



Adverse Childhood Experiences, Quality of Life and the Mediating Roles of Self-Efficacy and Self-Directedness in Youth Residential Care Leavers

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Abstract

Purpose Young people in youth residential care report high rates of adverse childhood experiences (ACEs), e.g., abuse and neglect in their families. Various studies show ACEs to impair social participation and mental health, whereas less is known about how ACEs are associated with quality of life (QoL). The aim of the current study is to (1) evaluate the association between ACEs and psychological, physical, social, and environmental QoL in young adult care leavers, and (2) to examine how self-efficacy and self-directedness mediate this association.

Methods 179 formerly out-of-home placed young adults ($M_{age} = 26.5$, 33.4% women, response rate=30.3%) were queried at baseline with the Junior Temperament and Character Inventory Revised (JTCI 12-18-R) and at a 10-year follow-up with the Maltreatment and Abuse Chronology of Exposure (MACE) scale, the General Self-Efficacy Scale (GSE) and the World Health Organization Quality-of-Life Questionnaire (WHOQoL-BREF).

Results Prevalence rates for ACEs were high, with 87.2% of participants experiencing at least one type of ACE. Cumulative ACEs were associated with lower QoL in all four domains. Self-efficacy ($\beta = -0.111$, $[-0.187, -0.044]$) and self-directedness ($\beta = -0.052$, $[-0.123, -0.004]$) partially mediated the association between severity of ACEs and overall QoL.

Conclusions ACEs increase the risk for a lower QoL of young adult care leavers. Results underline the importance of prevention and early intervention efforts for troubled young people and their families, as well as the importance of pedagogical work during residential care. Additional to research on functional outcomes, studies investigating well-being and quality of life in this at-risk populations are needed.

Keywords Quality of life · Youth residential care · Child welfare · Adverse childhood experiences · Self-directedness · Self-efficacy

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Introduction

Adverse childhood experiences (ACEs) can have substantial negative consequences on the quality of life (QoL) (Corso et al., 2008). Exposed individuals often show poorer mental health (Jones et al., 2018; Petruccioli et al., 2019) including increased suicidal behavior (Thompson et al., 2019), as well as alcohol (Strine et al., 2012a, b) and drug abuse (Swedo et al., 2020). Moreover, ACEs can negatively impact physical health and are associated with numerous medical conditions (Cunningham et al., 2014; Dube et al., 2009; Godoy et al., 2021; Ports et al., 2019; Schroeder et al., 2021; Strine et al., 2012a, b). They can also affect functional outcomes such as adult education, employment, and income, and may contribute to high school non-completion, household poverty, and periods of unemployment (Metzler et al., 2017). The World Health Organization (WHO) defines QoL as “an individual’s perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns” (The Whoqol Group, 1998). QoL is thus a multidimensional concept that can be divided into four main categories: psychological, social, physical, and environmental QoL (The Whoqol Group, 1998). Children and adolescents placed out of home, e.g., in youth welfare institutions, often report a poorer QoL than their peers due to factors such as separation from their families, mental health problems, and a history of ACEs (Damjanovic et al., 2011; Gander et al., 2019; Greger et al., 2016; Hjern et al., 2018; Jozefiak & Sønnichsen Kaye, 2015; Larsen et al., 2021; Nelson et al., 2014; Seiler et al., 2016; Van Damme-Ostapowicz et al., 2007). Similarly, youth aging out of care often experience difficulties in several areas such as health, income, and education (Gypen et al., 2017). Understanding how ACEs impact QoL in young adulthood in high-risk populations could be helpful in planning adequate intervention programs and the transition to a more independent life. However, it is still understudied how the QoL of children and adolescents placed out of home develops long-term after leaving care and entering young adulthood.

ACEs were first described by Felitti and colleagues as childhood abuse and household dysfunctions occurring before the age of 18 (Felitti et al., 1998). The cumulative approach of Felitti to ACEs has been refined by recent discoveries highlighting vulnerable, stress-sensitive periods during which the type and the timing of ACEs have a maximal impact on the risk of developing more severe psychiatric symptoms in adulthood (Khan et al., 2015; Schalinski et al., 2016). Despite Felitti and colleagues’ seminal studies, the current state of ACE research lacks consensus regarding a general definition (Karatekin et al., 2022). However, currently, ACEs are broadly conceptualized as diverse types of childhood adversities or maltreatment such as abuse and neglect experiences. Moreover, it has been suggested that this definition be extended beyond childhood adversities within the household context and include external factors, i.e., peer bullying (Karatekin et al., 2022). A recent meta-analysis highlighted that ACEs are common in the general population since the included studies showed that six out of ten adults reported at least one ACE (Madigan et al., 2023). ACEs are not only prevalent in the general population, but different studies show that ACEs often co-occur (Bussemakers et al., 2019; Desai et al., 2002; Higgins & McCabe, 2001). Studies found that ACEs are linked to reduced mental

and physical health-related QoL in adulthood (Cohrdes & Mauz, 2020; Corso et al., 2008), lower life satisfaction, lower psychological and social well-being (Mosley-Johnson et al., 2019), and an increased perception of stress in adulthood (Nurius et al., 2015). Another study has highlighted the economic penalties of ACEs, underlining that earning differences exist between people who experienced ACEs and those who did not (Schurer et al., 2019). Moreover, exposure to ACEs can increase the risk of lower social participation and reduced health-related QoL (Bürgin et al., 2023a). Taken together, the initial definition of ACEs by Felitti and colleagues was expanded throughout the years and, thus, currently includes a broader spectrum of childhood adversities. Nonetheless, ACEs are linked to several adverse effects in adulthood.

Care leavers are adolescents or young adults previously placed outside their family during childhood or adolescence, either in foster care or residential child and youth care facilities (Schmid et al., 2022b). Transitioning into independence and young adulthood immediately after leaving care is a delicate and challenging phase, especially when assistance is lacking (Courtney et al., 2001; Geenen & Powers, 2007). This stage of life is often characterized by increased psychosocial stress, poor mental health, and impaired QoL outcomes (Akister et al., 2010; Courtney et al., 2001; Melkman, 2017). Several studies show that children and adolescents living in youth welfare institutions report higher rates of ACEs. A review including studies conducted during the out-of-home placement reported a mean rate of 38% foster children who experienced any intrafamilial maltreatment prior to placement (Carr et al., 2020). More specifically, studies show that ACEs are associated with lower QoL in samples of out-of-home placed children and adolescents (Beal et al., 2019; Damjanovic et al., 2011; Greger et al., 2016; Hjern et al., 2018; Jozefiak & Sønnichsen Kaye, 2015; Larsen et al., 2021; Nelson et al., 2014; Seiler et al., 2016; Van Damme-Ostapowicz et al., 2007). A study on Chilean foster care children reported experiences of emotional and physical neglect that, in turn, were associated with lower health-related QoL (Seiler et al., 2016). In the context of care leavers, studies report that ACEs are associated with young adult health outcomes (Rebbe et al., 2018), poorer mental health (Seker et al., 2022), and low to moderate stability of personality disorders (d'Huart et al., 2022). A high number of cumulative ACEs has been found to be associated with significant challenges in young adulthood in the domains of health, finance, and social functioning (Schmid et al., 2022a). Moreover, cumulative ACEs were found to be linked to more complex and stable profiles of mental health problems (Bürgin et al., 2023b). Additionally, in a Swedish care leaver study, fewer were working, and many were dependent on public welfare for economic support compared to their siblings who had lived with their birth families (Brännström et al., 2020). In sum, care leavers are a high-risk population often exposed to childhood adversities, which impact diverse life domains, including physical and mental health and financial aspects.

Self-efficacy and self-directedness are two important protective factors that may buffer the consequences of ACEs (Cheever & Hardin, 1999; Cloninger & Zohar, 2011; Cohrdes & Mauz, 2020; Moreira et al., 2015). Self-efficacy, a component of Albert Bandura's social learning theory, refers to people's beliefs in their capability to achieve specific levels of performance that influence events impacting their lives (Bandura, 1994). There is evidence that childhood abuse negatively affects self-

efficacy among older adults (Sachs-Ericsson et al., 2011; Singer et al., 2016), and emotional abuse and neglect are associated with lower self-efficacy in young adults (Soffer et al., 2008). However, it has been shown to have a protective function on the relationship between exposure to traumatic events and adolescents' overall physical health (Cheever & Hardin, 1999). Furthermore, it may buffer the effects of ACEs on mental and physical health-related QoL (Cohrdes & Mauz, 2020), and mediate post-traumatic recovery (Benight & Bandura, 2004). Beyond trauma, self-efficacy is positively related to optimism, self-regulation, self-esteem, higher life satisfaction, QoL, and positive affect (Luszczynska et al., 2005). Lastly, it was shown to be associated with higher self-directedness (Vangberg et al., 2013).

Self-directedness, a dimension of character based on Cloninger's psychobiological model of personality, refers to the ability of a person to control, regulate, and adapt behavior according to individual goals and values (Cloninger, 1993). Higher self-directedness is associated with better health and social, emotional, cognitive and physical well-being (Moreira et al., 2015), thus being a central predictor of life satisfaction, social support and subjective health (Josefsson et al., 2011). It is associated with hopeful self-confidence, important in recovery from physical and mental disorders (Cloninger & Zohar, 2011). Childhood trauma, such as emotional abuse and neglect (de Carvalho et al., 2015), as well as sexual abuse (Hemmati et al., 2021), may negatively impact self-directedness. Considering all aspects, self-efficacy and self-directedness could act as protective factors against the long-term consequences of ACEs, and given their association with higher QoL and well-being, their roles in care leaver samples should be better understood.

To recapitulate, multiple studies reported that ACEs are highly prevalent among care leavers. Previous research highlighted the impact of ACEs on mental health, overall well-being, and life satisfaction. Interestingly, protective factors such as self-efficacy and self-directedness have been shown to play a significant role in buffering the effects of ACEs. However, studies focusing solely on care leavers and their QoL in young adulthood and analyzing the role of possible protective factors are still lacking. Therefore, to our knowledge, this is the first study that aims to investigate the impact of ACEs on QoL, specifically regarding different QoL dimensions, and to explore the mediating roles of self-efficacy and self-directedness in a high-risk sample of young adult youth residential care leavers. Based on the current existing literature, we hypothesized that:

- (1) young adults placed in out-of-home care during childhood or adolescence retrospectively report high prevalences of abuse and neglect experiences,
- (2) cumulative ACEs are associated with quality of life in young adulthood in four different domains and
- (3) self-directedness in adolescence and self-efficacy in young adulthood mediate the association between ACEs and QoL in young adulthood.

Methods

Study Design and Procedure

This study is based on the study “Swiss Study for Clarification and Goal-Attainment in Youth Welfare and Juvenile Justice Institutions” (German: “Modellversuch Abklärung und Zielerreichung in stationären Massnahmen”; MAZ.) and its follow-up study “Youth Welfare Trajectories: Learning from Experience (German: “Jugendhilfverläufe: Aus Erfahrung lernen”; JAEL). The MAZ. study (2007–2011) included 591 children and adolescents from 64 Swiss youth welfare and juvenile justice institutions, certified by the Federal Office of Justice. The follow-up project JAEL started assessments in 2018 (mean follow-up time=9.7 years) and ended in 2022. Its team members contacted the same by then young adults and those who provided written informed consent were assessed with psychometric questionnaires, clinical diagnostic, and qualitative interviews. This paper aligned its reporting of our study with the STROBE checklist (Supplements, Table S1).

Participants

Participants were included in the JAEL study if they (1) participated in the MAZ. study, and (2) provided contact information and consented to be contacted in the event of a follow-up study. Exclusion criteria for initial study enrollment were severe cognitive impairment that precludes participation, severely reduced linguistic competence, which makes an interview with the person concerned impossible, and behavior that is dangerous to others during the face-to-face examination.

Measurements

Adverse Childhood Experiences (ACEs)

The retrospective questionnaire “Maltreatment and Abuse Chronology of Exposure” (MACE) scale (Isele et al., 2014), originally developed by Teicher and Parigger (2015), measures interpersonal adverse experiences from the first to the 18th year of life. We applied the MACE to assess maltreatment retrospectively during the follow-up study JAEL. It comprises 75 items and ten different subscales (emotional and physical neglect, parental non-verbal emotional abuse, parental physical and verbal abuse, peer emotional abuse, peer physical bullying, sexual abuse, witnessing interparental violence, witnessing violence to siblings) (Supplements, Table S2). The MACE quantifies the severity and the multiplicity of ACEs. Severity can be evaluated at the subscale level (subscale sum score: 0–10) or the global level, combining severity scores across all subscales (MACE sum score: 0–100). Furthermore, each maltreatment type is classified as present or absent based on individual cut-off values, and the multiplicity score, i.e. the number of different ACEs (MACE multi score 0–10), provides information about the ACEs’ cumulation across all subscales (Isele et al., 2014). Developers reported a significant reliability of both severity ($r=.908$) and multiplicity score ($r=.879$) (Teicher & Parigger, 2015).

Quality of Life (QoL)

The “World Health Organization Quality-of-life” questionnaire (WHOQoL-BREF), developed by the WHO in 1998 (The Whoqol Group, 1998), was used to assess QoL during the follow-up study (Angermeyer et al., 2000). It is a 26-item self-assessment questionnaire that measures QoL in four domains, i.e. psychological, physical, environmental and social as well as the global QoL. The total score for the overall QoL was calculated as the mean across all domains, showing an excellent Cronbach’s alpha of 0.93. The rating is based on a 5-point scale ranging from 1 (“not at all”) to 5 (“completely”), resulting in scores from 26 to 130. Internal consistency calculations showed Cronbach’s alpha values of 0.81 for the environmental, 0.81 for the physical, 0.80 for the psychological domain, and 0.68 for the social domain. The social QoL facet is based on only three items and thus lower levels of internal consistency are expected (Skevington et al., 2004; The Whoqol Group, 1998). Population norms for young adults are 84.1 ($SD=14.0$) for the physical, 77.6 ($SD=15.0$) for the psychological, 74.8 ($SD=18.6$) for the social, and 71.5 ($SD=13.5$) for the environmental domains (Angermeyer et al., 2000).

Self-Efficacy

Self-efficacy was assessed with the “General Self-Efficacy Scale” (GSE) (Schwarzer & Jerusalem, 1999) during the follow-up study JAEL. It is a self-assessment questionnaire that measures general optimistic self-beliefs, as well as the confidence in being able to cope with a difficult situation (Schwarzer & Jerusalem, 1999). It is a one-dimensional scale consisting of 10 items, which are to be rated on a Likert scale ranging from 1 (“not true”) to 4 (“exactly right”), with a scoring range from 10 to 40 points. The questionnaire showed a more than adequate Cronbach’s alpha ($\alpha=0.88$), indicating a good internal consistency.

Self-Directedness

The “Junior Temperament and Character Inventory- Revised” (JTCI 12–18 R) was used to assess personality traits during the baseline study MAZ. (Schmeck et al., 2001). It is a self-report questionnaire consisting of 103 items that measure four temperament dimensions, i.e. novelty seeking, harm avoidance, reward dependence, persistence, as well as three character scales, i.e. self-directedness, cooperativeness, self-transcendence. The rating consists of a 5-point Likert scale from 0 (“no”) to 4 (“yes”). We used the character dimension “self-directedness”, which consists of 15 items and showed a Cronbach’s alpha of 0.81, an indication of good internal consistency. This questionnaire showed good scale reliabilities and good construct validity (Schmeck et al., 2001). Normative data is available in the scoring inventory (T scores below 50 are below the normative mean) (Goth & Schmeck, 2009).

Statistical Analysis

First, absolute and relative frequencies of sociodemographic and clinical characteristics of the study sample were compared with those of excluded participants by chi-square and t-tests. Second, the prevalence of each ACE, i.e. the absolute and relative frequencies of participants with a subscale score above the cut-off of the respective scale, were calculated (multi score). Third, the association between the severity of ACEs and QoL was assessed through standardized linear regressions, where 95% confidence intervals and p-values were computed using a Wald t-distribution approximation. Lastly, we conducted a mediation analysis with self-efficacy and self-directedness as potential mediators. The questionnaires on QoL, ACEs, and self-efficacy had no missing data. However, self-directedness had 46.9% of missing data; therefore we performed multiple imputations under the condition of “missing at random” (MAR). We used the R-package *bmemLavaan* (version 0.5) to estimate and test mediation effects when missing data are present, which is based on the widely used R-package *lavaan* (Ming et al., 2022). Following recommendations, we performed 40 multiple imputations and 1000 bootstraps (see Supplements for details). Lastly, mediation coefficients were standardized to ensure comparability. All statistical analyses were carried out using the statistical program R 4.3.3 (R Core Team, 2024). Confidence intervals at the 95% level, which excluded the value of 0, and p-values < 0.05 were deemed as statistically significant.

Results

Sociodemographic Characteristics

Out of the 591 MAZ. participants 511 agreed to be contacted again for a follow-up study. After numerous calls, texts, emails and letters the study team successfully included 231 participants in the JAEL study (Supplements, Figure S1). Only those with complete data from the MACE scale, the GSE, and the WHOQoL-BREF were included. The total sample resulted in 179 formerly out-of-home placed young adults ($M_{age} = 26.5$; $SD = 3.3$; range = 16.1–38.6), with 32.4% being female (Table 1), and a response rate of 30.3%. Participants with complete and incomplete data, as well as those excluded from the analyses, did not differ in key sociodemographic characteristics (Supplements, Tables S3 and S4).

Prevalence of Adverse Childhood Experiences (ACEs)

In our sample, 87.2% experienced at least one type of ACEs during childhood or adolescence, with a mean severity score of 30.3 (range: 0–100), and 33.5% experienced four or more types of ACEs. Within the spectrum of the ten types of ACEs assessed, emotional neglect (EN) emerged as the most reported childhood maltreatment, with a prevalence of 65.4%. Peer physical bullying (PEERP) constituted the second most prevalent ACE, experienced by 44.6%, whereas peer emotional abuse (PEERE) was less reported, namely by 27.4%. Sexual abuse (SEXA) was reported by 19.0% of

Table 1 Sociodemographic information of the study sample ($n=179$)

Characteristics	M [SD] / <i>n</i> (%)
Age (years)	26.5 [3.3]
Women	58 (32.4)
Swiss nationality	144 (80.4)
Language region	
German-speaking	129 (72.1)
French-speaking	29 (16.2)
Italian-speaking	21 (11.7)
In a partnership (yes)	106 (59.2)
Education	
Higher education	16 (8.9)
Secondary education	10 (5.5)
Apprenticeship	97 (54.2)
Mandatory school	51 (28.4)
Unfinished mandatory school	5 (2.8)
Currently employed (yes)	102 (56.9)
Social welfare (yes)	48 (26.8)
Disability insurance (yes)	48 (26.8)
Any current mental health disorder (SCID-5; yes)	103 (57.5)
Mood disorder (SCID-5)	32 (17.9)
Substance use disorders (SCID-5)	67 (37.4)
Suicidal thoughts (MAYSI-2; cut-off > 3)	58 (32.4)
Current psychotherapeutic treatment (yes)	43 (24.0)
Number of placements	3.7 [3.7]
Age at first placement	11.6 [4.9]
Approximate time between beginning of first and end of last placement (years)	6.9 [5]

the participants and is one of the less reported ACEs (Fig. 1). Moreover, we found significant differences in ACE scores between genders regarding the types of ACEs (Supplements, Table S5 and Figure S2), as well as for the severity and multiplicity of ACEs (Supplements, Table S6).

Associations between Adverse Childhood Experiences (ACEs) and Quality of Life (QoL)

Five linear models were fitted to predict each QoL domain based on the severity of ACEs (Fig. 2). For the total QoL, the effect of the severity of ACEs was statistically negative and significant ($\beta = -0.34$, 95% CI [-0.48, -0.20], $t(177) = -4.87$, $p < .001$) and the model explained a statistically significant and weak proportion of variance ($F(1, 177) = 23.68$, $p < .001$, $R^2 = 0.11$).

Furthermore, the effect of severity of ACEs on the psychological QoL was statistically negative and significant ($\beta = -0.32$, 95% CI [-0.46, -0.18], $t(177) = -4.45$, $p < .001$) and the model explained a statistically significant and weak proportion of variance ($F(1, 177) = 19.84$, $p < .001$, $R^2 = 0.10$). The strongest association was found in the effect of the severity of ACEs on the environmental QoL, since it was statistically negative and significant ($\beta = -0.36$, 95% CI [-0.50, -0.23], $t(177) = -5.21$,

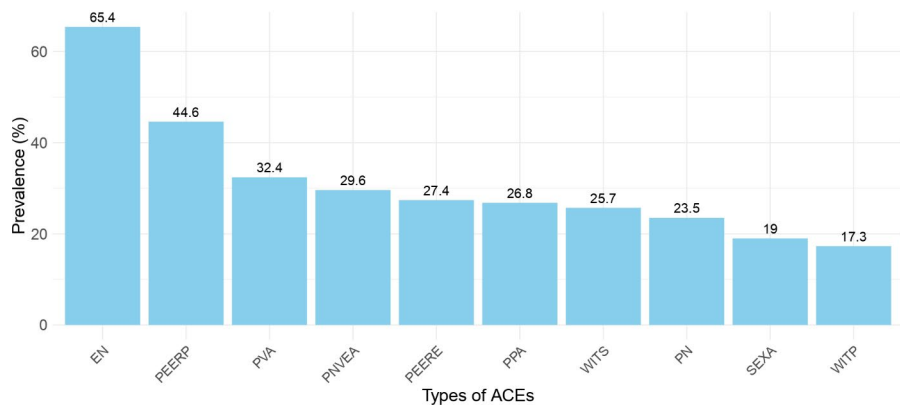


Fig. 1 Prevalence of adverse childhood experiences (ACEs). *Note.* EN=emotional neglect; PEERP=peer physical abuse; PVA=parental verbal abuse; PNVEA=parental non-verbal emotional abuse; PEERE=peer emotional abuse; PPA=parental physical abuse; WITS=witnessing violence against siblings; PN=physical neglect; SEXA=sexual abuse; WITP=witnessing violence against parents

$p < .001$). It explained a statistically significant and moderate proportion of variance ($F(1, 177) = 27.14$, $p < .001$, $R^2 = 0.13$). Additionally, the effect of severity of ACEs on the physical QoL was statistically significant and negative ($\beta = -0.25$, 95% CI $[-0.39, -0.10]$, $t(177) = -3.40$, $p < .001$) and it explained a statistically significant and weak proportion of variance ($F(1, 177) = 11.53$, $p < .001$, $R^2 = 0.06$). Lastly, the effect of the severity of ACEs on the social QoL was statistically significant and negative ($\beta = -0.23$, 95% CI $[-0.38, -0.09]$, $t(177) = -3.19$, $p = .002$), whereby it explained a statistically significant and weak proportion of variance ($F(1, 177) = 10.18$, $p = .002$, $R^2 = 0.05$). Statistical parameters and gender differences are available in the Supplements (Table S7). Nonetheless, gender and age did not emerge as significant covariates (Supplements, Table S8).

Mediation Analysis

A mediation analysis was conducted to analyze whether the association between ACEs and later QoL was mediated simultaneously by self-efficacy and self-directedness (Fig. 3). The total indirect effect of ACEs on the QoL was significant ($\beta = -0.163$, 95% CI $[-0.254, -0.079]$), as well as the direct effect of ACEs on QoL ($\beta = -0.180$, 95% CI $[-0.306, -0.019]$). Self-efficacy ($M = 30.5$, $SD = 4.87$) significantly mediated the relationship between ACEs and QoL with the indirect effect ($\beta = -0.111$, 95% CI $[-0.187, -0.044]$) accounting for 32.3% of the total effect. Similarly, self-directedness ($M = 37.38$, $SD = 8.39$) significantly mediated the relationship between ACEs and QoL, as indicated by a significant indirect effect ($\beta = -0.052$, 95% CI $[-0.123, -0.004]$), which explained 15.1% of the total effect (Table 2). Furthermore, ACEs were associated with significantly lower self-efficacy ($\beta = -0.268$, 95% CI $[-0.121, -0.037]$), lower self-directedness ($\beta = -0.343$, 95% CI $[-0.259, -0.079]$), and lower QoL ($\beta = -0.180$, 95% CI $[-0.306, -0.019]$). Refer to the Supplements for the detailed

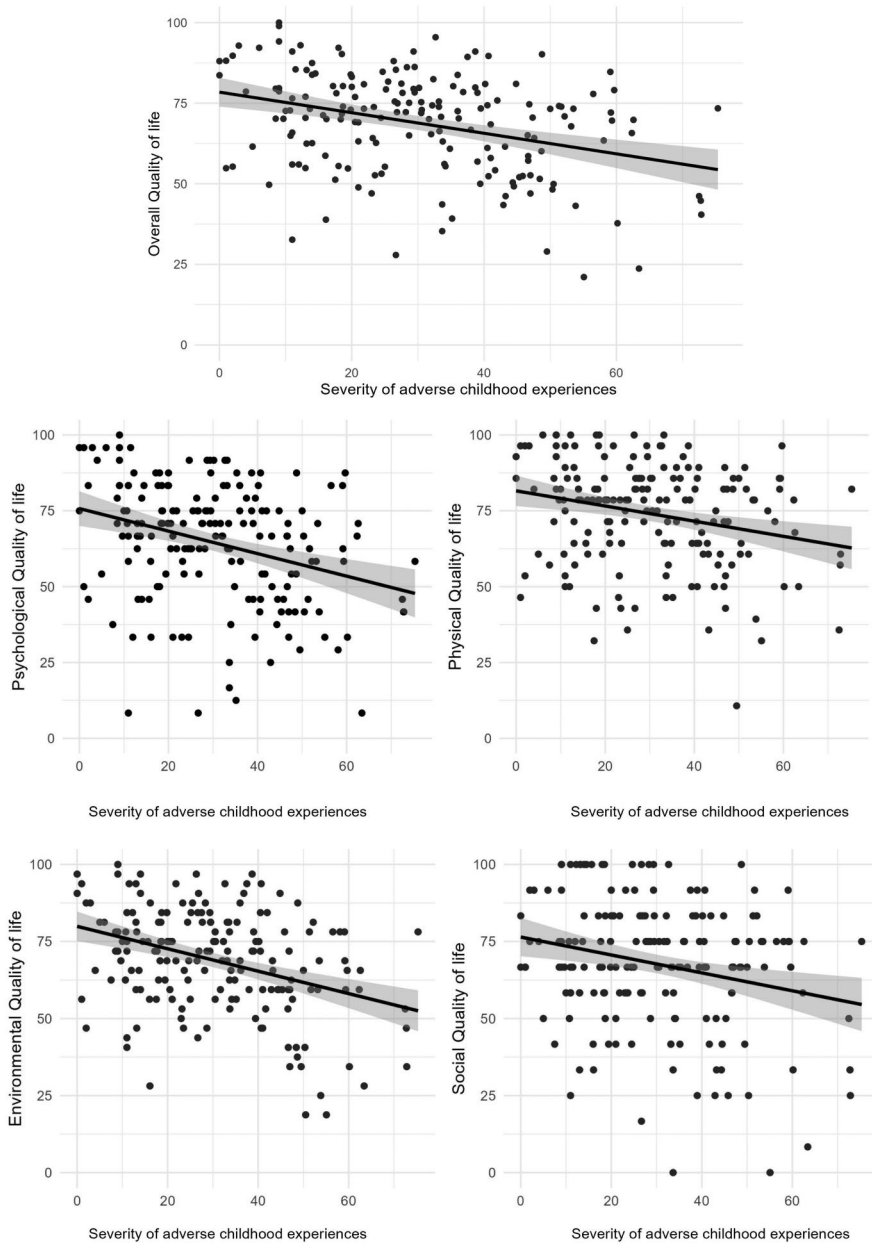


Fig. 2 Associations between quality of life domains and severity of adverse childhood experiences

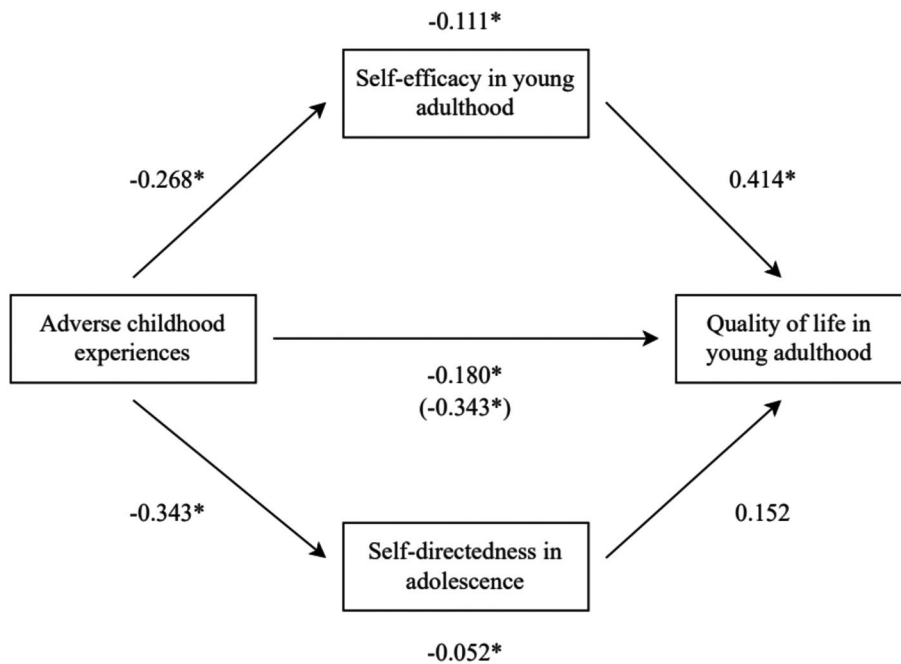


Fig. 3 Plot of the mediation diagram with self-efficacy and self-directedness as mediators and standardized mediation paths. The coefficient path in brackets refers to the total effect. $*p < .05$

statistical parameters and variable correlations within the model (Supplements, Table S9).

Discussion

The aim of the current study was to examine the impact of ACEs on the QoL in a sample of young adult youth residential care leavers and if self-efficacy and self-directedness mediate this relationship. Our findings are consistent with the initial hypotheses. First, young adults placed in out-of-home care during childhood report high prevalences of ACEs; 87.2% of the sample experienced at least one type of ACE. Second, ACEs are moderately associated with all four QoL domains (psychological, physical, social, environmental QoL), with ACEs showing the strongest negative association with environmental QoL. Third, self-efficacy and self-directedness are significant mediators in the relationship between ACEs and QoL; they accounted for 47.7% of the total effect and, as such, are important interventional targets.

Our finding of high rates of ACEs with emotional neglect as the highest reported ACE (65.4%) is in line with previous studies on young adult care leavers (Greeson et al., 2011; Raviv et al., 2010; Rebbe et al., 2018; Seiler et al., 2016). Compared to the German MACE validation study, our findings suggest a higher prevalence of ACEs among care leavers than in the general population (Isele et al., 2014). We found gender differences in the types, severity and multiplicity of ACEs, where girls reported more ACEs. This aligns

Table 2 Mediating effects of self-efficacy and self-directedness on the relationship between adverse childhood experiences and later quality of life

Outcome	Path	Standardized	Estimated	95% bias-corrected CI	
				Lower	Upper
QoL	Total effect	-0.343	-0.319	-0.459	-0.181
	Direct effect	-0.180	-0.167	-0.306	-0.019
	Total indirect effect	-0.163	-0.152	-0.254	-0.079
	Indirect effect (SE)	-0.111	-0.103	-0.187	-0.044
	Indirect effect (SD)	-0.052	-0.048	-0.123	-0.004
	ACE → SE	-0.268	-0.077	-0.121	-0.037
	SE → QoL	0.414	1.338	0.901	1.824
	ACE → SD	-0.343	-0.170	-0.259	-0.079
	SD → QoL	0.152	0.284	-0.012	0.624
	ACE → QoL	-0.180	-0.167	-0.306	-0.019

Note. ACE=adverse childhood experiences, QoL=quality of life, SE=self-efficacy, SD=self-directedness, significant paths do not include 0 in the confidence intervals

with results from a systematic review on gender differences in the prevalence of childhood maltreatment worldwide (Moody et al., 2018), as well as in a sample of care leavers (Greger et al., 2016).

Our finding of the association between a higher severity of ACEs and lower QoL likely represents a long-term consequence of ACEs and is in line with previous studies, which indicated an association between ACEs and psychosocial outcomes in adulthood (Bürgin et al., 2023a; Gander et al., 2019; Greger et al., 2016; Petruccielli et al., 2019). We found lower levels of QoL in our sample of young adult youth residential care leavers compared to QoL results in a study on WHOQoL-BREF population norms (Angermeyer et al., 2000). A poorer QoL was also reported by studies on foster children (Damnjanovic et al., 2011; Seiler et al., 2016; Van Damme-Ostapowicz et al., 2007) and on adolescents placed in residential youth care (Greger et al., 2016; Hjern et al., 2018; Jozefiak & Sønnichsen Kayed, 2015; Larsen et al., 2021; Nelson et al., 2014), as well as reduced psychosocial functioning (Beal et al., 2019). In the same manner, care leaver studies reported reduced well-being after the out-of-home placement (Akister et al., 2010; Courtney et al., 2001; Melkman, 2017) and poorer physical and mental health (Brännström et al., 2020; McKenna et al., 2021; Rebbe et al., 2018; Seker et al., 2022a). To our knowledge, no study has yet linked ACEs and QoL across four different domains in a sample of young adult care leavers. Nonetheless, we found significant associations between ACEs and each QoL domain. Focusing on physical QoL, studies have shown that ACEs can impact health in adulthood (Cohrdes & Mauz, 2020; Rebbe et al., 2018); more than one third of our participants reported chronic illnesses. Psychological QoL in adulthood has also been reported

to be lowered after experiencing ACEs (Cohrdes & Mauz, 2020; Corso et al., 2008; Mosley-Johnson et al., 2019), and this result is consistent with the fact that almost one-third of our sample reports substance use disorders, suicidal thoughts, and more than 15% mood disorders. Regarding social QoL, other studies reported impairments in social well-being and social participation (Bürgin et al., 2023a; Cheever & Hardin, 1999; Mosley-Johnson et al., 2019; Schmid et al., 2022a). Interestingly, the environmental QoL showed the highest association with ACEs. This result could be explained by the insufficient availability of financial resources, consistent with studies which reported the economic penalties of ACEs (Schurer et al., 2019) as well as with a Swedish care leaver study (Brännström et al., 2020), since only 56% of our sample is employed and one third receives social welfare and disability assurance. Consequently, opportunities for leisure activities or hobbies and the associated social participation could be limited by financial constraints.

Lastly, we found that self-efficacy and self-directedness affect the association between ACEs and QoL in young adulthood. In line with previous studies, our results show a positive correlation between self-efficacy and QoL (Luszczynska et al., 2005; Cohrdes & Mauz, 2020; Cheever & Hardin, 1999), as well as a negative association with ACEs (Sachs-Ericsson et al., 2011; Singer et al., 2016; Cohrdes & Mauz, 2020). Therefore, we can assume that ACEs could negatively impact the self-efficacy of young adult care leavers and potentially lead to a reduced QoL. Furthermore, we found that exposure to ACEs is associated with lower self-directedness (de Carvalho et al., 2015; Hemmati et al., 2021). Our findings also highlight a smaller score for the character scale self-directedness at the time of the out-of-home placement compared to the normative mean since our participants achieved a mean score of 37.38 for this character trait (Goth & Schmeck, 2009). Interestingly, the association between self-directedness and later QoL is not significant. This discrepancy could lie in the fact that self-directedness, as a character trait, is subject to changes from adolescence to young adulthood since young adults usually change in the direction favored by social pressures (Josefsson et al., 2013). Consequently, young adults are more self-directed, cooperative, persistent, and reward-dependent than younger adolescents (Moreira et al., 2015). Therefore, it could be that self-directedness measured in a sample of children and adolescents is not predictive of the QoL measured during young adulthood. Moreover, we found that self-efficacy explains more than 30% of the total effect of ACEs on the QoL, whereas self-directedness only half. In light of this evidence, self-efficacy may have a more impactful role in the mediation model, weakening the effect of self-directedness. Nonetheless, the significant indirect effect through self-directedness might indicate that self-directedness is a mediator between ACEs and QoL, and thus, like self-efficacy, it could buffer the effects of ACEs on the QoL of care leavers (Josefsson et al., 2011; Moreira et al., 2015).

Limitations and Strengths

This study has certain limitations. First, it relied on retrospective self-reported ACEs, which can be affected by recall biases and subjectivity and, as reported by recent studies, there is a lack of agreement in the identification of maltreatment exposure when comparing prospective and retrospective studies (Baldwin et al., 2019; Danese & Widom, 2020; Hardt & Rutter, 2004). However, a review showed that the MACE obtained the strongest psychometric evidence amongst the most recurrently validated child maltreat-

ment assessment instruments (Georgieva et al., 2023). Second, not all MAZ. participants were included in the JAEL study, potentially introducing selection effects and resulting in a low response rate (30.3%). Nonetheless, attrition analyses between included and not included participants showed no significant differences or systematic drop-out pattern (Supplements, Table S4). Third, our sample of care leavers is representative of the Swiss context, but it may not be representative of care leavers in other countries due to the unique characteristics of our youth welfare system and policies. Consequently, the generalization of our findings to other contexts should be approached carefully. Fourth, we found an unsatisfactory value of internal consistency for the social QoL domain, indicating that findings should be interpreted with caution. However, this result aligns with the original validation studies, which reported similar values for this domain (Angermeyer et al., 2000; Skevington et al., 2004). The last limitation concerns the time points of the mediators included in our model since self-directedness was only assessed at baseline and self-efficacy only at follow-up.

Despite these limitations, our study has several strengths. To our knowledge, this is the first study that investigates ACEs' long-term effects on QoL into young adulthood. A key strength lies in the data used for the analyses since they stem from a longitudinal cohort of young adult residential care leavers, which allowed us to study the long-term consequences of ACEs in a sample of almost 180 care leavers. One further strength is that the QoL was analyzed in a spectrum of different domains. It is essential to consider multiple dimensions of QoL since young adult care leavers often show impairments in these areas.

Future Research and Implications

More research focusing on the long-term development of QoL in youth residential care leavers is needed, both during and after the transition from a child welfare institution to independent living and during the years following the out-of-home placements. Focusing on QoL could help unravel characteristics that enable care leavers to live fulfilling lives and be well despite having been exposed to ACEs. Future studies should assess QoL trajectories from adolescence into adulthood and investigate resilience factors such as self-efficacy that shape these trajectories. From a practical perspective, therapies during and after out-of-home placements should focus on dealing with experienced adversity whilst integrating it into one's life story (Hohm et al., 2017; Joyce et al., 2018), on developing coping strategies (VanMeter et al., 2020), and on incorporating a milieu approach that considers all interactions in a child's or young person's environment (Huefner & Ainsworth, 2021). Resilience-focused programs aiming at building resilience should be prioritized in residential care settings (Lou et al., 2018). Trauma-informed care and evidence-based trauma therapies should be delivered during the time in child welfare institutions as well as after exiting them. For that, screening for ACEs and trauma exposure is paramount. Young adults transitioning from an institution to an independent life should be supported not only with adequate psychological therapies but also with life-oriented practical support. Collaborative efforts among clinicians, educators, and youth care facilities are essential to offer the best support to children and adolescents placed out of home. Pedagogical work should be focused on effectively preparing adolescents for the transition to independent living. This involves incorporating trauma-informed pedagogy and providing consistent educational and emotional support while preparing for a new life

chapter. Open dialogue between the pedagogical team in the youth care facilities and the young adults preparing to leave is important, as well as creating a safe place where concerns and thoughts can be expressed freely. Lastly, having a dedicated mentor or contact person who concretely and emotionally supports young adults during this transitional period can be highly beneficial.

Conclusions

This study assessed the impact of ACEs on the QoL of care leavers in the domains of psychological, social, physical, and environmental QoL. Furthermore, the mediating roles of self-efficacy and self-directedness in the relationship between ACEs and later QoL were investigated. We showed that young adult residential care leavers report a high prevalence of ACEs and, in part, low levels of QoL. Cumulative ACEs were found to increase the risk for low QoL, with self-efficacy and self-directedness mediating this association. Findings highlight the importance of prevention, trauma-informed care, and ACEs assessment in treatment planning. By setting the focus on resilience, self-efficacy and self-directedness, better support can be provided to care leavers, fostering QoL and well-being despite adversity. Our findings offer a novel perspective to improve the QoL of care leavers in the transition to independent living and long-term, since a difficult childhood should not impair the QoL in young adulthood.

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Data Availability The data that support the findings of this study are available upon submitting a reasonable request to the corresponding author.

Declaration

Ethical Approval The JAEL study was approved by the Ethics Committee of Northwestern and Central Switzerland (EKNZ, Ref.: 2017–00718).

Consent to Participate Written informed consent to participate was provided by participants or by their legal guardian.

Competing Interests The authors declare that they have no financial or non-financial conflicts of interest to disclose.

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