1 Introduction
Chapter 1

Introduction

This thesis focuses on the associations of adverse childhood experiences (ACE) with emotional and behavioural problems (EBP) in adolescents and the associations of ACE (number and specific) with being in and using the system of psychosocial care. It also explores the degree to which the associations between ACE and EBP depend on the social context of adolescents (e.g. family factors, school factors, resilience). This chapter addresses the aim of the study, its theoretical model and the concepts used, its research questions and the structure of the thesis as a whole.

1.1 Adverse childhood experiences

Childhood is one of the important periods of an individual’s life, having a very significant impact on its further development, and positive and negative experiences during childhood have a huge impact on an individual’s lifelong health. Childhood gradually passes into adolescence, which is a period of significant biological, psychological and social changes that the adolescent has to cope with, and this coping can bring increased stress and tension (Sawyer et al. 2012). The effects of early child development and the role of social context on an adolescent’s health is comprehensively described by the conceptual framework for adolescent health according to Sawyer et al. (2012), depicted in Figure 1.1.

![Conceptual framework for adolescent health](image)

**Figure 1.1** Conceptual framework for adolescent health (Sawyer et al. 2012)
In line with this model, different negative experiences, also labelled as ACE, are sometimes already present in childhood and are known to have a consequent impact throughout life (Su et al. 2015; Danese et al. 2009). These ACE include a wide range of traumatic stressors. Sometimes, children and adolescents are exposed to systematic interpersonal traumatic stressors, and one study even refers to this worrying condition as a so-called “hidden” or “silent” epidemic (Lanius et al. 2010). To better understand this hidden epidemic, it is necessary to take a closer look at the description of ACE, their specific types and the potential accumulation of ACE that adolescents encounter in their life and the consequences they have on their health.

1.1.1 Definition and description of ACE, cumulative and specific ACE

ACE regard a wide range of negative events that occur when a person is at a young age, such as abuse and/or neglect towards a child, domestic violence towards a youth’s mother, household substance abuse, household mental illness, parental separation/divorce, and other events (Baglivio et al. 2017). They represent harm that affects the child either directly (such experiences may include neglect and abuse) or indirectly by affecting the environment in which they live (such as family mental disorders, parental divorce, family psychoactive substance use, etc.) (Danese & McEwen 2012).

The occurrence of ACE has attracted considerable attention in recent years. Early life adversity can, as a stressor, affect the sensitive development of a child (Danese & McEwen 2012). Experience with negative events in childhood may potentially cause various problems in adolescence or even continue on, thus increasing a person’s risk for serious problems in physical and mental health and higher mortality later in life (Filkelhor et al. 2013). Regarding the impact of ACE, two issues are not fully clear: first, the degree to which accumulation of ACE adds to their adverse effects, and second, the degree to which this impact varies by type of ACE. Regarding the first topic, previous research has shown that the higher the number of experienced ACE, the more increased is the risk of various health problems. This regards, among others, mental illnesses, including depression, anxiety, panic reactions, hallucinations, psychosis and suicide attempt (Bellis et al. 2015; Park et al. 2014; Danese & McEwen 2012; Pechtel & Pizzagalli 2011; Breslau et al. 2006). However, most of the available evidence regards the impact of ACE on adult health (Su et al. 2015; Danese et al. 2009); evidence on adolescent health is lacking.

Regarding the second topic, i.e. variation in the impact of specific ACE, recent findings suggest that different types of ACE affect individuals to varying degrees. It turns out that those types of ACE related to immediate family members may have a stronger impact on the child (Wright & Schwartz 2021; Schwartz et al. 2019).
significantly affects the life of an adolescent (Pachalla et al. 2020; Johnson et al. 2017). Gaining a realistic view of ACE and their impact can provide important insights into the public health of children and adolescents and the detection of at-risk groups of adolescents.

### 1.1.2 ACE - prevalence and risk groups

The prevalence of ACE among adolescence is in general rather high but it also varies per group, with some groups being more endangered by it. The current best estimates for the prevalence of ACE in early life are rather high in the general population, e.g. a review of 37 studies shows a mean prevalence of 13% for 4 and more ACE during childhood (Hughes et al. 2017). This aligns with estimates from other studies, in which only one-third of the study population had no previous experience of ACE, and two-thirds of study participants experiencing at least one ACE. The accumulation of a higher number of ACE (4 and more) has been found in 10-15% of study populations (Fogelman & Canli 2019; Felitti et al. 1998; Felitti & Anda 2010; Gilbert et al. 2015).

ACE are more frequently reported by adolescents from a number of risk groups, such as poor and dysfunctional families (Bevilacqua et al. 2021; Morris et al. 2007), and families with other problems, such as addiction. Firstly, an environment of poverty has a direct impact on the healthy development and health of a child. Because of poverty, children lag behind in psychosocial development (WHO 2001), and many studies suggest that growing up in poverty increases the lifelong risk for various negative life events and negative health outcomes (Finkelhor et al. 2013; Duncan et al. 2010). Secondly, regarding at-risk groups, a child from a dysfunctional family faces greater challenges to grow up healthy compared to a child from a normal family (Yee & Sulaiman 2017; Hassan et al. 2012). Negative life events and family dysfunction put children at risk for developing adjustment problems (Yee & Sulaiman 2017). Conflicts between parents, divorce and alcohol abuse of parents in particular have a negative influence on the mental health of adolescents (Bevilacqua et al. 2021; Hailey & Lachman 2000). Thirdly, several other family problems, such as depression of parents, have a negative influence on the health of adolescents (Bevilacqua et al. 2021). Adolescents who belong to risk groups are more likely to experience ACE but also have much more difficult conditions for dealing with ACE. The effects of these inequalities are visible already in childhood and adolescence.

### 1.1.3 ACE and consequences for physical and mental health

A growing body of evidence identifies the harmful effects that ACE occurring during childhood or adolescence have on health throughout life (Hughes et al. 2017). Certain changes in the nervous system have their
origins in childhood and continue into adulthood. Research has shown that adverse experiences during childhood development (experience-dependent information) can affect maturation processes, having long-term effects not only on physical health but also on mental health (Finkelhor et al. 2013; Danese & McEwen 2012).

Research has documented an association between ACE and poorer physical health in adulthood (Hughes et al. 2017). Those experiencing ACE had increased odds of having non-communicable diseases, e.g. severe obesity, diabetes, heart disease, cancer, stroke and chronic lung disease (Felitti et al. 1998; Gilbert et al. 2015). ACE have also been shown to be related to poorer mental health in adults, including mood disorders, anxiety, substance abuse, post-traumatic stress, personality and eating disorders, as well as suicidality (Hughes et al. 2017). The two of the most pronounced theories explaining the mechanism leading from ACE to mental health problems will be described in more detail in the following sections.

1.1.4 ACE, toxic stress and allostatic load as a mechanism leading to mental health problems

Several mechanisms have been shown that connect ACE with adverse health outcomes, major ones regarding toxic stress and higher allostatic load, both of which adversely affect healthy development as well as the physical and mental health of an individual (Hughes et al. 2017). Physiological and biomolecular studies indicate that the chronic stress that children experiencing ACE are exposed to leads to changes in the development of the nervous, endocrine and immune systems (Danese & McEwen 2012). The result is an increase in allostatic load; such an individual is more susceptible to the development of various diseases and this may have a negative impact on physiological development (Hughes et al. 2017). The presence of ACE creates a burden of toxic stress that changes cognitions, emotions and behaviour. This burden subsequently leads to impaired cognitive, social and emotional functioning in ways that promote subsequent problems in the area of mental health (Hughes et al. 2017). ACE thus lead to depression and posttraumatic stress disorder, which in turn can lead to substance abuse, sleep disorders and inconsistent health care use, possibly leading to other medical conditions later in adulthood (Finkelhor et al. 2013).

The negative impact of ACE on mental health in adolescence and later on in adulthood happening via toxic stress is a one of the potential mechanisms. As the presence of toxic stress in childhood can cause both physical and mental health problems to an individual in the future (Shonkoff et al. 2012), attention should be paid to these at-risk groups.
1.1.5 ACE and the theory of trauma framework

ACE and the pathways leading from ACE to negative consequences in mental health, as described in 1.1.4, can also be framed in the theory of trauma. The very onset of mental trauma can occur in childhood or even later in adolescence. This trauma can be defined from a medical or psychological point of view. From a medical point of view, trauma is perceived as a serious physical injury or shock that paralyzes the body’s natural protection, with more than the need for medical care. Such physical trauma very often results in scar tissue. In psychology, trauma is similarly understood as an event that absorbs an individual’s ability to protect his or her own mental health (Cloitre et al. 2011).

Trauma experienced in childhood and adolescence has been shown to potentially have serious consequences for functioning not only during the period when it is experienced, but also throughout further life. Interpersonal victimisation has its origins in childhood and is harm caused to the child by others – mostly adults who violate social norms based on their behaviour (Finkelhor 2008). Both children and adolescents may experience several forms of interpersonal traumatic life events (betrayal, injustice, guilt, immorality) during adolescence. Moreover, some traumas experienced by a child or adolescent can be directly related to the parent as a consequence of a parent’s illness (physical or mental), family violence, neglect by parents, drug abuse or involvement in crime by parents and parental divorce (D’Andrea et al. 2012).

1.2 Emotional and behavioural problems in adolescence

Emotional and behavioural problems (EBP) are one of the consequences of ACE that are rather manifested in childhood and adolescence. Adolescents with negative experiences in their lives may have more EBP than adolescents without ACE (Danese & McEwen 2012; Sala et al. 2011). The deleterious effects of ACE on mental health may thus already start in adolescence.

1.2.1 EBP – definition, types, prevalence and consequences

EBP are quite common during childhood and adolescence and may reflect mental health problems, including their early stages. EBP cover a very wide range of problems that manifest themselves in different ways. Achenbach et al. (2002) denotes EBP as internalising and externalising manifestations of problems, respectively. Internalising problems manifest themselves as fear, sadness, social closure and anxiety. Externalising problems manifest themselves more externally in the form of e.g. physical aggression, fits of rage and increased activity (Jaspers et al. 2012; Danese & McEwen 2012). Internalising manifestations may remain hidden for other people, meaning that a parent and even more so a teacher does not notice
them. Only when these changes gain intensity in a child do parents and teachers notice them (Campbell, 2006). The situation is different in the case of externalising problems, which regard behaviour and include, e.g., delinquency and aggressive behaviour. These symptoms are detected by others at an earlier stage, as they are directed outwards to the surrounding environment, and parents and teachers are able to identify them earlier (Jaspers et al. 2012). EBP may have negative long-term consequences for the health of adolescents (Fergusson et al. 2005; Kretschmer et al. 2014).

EBP occur relatively frequently. National representative studies report an EBP prevalence between 10% and 19% (Jaspers et al. 2012; Jellinek et al. 1999; McNerny et al. 2000; Palermo et al. 2002; Costello et al. 2003; Polaha et al. 2011). It should be noted that part of these prevalences depend on definitions, e.g. for questionnaires like the SDQ, cut-offs are frequently defined such that about 10% of youth scores above the cut-offs. However, prevalences based on professional assessments, such as in preventive child health care, tend to yield estimates still higher than 10% (Jaspers et al. 2012). The incidence and prevalence of EBP varies between boys and girls according to the type of problem and developmental stage. In general, however, emotional problems tend to predominate in girls, while behavioural problems are more common in boys (Costello et al. 2003). The age of onset of EBP varies depending on the specific problem, but the existing literature suggests that many of these problems may occur in early to middle childhood (Mesman et al. 2001; Shaw et al. 2001; Campbell et al. 2000). Emotional and also behavioural problems can translate into mental disorders, i.e. if they meet diagnostic criteria regarding length, type and severity of problems (Ormell et al. 2012). Moreover, EBP in adolescence can result in the occurrence of psychiatric disorders, such as anxiety, depression and obsessive-compulsive disorder, in adulthood (Dougherty et al. 2015; Stringaris et al. 2014).

Neglecting or ignoring the occurrence of an emotional or behavioural problem in an individual creates space for the development and deepening of these problems. Prevention and early diagnosis can help to reduce the likelihood of these consequences. If not detected and treated early, the impact of EBP on an individual may manifest itself in adulthood in the form of physical and mental problems. Below, we provide information on what emotional and behavioural problems are, how they manifest, how prevalent they are in adolescents and what their consequences are.

1.2.2 EBP and the system of care enrolment and use of psychosocial care

Severe EBP may lead to enrolment in the system of care (Paclikova et al. 2020; Nanninga 2018) and consequent use of psychosocial care (Nanninga 2018; Aalsma et al., 2016). However, care for adolescents with EBP is often unequally distributed, with some adolescents not receiving any care. For example, more than 30% of adolescents with EBP never receive
psychosocial care for their health problems (George et al. 2018; Vasileva & Petermann 2017). In addition to that, some adolescents do not report having EBP but are enrolled in psychosocial care (Paclikova et al. 2020). Finally, previous studies show that psychosocial care may reduce but often does not fully solve all problems of adolescents (Nanninga 2018; Bevaart 2013; Jörg et al. 2012). This generally shows a need to extend our knowledge about children and adolescents with EBP.

1.2.3 EBP and the system of psychosocial care in Slovakia

The design of the system of psychosocial care for adolescents with EBP is quite complex, and in Slovakia it rests on the shoulders of several institutions. With the phrase “system of psychosocial care” we denote all institutions that provide care to adolescents with EBP, in the area of the preventative care services, social and mental health care services. Adolescents and their families can receive psychosocial care from various types of professionals working in these institutions. First, in the area of the prevention and counselling psychologists provide care to adolescents and families with mild problems. Second, in the area of the social healthcare, social workers provide care to adolescents and families with more problems, both EBP and other problems, such as in work and in housing. Third and last, in the area of mental healthcare, psychologists and psychiatrists provide specialised care to the adolescents with more severe psychosocial problems and psychiatric disorders (Dankulincova et al. 2020; Nanninga 2018). This complex system of providing care is described in more detail in Dankulincova et al. (2020).

As part of the care provided, the focus is on the client, who is the recipient of care, primarily an adolescent with EBP, but also on the family. Separate institutions in the psychosocial care system provide a full range of services to their clients depending on their needs, for example: psychoeducation, social skills training, various forms of psychotherapy, pharmacotherapy, individual and family therapy. The interviews with care providers show that the initiator of an adolescent’s entry into care is usually the family and parents, in exceptional cases also the adolescent himself. The second most common initiator of an adolescent’s entry into psychosocial care is a school. Family and school play important roles when it comes to the psychosocial care not only upon entry but also later on, when it comes to implementing the recommendations given by care professionals.

1.3 The role of the family and social network affecting EBP

ACE affect the occurrence of EBP in adolescents, but this relationship between ACE and EBP is influenced by several factors in the context of the child, such as family, school, community and sources of resilience.
that the child has. It is important to notice that the family may have a
dual role in this. The family may be a factor influencing the association
between ACE and EBP but it may also be a part of the whole spectrum
of ACE via parent- and/or family-related adversities. This suggests that
mutual relations between ACE, EBP and family are complex and should
be analysed, taking into consideration this complexity. In general, the
potential factors that at different levels may influence the relationship
between ACE and EBP in adolescents may be framed and described in
more detail by Bronfenbrenner’s ecological theory (1979, 1992, 1993), social
support theory (Cassel 1976) and resilience theory (Rutter 1985; 1999).

1.3.1 Ecological framework – the Bronfenbrenner model
Bronfenbrenner’s ecological systems theory offers a framework of
individuals’ relationships within communities and the wider society
(1979). This theory explains how everything in a child and the child’s
environment affects how the child grows and develops. This system
is composed of five socially organised subsystems – Microsystem,
Mesosystem, Exosystem, Macrosystem and Chronosystem – that support
These five socially organised subsystems support and guide human
development and do so within and between each system bi-directionally.
The microsystem refers to the family, school, religious institutions,
neighbourhood and peers, which most impact a child’s development.
The mesosystem consist of interconnections between the microsystems
(i.e. between family and teacher). The exosystem consists of links
between social settings that do not involve the child (i.e. a parent might
receive a promotion that requires more travel). The fourth subsystem,
the macrosystem, includes the overarching culture that influences the
developing child. Finally, the fifth subsystem, the chronosystem, consists
of the pattern of environmental events during the life course and changes
in the socio-historical circumstances (Bronfenbrenner 1979). This theory
shows that adolescents live in a social context in which several factors play
an important role, like the family, teachers, school, peers, community and
their support. This provides a framework to structure the various factors
that affect the health and development of children.
1.3.2 Theory of social networks and social support

As mentioned in the previous subchapter, adolescents have various interactions with parents, teachers, schoolmates and peers as a part of their social network within the microsystem (Bronfenbrenner 1979), with potential influence on their mental health. The term “social network” refers to relations between people that may provide social support, in the case of adolescents their family, teachers, classmates, peers, friends, neighbours being the most prevalent ones (Ettekal & Shi 2020; Gini et al. 2018). Social support has been defined and measured in various ways (Cassel 1976; Berkman et al. 2000) and is generally viewed as consisting of four broad types of supportive behaviours or acts: emotional support (empathy, love, trust, caring), instrumental support (the provision of tangible aid and services), informational support (provision of advice and suggestions) and appraisal support (the provision of information) (House 1981).
Strengthening social networks and enhancing the exchange of social support may increase a social context’s ability to collect its resources and solve problems. Resources at both the individual and community levels may have direct effects on health and may also diminish the negative effects on health due to exposure to stressors (Glanz et al. 2008) via its buffering effect (Hodnett et al. 2013). Not only support from the family and the community, but also the adolescent’s own internal resources can reduce the incidence of adverse health consequences in adolescents.

1.3.3 Theory of resilience

Overcoming severe ACE based on resources at the individual level is described in the theory of resilience. Resilience can be defined as the capacity of an individual to adapt to challenges that threaten the function and development of the individual. This capacity of an individual depends on his or her connections to other people and systems external to the individual (Masten & Barnes 2018; Masten 2015). Resilience is the ability to recover from negative events (Garmezy 1991). Garmezy (1991) perceives the concept of resilience as a set of protective processes (resources, competencies, skills) that are located at (1) the individual level in each individual (temperament, planning and decision making, self-confidence, sense of humour), (2) at the social level within family and peer relationships (family – family encouragement and help, cohesion, family support, faith in the child, close relationship with adults, peers – peer support) and (3) at the community level within the school and the wider community (school – teacher support and peers, success, community – faith in the values of society, impunity). Resilience is not only a counterweight to a risk (a difficult life situation), but also as a certain basic ability, which is activated when we face risk factors. The term “resilience” represents an important concept of mental health promotion in adolescents, especially in the case of vulnerable individuals.

1.4 Aim of the study and research questions

The general aim of this thesis is to explore the relationship of ACE and EBP in adolescents, the association between ACE (cumulative and specific) and being in and using the system of psychosocial care and the degree to which these associations depend on their social context (e.g. family factors, school factors, resilience).

Figure 1.3 presents a model of the relations as examined within this thesis. Five main research questions were formulated based on the previously stated aims.
Research question 1:
Is the number of ACE associated with EBP among adolescents and does socioeconomic position modify this association? (Chapter 3)

Research question 2:
Is the number of ACE associated with entering and using the system of psychosocial care and are specific ACE associated with being in and using the system of psychosocial care? (Chapter 4)

Research question 3:
Is there an association between difficult communication with mother and with father and an adolescent’s EBP and is the association between ACE and EBP moderated by family communication? (Chapter 5)

Research question 4:
Is classmate and teacher support associated with EBP and is the association between ACE and EBP moderated by classmate and teacher support? (Chapter 6)

Research question 5:
Does resilience mediate the association of ACE with EBP? (Chapter 7)

Figure 1.3 Model of the relationships examined in the thesis
1.5 Outline of this thesis

Chapter 1 provides general information and the scientific background focused on ACE and EBP among adolescents and depending on their social context. Moreover, the aim and the research questions are summarised here.

Chapter 2 provides a description of the five research samples used in this thesis. It also describes the design of those studies, measures and statistical analyses.

Chapter 3 focuses on the association of the number of ACE with EBP among adolescents, and on the moderation role of socioeconomic position on this association.

Chapter 4 examines the association of number of ACE with entering and using psychosocial care, and the association of specific ACE with being in and using the system of psychosocial care among adolescents.

Chapter 5 explores the association of difficult communication with mother and with father with EBP and the moderation role of difficult communication with mother and with father separately on the association between ACE and EBP.

Chapter 6 examines the associations of classmate and teacher support associated with EBP and the moderation role of classmate and teacher support on the association of ACE with EBP among adolescents.

Chapter 7 assesses the mediating role of resilience in the relationship of ACE with EBP in adolescents.

Chapter 8 summarises and discusses the main findings of this thesis. It also examines the strengths and limitations of the study and the implications of the study for practice and policy, as well as further research.

References


