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Mediators between adverse childhood experiences and suicidality

Minna Rytilä-Manninen[a,*], Henna Haravuori[a,b], Sari Fröjd[d], Mauri Marttunen[a,b], Nina Lindberg[c]

[a] Adolescent Psychiatry, Helsinki University and Helsinki University Hospital, Helsinki, Finland
[b] National Institute for Health and Welfare, Department of Health, Mental Health Units, Helsinki, Finland
[c] Forensic Psychiatry, Helsinki University and Helsinki University Hospital, Helsinki, Finland
[d] University of Tampere, School of Health Sciences, Tampere, Finland

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ABSTRACT

We investigated whether psychiatric symptomatology, impulsivity, family and social dysfunction, and alcohol use mediate the relationship between adverse childhood experiences (ACEs) and suicidality.

The study population comprised 206 adolescent psychiatric inpatients and 203 age- and gender-matched adolescents from the community. ACEs and suicidality were assessed using the Schedule for Affective Disorders and Schizophrenia for School-Age Children – Present and Lifetime version, the Life Events Checklist, and a structured background data collection sheet. Psychiatric symptomatology was measured using the Symptom Checklist −90. Impulsivity, social dysfunction, and family dysfunction were measured using the Offer Self-Image Questionnaire, and alcohol use was assessed with the Alcohol Use Disorders Identification Test. A simple mediation test and multiple mediation analyses were conducted.

A positive direct effect of ACEs on suicidality was observed. Also seen was a positive indirect effect of ACEs on suicidality through psychiatric symptomatology, impulsivity, and family and social dysfunctions. Alcohol misuse did not, however, mediate the relationship between ACEs and suicidality. According to the multiple mediation analyses, psychiatric symptomatology was the most significant mediator, followed by impulsivity.

Psychiatric symptoms, impulsivity, and family and social dysfunctions are factors that should be taken into consideration when assessing suicidality in adolescents.

1. Introduction

Suicidality increases substantially from childhood into adolescence (Kessler, Borges, & Walters, 1999), representing a major burden on health and a leading indication for psychiatric hospitalization (Isohookana, Riala, Hakko, & Räsänen, 2012) in young people. Looking more closely, suicidality can be regarded as an umbrella term for various forms of suicidal thoughts and behaviors. Suicidal ideation refers to thoughts about engaging in behaviors intended to end one's life. It varies from fleeting thoughts about death to more extensive ideas and plans for suicide (Vander Stoep, McCauley, Flynn, & Stone, 2009). A suicide attempt is defined as deliberately causing harm to oneself with at least some intent to die. Finally, a completed suicide is a lethal suicide attempt. All of these behaviors can be distinguished from non-suicidal self-injury (NSSI), which refers to self-injurious behavior occurring in the absence of suicidal intent (Miller, Esposito-Smythers, Weismoore, & Renshaw, 2013). According to a nationally representative study

* Corresponding author at: Hospital District of Helsinki and Uusimaa, Kellokoski Hospital, 04500, Kellokoski, Finland.
E-mail addresses: minna.rytila-manninen@hus.fi, minna@pixoi.com (M. Rytilä-Manninen).

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of US adolescents by Nock et al. (2013), the lifetime prevalence of suicide ideation, plans, and attempts was 12.1%, 4.0%, and 4.1%, respectively. Suicide accounts for 17.6% of all deaths among individuals aged 15–29 years in high-income countries, making it a leading cause of death for people in this age group.

1.1. Suicidality and adverse childhood experiences

Adverse childhood experiences (ACEs) comprise childhood emotional, physical, and sexual abuse, emotional and physical neglect, and various household dysfunctions (mother treated violently, substance abuse, mental illness, criminal behavior, parental separation/divorce), which are directed to an underaged individual (Felitti et al., 1998). In this study, we define childhood adverse experiences as physical and sexual abuse, witnessing intimate partner violence, parental psychiatric problems, parental alcohol or drug abuse, parental criminal behavior, and parental separation or divorce. ACEs often co-occur (Dong, Anda, Dube, Giles, Felitti, 2003; Dong et al., 2004; Isohookana et al., 2012; Rytilä-Manninen et al., 2014) and serve as risk factors for diverse social, emotional, and medical problems later in life (Anda et al., 2006; Dube et al., 2001; Dube, Anda, Felitti, Edwards, & Croft, 2002; Dube et al., 2005, 2006). Anda et al. (2006) reported that the risks of adverse health outcomes increase in a graded fashion as the ACE score increases; regarding psychological stress, accumulation of ACEs may be more important than any specific negative experience (Kumar and George, 2013; Rasmussen, Nielsen, Petersen, Christiansen, Bielnberg, 2013)

Suicidality can be regarded as an outcome of a complex interplay between genetic, biological, psychiatric, psychological, social, and cultural factors (Hawton, Saunders, & O'Connor, 2012). Experts emphasize diathesis-stress explanations in theoretical formulations, specifically that predisposing biological (e.g. neurotransmitter imbalance), personality (e.g. impulsivity), and cognitive vulnerabilities (e.g. impaired social problem-solving), combined with exposure to ACEs and psychopathology, increase the risk of suicidal behaviors (Hawton et al., 2012; Serafini et al., 2015). In this context, diathesis refers to an increased and long-term vulnerability to suicidal behavior as a consequence of critical levels of early-life stress leading to inappropriate stress regulation. According to the diathesis-stress model, a suicide attempt can be realized because a person is impulsive or prone to aggressive behavior, therefore being more likely to act on his/her suicidal feelings (Pelkonen, Karlsson, & Marttunen, 2011). In line with the diathesis-stress model, researchers have reported that childhood abuse and neglect substantially increase the risk of both suicidal ideation and attempted suicide in young people (Bruffaerts et al., 2010; Dube et al., 2001; Evans, Hawton, Rodham, & Deeks, 2005; Miller et al., 2013; Thompson et al., 2012). A systematic review by Evans et al. (2005) found a strong link between childhood physical and sexual abuse and suicidal thoughts/attempted suicides in adolescence. Similarly, Miller et al. (2013) concluded that although all forms of maltreatment are associated with suicidal ideation and suicide attempts in adolescence, childhood sexual and emotional abuse might be more important risk factors than physical abuse. Additionally, there are studies that have found a strong dose-response relationship between the number of adversities or negative life events and suicidal behavior in youths and adults (Dube et al., 2001; Felitti et al., 1998; Kumar & George, 2013; Serafini et al., 2015).

1.2. Factors mediating the relationship between ACEs and suicidality

ACEs shape the cognitive and affective styles that predispose young people to suicidality (Thompson et al., 2012). From the perspective of neurobiology, ACEs are linked to a variety of changes in brain structure and function and stress-responsive neurobiological systems, which, in turn, predispose young people to mental health problems (Anda et al., 2006), emotional dysregulation, non-suicidal self-injury, and suicidal ideation and behaviors (Brodsky & Biggs, 2012) as well as increase their risk of committing suicide (Dube et al., 2001; Miller, Esposito-Smythers, Weismoore, & Renshaw, 2013; Perez, Jennings, Piquero, & Baglivio, 2016; Thompson et al., 2012). Although ACEs increase the risk of suicidal behavior, not all adolescents exposed to ACEs are suicidal, suggesting that this relation must be mediated (or moderated) by some additional variables. Because mental health and behavioral problems have been associated with suicide ideation (Stewart et al., 2017) and suicide attempts (Groschwitz et al., 2015; Stewart et al., 2017; Tuisku et al., 2006) as well as with exposure to adverse experiences (Anda et al., 2006; Dube et al., 2005, 2006; Rytilä-Manninen et al., 2014), they might act as mediators. In fact, among adults, both depression and alcohol use disorders have been reported to mediate the relation between suicidality and ACEs (Dube et al., 2001, 2002; Felitti et al. 1998). Both interpersonal difficulties (Johnson et al., 2002) and family factors influence suicidal behavior in adolescents (Laukkanen, Honkalampi, Hintikka, Hintikka, & Lehtonen, 2005; Randall, Doku, Wilson, & Peltzer, 2014). Interestingly, in a longitudinal study by Johnson et al. (2002), interpersonal difficulties mediated the association between maladaptive parenting and offspring's later suicidality. Moreover parent-child-relationship has documented to mediate between ACEs and suicidality (Hardt, Herke, & Schier, 2011).

1.3. Present study

Although ACEs are well-documented risk factors for adolescent suicidality, more information about the variables mediating this relation is needed (Pelkonen et al., 2011).

An approach based on multiple levels of analysis (Preacher & Hayes, 2008), incorporating information from various aspects, is needed to advance the identification of potential mediators of the relationship between ACEs and suicidality. Testing several potential mediators simultaneously minimizes the risk of attributing mediational status to a single process when other relevant processes are omitted from the analysis. Simultaneous testing also allows each individual mediator to compete for variance in a specified outcome, leading to more effective identification of the putative mediation processes responsible for the development of suicidality in adolescents exposed to various ACEs (Preacher & Hayes, 2008).