample number of social contacts or sources of support exist [6,7]. The advantage of obtaining a subjective evaluation from respondents is that it takes into account the cognitive mediating factors between interpersonal deficiency and emotional response [36,37]. Indeed, previous evidence [6] has indicated that objective indices of social support are less important mediators of ACEs → IPPs associations, than the measures that take in account the discrepancy between achieved and desired quality and quantity of friendships. Although some definitions of loneliness entail feelings of dissatisfaction [37,38], the subtle difference between the concept of "dissatisfaction with friendships" [6,7] and "loneliness" [36] is that the former evaluates *both* the quality and quantity of friendships, while the latter may evaluate either one of these, or both with reference to social relations in a broader context. The commonalities between "dissatisfaction with friendships", "loneliness" and "perceived social isolation" are that they are unpleasant and distressing. Indeed, research on animal models, such as rats and monkeys, suggests the existence of a biological mechanism between social isolation and psychiatric disorders [39–41].

Drawing upon the seminal contributions by Weiss, Peplau, and Perlman (e.g., [36,37,38,42–45]), Hawkley and Cacioppo [46] proposed the phenomena of the "loneliness loop", which may explain the association between dissatisfaction with friendships and IPPs [7]. Dissatisfaction with friendships is capable of making an individual more dismissive and avoidant in their social relationships because they expect social rejection and negative social interactions, making them more socially withdrawn [6,7,42]. The *incapacity* to maintain and develop social relationships combined with negative social expectations tends to elicit behaviours from others that confirm these expectations as "self-fulfilling prophecies" [7,36]. This self-reinforcing "loneliness loop" may contribute to IPPs via feelings of ostracism, negativism, hostility [47,48], pessimism [43], and rejection [7,46,49] (see also the construct of "inhibited sociability" [50]).

Few previous studies [1,6,7,31,51,52] have considered the mediating role of perceived social support in the association between psychological abuse, substance abuse distress, and IPPs in adulthood; however, the question of whether *feelings* of dissatisfaction or lack of fulfillment with social connections mediates the association between psychological abuse, substance abuse distress, and IPPs in adulthood remains unclear [6,7]. In addition, there were several other limitations in previous studies. Firstly, several studies [6,7,31,51–53] constructed a cumulative index of ACEs, by counting the number of adversities or stressors in childhood on an additive scale. This makes it impossible to assess whether psychological abuse or substance abuse distress *independently* affect IPPs in adulthood. For instance, by conceptualizing an index of ACEs in a dose-response manner [5,6,8,53], the type of ACE and accumulation of ACE are confounded [1,2]. Someone who reports being psychologically abused in childhood is not the same as a person who experienced distress in childhood due to problematic familial substance abuse, yet both these individuals would receive a score of 1 in an index of ACEs.

Secondly, some studies [31,51,52,54] relied on very small, selective study samples, which are prone to selection bias and are not helpful in determining general population estimates. Thirdly, some studies [1,31,51,53,54] assessed the association between perceived social support and IPPs in a cross-sectional sample, which makes it impossible to ascertain the temporal order between these variables. Fourth, one study [52] did not present the indirect effect estimates and corresponding confidence intervals (CIs). Lastly, few studies [35,53,54] that assessed the associations between psychological abuse in childhood, perceived social support, and psychopathology in adulthood did not considered the mediating role of perceived social support in the analysis.

The questions this study aims to address are: (1) are those who experience psychological abuse or substance abuse distress in childhood more likely to experience dissatisfaction with friendships in early mid-life?; (2) are those who experience dissatisfaction with friendships in early mid-life more likely to develop psychopathology in early old age?; (3) are those who experience psychological abuse or substance abuse distress in childhood more likely to develop psychopathology in early old age?; and (4) what proportion of these associations are mediated via dissatisfaction with friendships in early mid-life?

2. Methods

2.1. Study population

The Tromsø Study is a longitudinal prospective cohort study and its participants are considered representative of the adult population residing in the municipality of Tromsø [55]. The primary and initial aim of Tromsø Study was to understand the causes of cardiovascular diseases in Norway [55]. Between 1974 and 2007–2008, six waves, or surveys, of the Tromsø Study were conducted (referred to as Tromsø I–VI) [55]. To be eligible for the present analyses, participants had to have attended both the Tromsø IV (1994–1995), and Tromsø VI (2007–2008) surveys (N = 9502). Only individuals who participated in Tromsø IV and Tromsø VI were eligible for inclusion because