Child Abuse & Neglect 157 (2024) 107074

Contents lists available at ScienceDirect

Child Abuse & Neglect

journal homepage: www.elsevier.com/locate/chiabuneg

Child maltreatment in young adults with residential youth care background: Prevalence and post-placement trends

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ARTICLE INFO

Keywords:
Maltreatment
Child welfare services
Residential youth care
Out-of-home care
Revictimization

ABSTRACT

Background: Young adults with residential youth care (RYC) background have often endured various forms of child maltreatment, impacting education, employment, health, mortality, and quality of life. There is limited research on the onset and duration of exposure to maltreatment before placement, as well as the prevalence of maltreatment occurring after children have been placed into out-of-home care.
Objective: This study aims to investigate: (1) The sex-specific prevalence and age chronology of self-reported exposure to child maltreatment, and (2) whether the rate of these maltreatment forms differ between the year before and after first out-of-home placement by the Child Welfare Service.
Participants and setting: This study is a part of VINGO, a Norwegian nation-wide 10-year follow-up examining the health and welfare of 157 (107 females) adults with RYC background.
Methods: The Maltreatment and Abuse Chronology of Exposure Scale was administered as an online questionnaire, and mean scores and percentages of maltreatment forms were compared. Differences between groups were examined using *t*-tests and Pearson's Chi-Squared test.
Results: Most participants, 154 of 157 (98 %), reported at least one form of child maltreatment. Females reported higher rates of sexual abuse than males (53 % vs. 22 %, $p < .001$). No other sex differences were found. A majority of participants (63 %) reported decreased maltreatment rates post-placement, while 37 % had stable or increasing rates.
Conclusions: Young adults with RYC background report high child maltreatment rates. Although out-of-home care provides protection, further development and improvement of initiatives aimed at reducing the risk of revictimization is likely needed.

1. Background

Child maltreatment is a global problem, impacting lives and health worldwide (Gilbert et al., 2009). The term encompasses physical, emotional, and sexual abuse, physical and emotional neglect and witnessing family violence or abuse (World Health

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https://doi.org/10.1016/j.chiabu.2024.107074
Received 13 June 2024; Received in revised form 21 August 2024; Accepted 26 September 2024
Available online 11 October 2024

Organization, 2022). These experiences have long-lasting effects on education, employment, health, quality of life and mortality (Corso et al., 2008; Felitti et al., 1998; Gilbert et al., 2009; Hughes et al., 2017; Weber et al., 2016). Previous research has found robust associations between child maltreatment and later mental health problems both in childhood and throughout adulthood (Angelakis et al., 2019; Gardner et al., 2019; Greger et al., 2015; Nelson et al., 2017).

Variations in operationalization, methods of assessment, and sample characteristics make comparing prevalence rates challenging. However, meta-analyses have found physical abuse rates around 24 % among European and North American populations. Sexual abuse was reported by up to 20 % of females and 8 % of males. Emotional abuse was reported by up to 37 %, while research on neglect, although limited, reported prevalence of emotional neglect of 15 % and physical neglect up to 19 % (Stoltenborgh et al., 2015).

Two nationally representative studies on school-aged youth in Norway reported similar prevalence rates. Up to 21 % of youth reported minor violence (i.e. being pushed, pinched, or beaten with flat hand), while severe violence was reported by up to 6 %. Emotional abuse was reported by 20 % of adolescents. Sexual abuse from adults was reported by 8 % of females and 4 % of males, with rates dramatically increasing when including peers as perpetrators (Aakvaag et al., 2023; Hafstad & Augusti, 2019; Mossige & Stefansen, 2016). Most studies find a higher prevalence of sexual abuse among females, whereas sex differences are not as pronounced for other forms of maltreatment (Gilbert et al., 2009).

The Child Welfare Services (CWS) aim to protect children from maltreatment, through either home-based interventions or out-of-home placement. The most common reasons for CWS interventions in Norway are maltreatment, poor parenting skills or parents' ill health (i.e. severe somatic or mental health problems or drug abuse) (Statistics Norway, 2023). Additionally, unemployment, poverty or low education among parents increase the risk of child maltreatment and consequently out-of-home care (Official Norwegian Reports 2023: 24, 2024). Other reasons for placement into RYC care include the death of a parent or severe behavioral problems and drug addiction issues in the adolescent (Statistics Norway, 2023).

Around 80 % of children receiving services from the CWS have voluntary home-based interventions, while the rest are placed in CWS care, mainly in foster families. Only a small percentage reside in residential youth care (RYC), and these are predominately teenagers (Statistics Norway, 2023). In Norway RYC are typically small units with room for 3–6 adolescents (Official Norwegian Reports 2023: 24, 2024). RYC becomes a viable option when adolescents struggle with drug addiction, have severe behavioral challenges, or when traditional family-based living arrangements cannot provide necessary care, support, or protection. However, RYC in Norway are not treatment facilities, and adolescents with mental health problems receive treatment through child and adolescent mental health services. RYC is often considered a last resort after continuous attempts to make other living arrangements work (The Norwegian Directorate for Children, 2023, 2024).

The CWS population reports a higher prevalence of child maltreatment compared to the general population. One study found that 85 % of adolescents in CWS reported child maltreatment, with a majority of these also reporting multiple forms of maltreatment (Miller et al., 2011). A Swiss study on young adults with RYC background found similar rates, where 87.5 % of participants reported at least one form of maltreatment during childhood (Bürgin et al., 2023). This finding aligns with our baseline study, where 78 % of females and 60 % of males reported some form of child maltreatment (Greger et al., 2015). Another study revealed that 36.8 % of adolescents in foster care reported physical and emotional abuse, 36.0 % reported neglect, and 24.2 % reported sexual abuse (Lehmann, Breivik, et al., 2020).

Despite consistent findings of high maltreatment rates among adolescents in CWS, there is limited knowledge about the onset and duration of exposure. Kim and Drake (2019) found that early onset of child maltreatment significantly increased the risk of revictimization (repeated exposure to maltreatment), with the risk escalating as the exposure levels rose. Hence, young children were particularly vulnerable, indication that older age was a protective factor. Maltreated children and adolescents may also be more likely to adopt an indiscriminate relational style, increasing their risk of further exposure. This is illustrated by the high prevalence of Disinhibited Social Engagement Disorder (DSED) among RYC adolescents (Seim et al., 2020). DSED is characterized by overtly familiar or uncritical behavior towards unfamiliar adults (American Psychiatric Association, 2013). While the etiology is not straightforward, maltreatment is seen as a precursor to this diagnosis, with extreme insufficient care as one of the diagnostic criteria (Lehmann, Monette, et al., 2020; Zephyr et al., 2021).

To better protect maltreated children, we need systematic knowledge on the ability of CWS interventions, like out-of-home care, in preventing revictimization. Currently, little is known about the prevalence of maltreatment across childhood for young adults with RYC background. This knowledge is vital for evaluating and improving services provided to these individuals, helping health and social workers develop more efficient support systems and refine policies. Ultimately, this may reduce the risk of revictimization and the long-term consequences of child maltreatment. Therefore, our study examines the prevalence of maltreatment in this group and how first placements into out-of-home care affect the rate of exposure.

In this study on young adults with a history of RYC, we investigate: (1) The sex-specific prevalence and chronology of self-reported child maltreatment exposure, and (2) whether the rate of these maltreatment forms differ across two timepoints: the year before and after first out-of-home placement.

2. Method

2.1. Procedure and participants

This study is part of the VINGO-study, a nation-wide follow-up study examining the health and welfare of young adults with a history of living in RYC.

At baseline, youth residing in institutions in Norway were eligible to participate. We excluded participants from ineligible

institutions, unaccompanied minors without residency permits, youth in emergency placement, and those with inadequate Norwegian language skills (Jozefiak et al., 2016; Kayed et al., 2015). The baseline data collection lasted from 2011 to 2014. At baseline, 400 of 601 eligible youth participated (67 % response rate, 57.5 % female, mean age 16.7 years, range 12–20 years) and provided written informed consent to be contacted for follow-up research.

At their first out-of-home placement, participants had a mean age of 12.5 years. The baseline study was conducted while they resided in RYC. Before this placement, participants had experienced an average of 3.5 prior placements, either in RYC or foster homes. Among the 400 baseline participants, 59 % reported that their first out-of-home placement was in RYC, while others were placed in non-kinship foster care (23 %), kinship care, mental health care, or short-term foster care (Jozefiak et al., 2016; Kayed et al., 2015).

The data collection at follow-up lasted from January 2021 to April 2023. We established contact with 302 participants (76 % of baseline), and 157 participated in the follow-up (52 % response rate, 68.2 % female, mean age 25.4 years, range 22–30 years). Fig. 1 provides an overview of participation at baseline and follow-up. Initial contact with eligible participants was made via SMS and followed by phone calls. If contact was not established, an information letter was sent by email and postal mail. Reachable participants were then contacted by the study coordinator, who explained the study's purpose. Participants gave their written informed consent. We collected data on socio-economic variables, physical and mental health, quality of life, self-esteem, perceived social support, adverse experiences (including child maltreatment and traumatic experiences across the lifespan), and symptoms of trauma-related psychopathology, personality traits, and experiences with services. Participants completed a comprehensive online survey and a telephone interview conducted by clinical psychologists and medical doctors.

2.2. Measures

2.2.1. Sociodemographic information

We collected sociodemographic information through an online self-report questionnaire, which included questions about sex, age, country of birth, income, education, employment, and living arrangements. We obtained the age of first out-of-home placement by the CWS and number of previous placements from baseline data (Kayed et al., 2015).

Some participants indicated that they were both working and studying simultaneously and were included in both categories under Current Status (Table 1). Additionally, we created a Not in Employment, Education, or Training (NEET) category for those who were unemployed or receiving social or disability benefits. Participants classified under any other Current Status category were excluded from the NEET category.

2.2.2. The Maltreatment and Abuse Chronology of Exposure (MACE) (Fosse et al., 2020; Teicher & Parigger, 2015)

The MACE evaluates the timing and severity of various forms of child maltreatment experienced throughout childhood. Participants reported maltreatment from caregivers (foster parents, stepparents, or other adults in the household), other adults outside the household, and peers.

2.2.2.1. Subscales. The MACE consists of ten subscales (Supplementary Table 1) with a total of 55 questions, using a response format indicating presence or absence of items (Teicher & Parigger, n.d.). Participants were also presented with an option not to answer. Each subscale has a severity score, rescaled to a range of 0–10. Additionally, a binary score indicates whether the score exceeds a cutoff (a minimum number of yes-answers on each sub-scale) based on the Child Trauma Questionnaire (as described by Bernstein et al. (1997); Fosse et al. (2020)). Scores above cutoff are counted as 1 and those below as 0. Binary scores indicate at least moderate exposure to a type of maltreatment. Based on a theoretical assessment of the Emotional Neglect scale, the cutoff of this subscale was adjusted from five to four to align the Norwegian MACE with the English version, which requires only two out of five items to be met. The original Norwegian MACE cutoff of five out of seven items does however show the highest sensitivity and specificity. (Fosse et al., 2020; Teicher & Parigger, 2015). Cutoffs are reported in Supplement 1.

Each subscale includes a Chronology score, which consists of a severity score (ranging from 0 to 10) for each year of childhood (ages 1–18). These scores are displayed in figures that show year-by-year prevalence throughout childhood (Supplement 2 and 3).

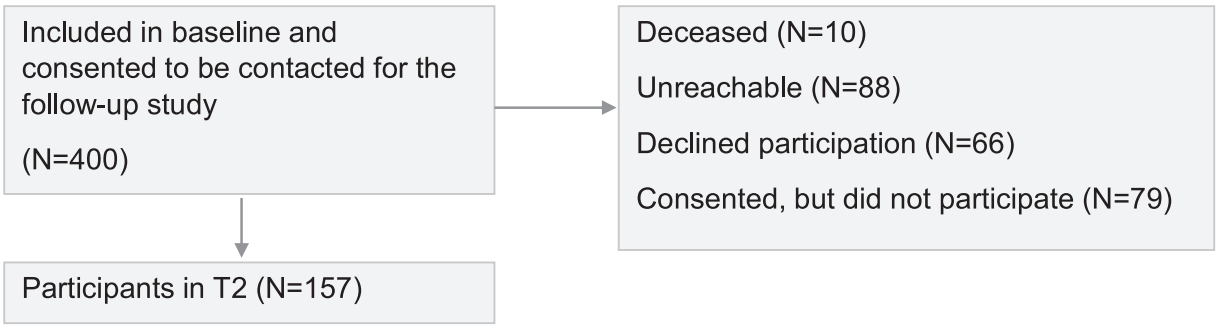

Fig. 1. Flow-chart of the recruitment.

Table 1
Sample characteristics for the participants (N = 157). Mean (SD) and range for scale variables and count (percentage) for categorical variables.

	Mean *(SD)* range, or count (percentage)
Female	107 (68.2 %)
Age (years)	25.4 *(1.6)* 22–30
Country of birth Norway	145 (92.4 %)
Age of first placement (n = 150)	12.5 *(4.0)* 0–17
Number of previous placements at T1 (n = 141)	3.5 *(3.0)* 1–25
Dropout of education you wanted to complete	111 (70.7 %)
Education	
Highschool not completed	99 (63.1 %)
3 years high school/apprenticeship completed	45 (28.6 %)
Attended college/university	10 (6.4 %)
Disability benefits	35 (22.3)
Current status	
Employed (part time or full time)	65 (40.1 %)
In education	23 (14.6 %)
Military service	2 (1.3 %)
Other	10 (6.4 %)
NEET[a]	70 (44.6 %)

[a] Not in Employment, Education or Training: Includes those who were unemployed or received social or disability benefits. Participants included in any of the other Current Status category were excluded from NEET.

2.2.2.2. Global scores. MACE also provides five global scores, of which three are included in this paper. The MACE Sum (range 0–100) measures overall severity of exposure by summing all ten subscales. The MACE Multi score (range 0–10), represents the number of subscales to which participants report above-cutoff exposure. MACE Duration indicates the number of years with exposure to at least one form of maltreatment above the cutoff (range 0–18).

MACE has demonstrated excellent test-retest reliability (Fosse et al., 2020) and has stronger psychometric properties than the most commonly used retrospective trauma questionnaires (Georgieva et al., 2023).

2.2.2.3. Administration. MACE was administered through an online self-report questionnaire. Participants could respond with *yes*, *no*, or *I don't want to answer* to each item, allowing them to withhold responses and reduce the potential for inaccurate results from false negatives or positives. If participants answered *yes*, they were also asked to specify the age or ages when the maltreatment occurred (ages 1 to 18). They could select multiple age ranges (e.g., age 2, 3, 6, and 16) or choose *I don't want to answer* if they preferred not to provide timing information. Participants had to choose an option to proceed with the questionnaire.

2.3. Statistics

2.3.1. Missingness

Some participants chose the *I don't want to answer* response for one or more items, resulting in missing data. The mean proportion missing for the 55 items was 7.3 % (633 of 8002), ranging from 2.5 % (4 of 157) for item 47 to 25.5 % (40 of 157) for item 54 (Supplement 4). We handled missing data using a Full Information Maximum Likelihood (FIML) procedure. FIML results are unbiased when data are missing at random, while mean imputation on subscales would only be unbiased under the more restrictive missing completely at random.

To test the suitability of MACE subscales for our population, we performed a Confirmatory Factor Analyses (CFA) using FIML. To maintain comparability to previous publications using MACE, we fixed all loadings to equality and residual variances to equality, ensuring all items were weighted equally (as in a sum score) and that the CFA scores only benefited from treating missingness with FIML. We checked this procedure by also running the CFA with free loadings and residual variances, receiving qualitatively comparable results.

Most subscales provided good model fit and were highly correlated with a simple sum score, supporting the use of sum scores even with missing data. However, the subscales Witnessing Violence Towards Sibling and Sexual Abuse were less strongly correlated with the sum scores (r = 0.61 and r = 0.76, respectively). Despite this, we used fixed weights for the subscale Witnessing Violence Towards Parents, partly because few participants reported this, but also to maintain comparability with other MACE research (Isele et al., 2014; Teicher & Parigger, 2015). For the Sexual Abuse subscale, we changed the CFA to a correlated three-factor structure, separating items into groups of perpetrators (parents, other adults, and peers), providing a good fit (CFI = 0.99). Both the original Sexual Abuse scale and the split subscales are reported.

2.3.2. Analysis

Descriptive statistics are reported as mean and standard deviation (*SD*) for scale variables and counts and proportions for categorical variables. *t*-Tests or the Pearson chi-squared tests were used to compare groups. Standardized effect size Cohen's d is reported

where appropriate.

To investigate how child maltreatment rates are affected by placement into first out-of-home care, participants were matched with their reported age of placement. Data on age of placement was available for 150 participants. Maltreatment rates the year before and the year after placement (i.e. year 9 and 11 if the child was placed in out-of-home care when 10 years old) were computed using severity (sum) scores. For each subscale and the global MACE Sum scale, participants were divided into groups: (1) Those who neither reported maltreatment before or after placement; (2) those who did not report maltreatment before placement, but did report it after; (3) those who reported maltreatment before placement, but less maltreatment after placement; (4) those who reported maltreatment before placement, and stable or increasing rates after placement. For this analysis maltreatment was defined as an affirmative response to at least one item on the subscale/global scale. The percentage for each of the four groups on each subscale was then calculated.

For the analysis we used IBM SPSS Statistics version 29.0.1.0 (171), except FIML and the CFA which was conducted using Ωnyx version 1.0-1041 (IBM corp., 2024; Kievit et al., 2018; von Oertzen et al., 2015).

2.4. Reporting guidelines

The present study is reported as recommended in the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) Checklist: cohort studies (https://www.strobe-statement.org/).

2.5. Ethics

The baseline study was approved by the Regional Ethical Committee (REK) (2010/1965/REK Midt). The VINGO study was approved by the Norwegian Agency for Shared Services in Education and Research (sikt ref: 790618) and REK (502016/REK midt). In compliance with the Declaration of Helsinki 2008, all participants received both written and verbal information regarding the study, and their participation was contingent upon providing written informed consent. All data was transferred and stored on a secure server (Services for Sensitive Data) administered by the University of Oslo.

3. Results

3.1. Demographics

At follow-up, the MACE was completed by 157 participants. The mean age of first out-of-home placement by the CWS was 12.5 years ($SD = 4.0$). On average, participants had 3.5 previous placements at baseline ($SD = 3.0$). A high portion of participants, 111 of 157 (70.7 %), had dropped out of education they wanted to complete and 99 of 157 (63.1 %) did not complete high school. Under half of the participants, 65 of 157 (40.1 %), were in full-time or part-time employment, while 23 of 157 (14.6 %) where under education, and 2 of 157 (1.3 %) in military service. The remaining 70 of 157 (44.6 %) were either unemployed and/or received social or disability benefits. Table 1 shows sample characteristics.

3.2. Prevalence of child maltreatment

The MACE multi showed that almost all participants, 154 of 157 (98.1 %), reported exposure to at least one maltreatment form above cutoff and therefore had at least a moderate level of exposure to maltreatment. Significant sex differences were found only for

Table 2
Maltreatment exposure across childhood.

	Male (N 50)				Female (N 107)			
	M	(SD)	Min	Max	M	(SD)	Min	Max
Global Measures								
Mace Sum	41.6	(16.7)	5.5	71.0	46.0	(17.9)	1.9	96.6
Mace Multi	4.9	(2.2)	0	9	5.4	(2.4)	0	10
Mace Duration	14.8	(5.5)	0.0	18.0	14.8	(5.0)	0.0	18.0
Mace Severity by type								
Parental Verbal Abuse	6.7	(3.7)	0.0	10.0	7.4	(3.5)	0.0	10.0
Parental Non-Verbal Abuse	4.9	(3.1)	0.0	10.0	5.2	(2.6)	0.0	10.0
Parental Physical Abuse	3.2	(2.8)	0.0	10.0	3.5	(3.4)	0.0	10.0
Emotional Neglect	6.9	(2.7)	0.0	10.0	7.0	(2.7)	0.0	10.0
Physical Neglect	5.1	(2.4)	0.0	10.0	5.3	(3.0)	0.0	10.0
Witnessing Violence Towards Parents	2.7	(2.8)	0.0	10.0	3.0	(2.7)	0.0	10.0
Witnessing Violence Towards Siblings	1.2	(2.2)	0.0	9.4	1.4	(2.2)	0.0	10.0
Peer Emotional Abuse	7.1	(3.8)	0.0	10.0	8.1	(3.0)	0.0	10.0
Peer Physical Abuse	3.0	(3.1)	0.0	10.0	2.9	(2.8)	0.0	10.0
Sexual Abuse	0.7	(1.7)	0.0	10.0	2.4	(2.8)	0.0	10.0

Note. Mace Sum: The average of the cumulative score of all subscales. Mace Multi: The number of subscales participants on average have been exposed to. Mace Duration: The average number of years with exposure to at least one type of maltreatment above cutoff.

exposure to sexual abuse, where females reported significantly higher rates of sexual abuse than males, $p < .001$. The effect size, measured by Cohen's d, was d = 0.70, indicating a medium to large effect. Reported exposure to different maltreatment forms by sex is shown in Table 2.

Parental Verbal Abuse mean = 7.2 (*SD* = 2.6), Emotional Neglect mean = 7.0 (*SD* = 2.7) and Peer Emotional Abuse mean = 7.8 (*SD* = 3.3) had the highest mean scores across sex. The MACE Duration score showed that participants were exposed to at least one form of maltreatment above cutoff over an average of 14.8 years (*SD* = 5.5). Fig. 2 shows the prevalence of participants above cutoff on each subscale. Except for sexual abuse, there were only small sex differences.

The Chronology scores for the different subscales show that Emotional and Physical Neglect and Witnessing Violence Towards Siblings exhibited relative stability across time, while Witnessing Violence Towards Parents and Parental Physical Abuse were more prevalent between the ages of 5 and 10. The remaining maltreatment forms were most frequent during the teenage years (Supplement 2).

The recalled chronology of Sexual Abuse split by perpetrator groups shows that instances of abuse from caregivers decreased during the teenage years, whereas abuse from peers and other adults continued to rise. Females reported more sexual abuse from caregivers, while males reported slightly more abuse from peers. Both sexes described similar levels of abuse from other adults, although the patterns differed over time (Supplement 3).

3.3. Severity of maltreatment before and after first placement by the CWS

Participants had an overall reduction in maltreatment exposure after first placement by the CWS (mean difference −5.2, *SD* = 11.7, $p < .001$, d = 0.44). Of the participants who did report maltreatment, 94 of 150 (62.7 %) had a reduction in overall maltreatment rates during the subsequent year (mean difference −11.2, *SD* = 10.0). However, 55 of 150 (36.7 %) of participants reported either consistent or increasing rates of maltreatment after placement (mean difference = 5.0, *SD* = 6.2). Participants with a reduction in maltreatment rates reported higher severity of maltreatment before placement compared to those who had increased rates post-placement. After placement, both groups experienced similar levels of maltreatment (Fig. 3). One participant described no form of maltreatment, neither before nor after placement (and is not included in Fig. 4). The remaining 149/150 (99.4 %) reported at least one form of maltreatment before out-of-home placement. Participants who experienced stable/increasing rates were placed into out-of-home care on average 1.6 years earlier (*p* .007, d = −0.47) than those who experienced decreasing rates (Table 3).

Fig. 4 shows the reported prevalence of different forms of child maltreatment before and after placement into out-of-home care. Prior to placement, the most common forms of maltreatment were Parental Non-Verbal Abuse 122/150 (81 %), Emotional Neglect 144/150 (96 %) and Physical Neglect 131/150 (87 %). Emotional and Physical Neglect persisted for over half of the participants the year after placement. Less frequently reported forms included Witnessing Violence Towards Sibling 35/150 (23 %) and Witnessing Violence Towards Parent 63/150 (42 %). The majority of the participants who reported Witnessing Violence reported reduced rates the year after placement. Sexual Abuse 40/150 (27 %) and Peer Physical Abuse 49/150 (33 %) were less common before placement, and about half of these participants reported a reduction in the year following placement. Some participants reported new instances of

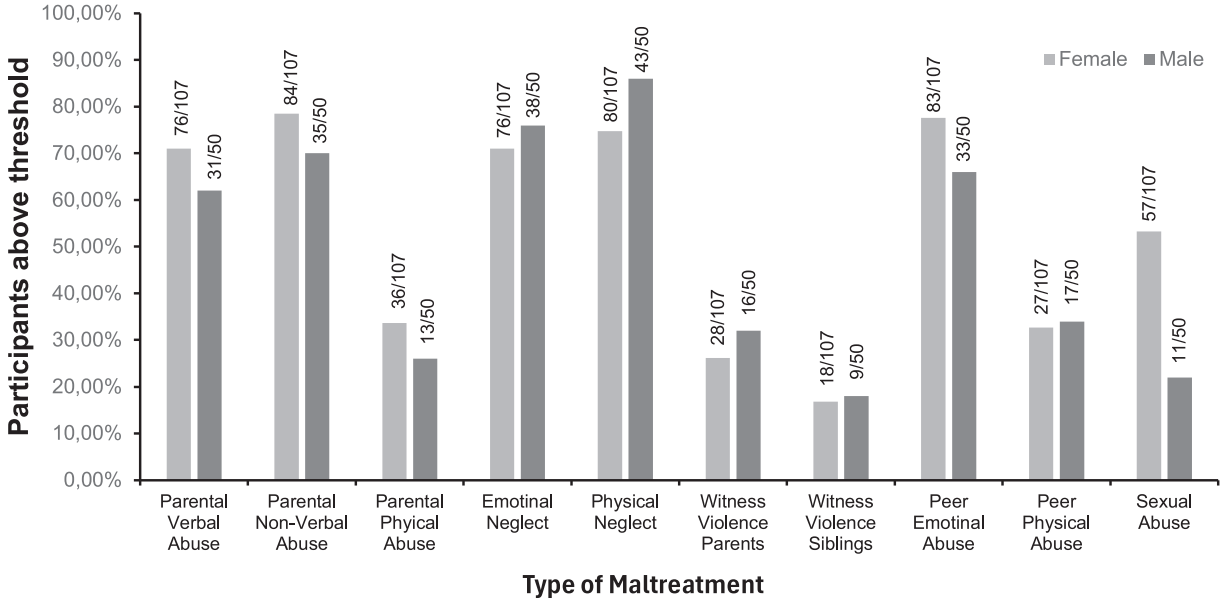

Fig. 2. Percentage of participants with at least a moderate exposure to maltreatment across childhood, by sex.
Note. The graph uses the binary subscale scores, where participants must be above a specific threshold to be included in the graph. Cutoffs are reported in Supplement 1.

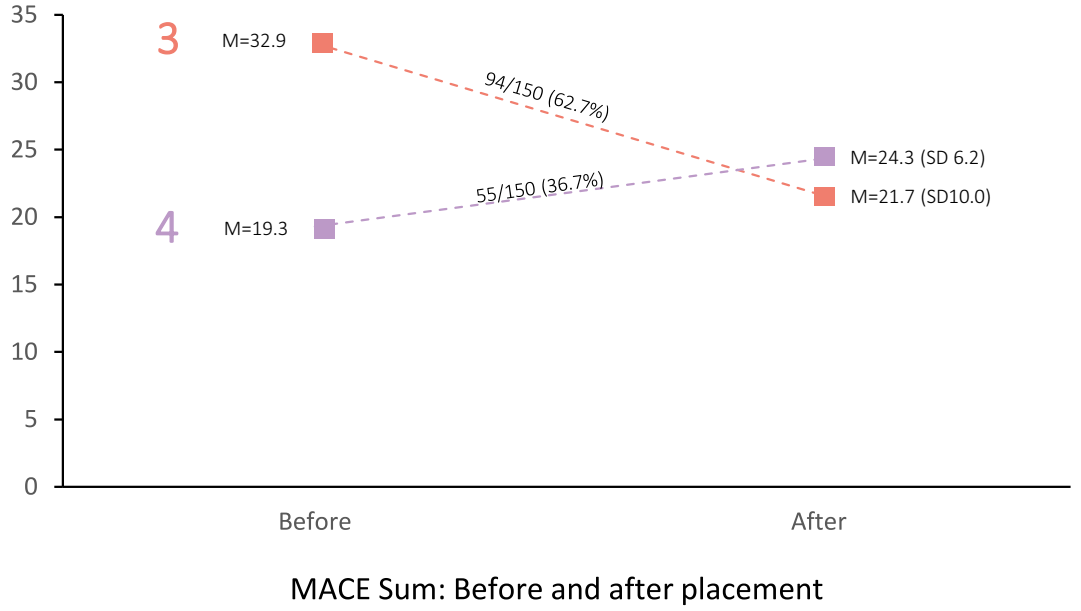

Fig. 3. Reports of Childhood Maltreatment before and after placement by the CWS, at global level.
Note. Maltreatment exposure before and after placement by the CWS, described with the following groups: 3 = exposure reported before placement, but reduced after, 4 = exposure reported before placement, and stable/increasing rates after. Group 1 and 2 are excluded from the figure because only one participant reported no exposure prior to placement (this participant did not report any exposure after placement either). M = mean, SD = Standard Deviation.

maltreatment after placement, but these cases were rare, ranging from 1/150 (0.7 %) for Emotional Neglect to 11/150 (10 %) for Peer Emotional Abuse.

4. Discussion

To our knowledge, this is the first study to document how first out-of-home placement by the CWS affect child maltreatment rates the year following first placement. It is also one in few studies exploring changes in the maltreatment chronology across childhood in young adults with RYC background. In line with previous findings, the results demonstrate the high exposure to child maltreatment in young adults with a history of out-of-home care. Nearly all participants reported one or more forms of child maltreatment. On average, participants reported exposure to 5 different maltreatment forms and were exposed to maltreatment over a span of 14.8 years of their childhood. Aside from Sexual Abuse, there were no significant sex differences. Nearly two thirds of the participants reported reduction in maltreatment the year following first placement into out-of-home care, while more than one third reported stable or increasing rates. Those who described a reduction had on average higher age at first placement. This group also reported higher maltreatment rates prior to placement than those who had stable or increasing maltreatment.

The maltreatment rate reported in our study is comparable to a Swiss study on young adults with RYC background, where 87.5 % of participants reported at least one form of maltreatment during childhood. However, the chronology scores from the Swiss study show a lower severity across childhood than in our study (Burgin et al., 2023; Bürgin et al., 2023). The organization of CWS varies by country, as it is regulated by national legislation. This results in differences in the availability of foster homes and RYC institutions, the reasons for RYC placements, and the types of RYC institutions. These factors may contribute to variations between samples. The reported maltreatment in our study surpasses those found in the Norwegian and European/North American general populations (Stoltenborgh et al., 2015). For instance, while the highest estimate for sexual abuse in the Norwegian school population is 28 % for females (including peers and adults as perpetrators) (Hafstad & Augusti, 2019), nearly 50 % of females in our study reported sexual abuse. The sample exhibits a diverse and high-level exposome, indicating a significant risk for adverse health outcomes (Guloksuz et al., 2018). Other studies on youth in out-of-home care also find very high rates of maltreatment, although not as high as in our study (Miller et al., 2011). However, this could be explained by differences in measures and analysis.

The elevated maltreatment rates observed in our study may in part be influenced by the high threshold for RYC placement within the Norwegian CWS. At-home interventions and foster homes are often extensively tried before placement into RYC. The legal rights of the birth parent (such as rights to visitation or renewed attempts at at-home placements) may also conflict with the child's needs (Jessen & Backe-Hansen, 2017). This suggests that children might endure many disruptions in placements and perhaps longer periods of maltreatment before being placed into RYC (The Norwegian Directorate for Children, 2023). Frequent moving is also found in our study, where participants had on average 3.5 different placements before the baseline interviews in childhood were conducted. However, we know that many of the baseline participants were moved directly into RYC without prior foster care placements.

Fig. 4. Reports of Childhood Maltreatment before and after placement by the CWS, at subscale level.
Note. Maltreatment exposure before and after placement by the CWS, described with the following groups: 1 = no exposure before or after placement, 2 = no exposure before placement, but exposure was present after, 3 = exposure reported before placement, but reduced after, 4 = exposure reported before placement, and stable/increasing rates after placement. M = mean, SD = Standard Deviation.

Table 3
Group characteristics of participants experiencing decreased or increased rates of maltreatment after first placement by the CWS.

	Stable/increased rates (n = 55)		Decreased rates (n = 94)		*p*
	N (%)	Mean (*SD*) range	N (%)	Mean (*SD*) range	
Female	36 (66)		65 (69)		0.644
Age of first placement		11.8 (3.4) 3–16		13.4 (3.6) 2–17	0.007

Although we lack data on the reasons for direct placement into RYC, it's likely that some of these adolescents were placed due to severe behavioral or addiction issues and many may have endured maltreatment over several years,

The absence of sex differences, except for exposure to sexual abuse, aligns with previous research on non-clinical populations (Gilbert et al., 2009). However, this contrasts with a recent study on youth in foster care, which found significant sex differences in emotional and physical abuse, emotional neglect, and sexual abuse (Moussavi et al., 2022). Regarding different perpetrators, the Sexual Abuse Chronology scores in our study shows that females are more frequently exposed to sexual abuse from caregivers than males. Interestingly, these patterns also reveal that sexual abuse from caregivers decreases after age 12, which coincides with the average age of first out-of-home placement. Meanwhile, abuse from peers and other adults tend to rise around this age.

We found that nearly two thirds of the participants reported a reduction in maltreatment the immediate year following first placement into out-of-home care, suggesting that placement is associated with reduced exposure. However, more than one-third of participants reported stable or increasing rates of maltreatment despite being under the care of the CWS. Our finding that some participants continued to experience maltreatment after being placed into care can be attributed to several factors. Prolonged exposure to maltreatment may possibly lead to an impaired ability to set boundaries or the normalization of maltreatment as a part of everyday life (Brush et al., 2018). Furthermore, research indicates that perpetrators are skilled at identifying previously maltreated individuals (Kerig, 2019) making adolescents in CWS particularly vulnerable. Additionally, adolescents in out-of-home care may struggle with assessing safety and may engage in risk-seeking behaviors, such as substance abuse or risky sexual activity, to cope with negative emotions (Kerig, 2019). These behaviors may stem from emotional numbness or difficulties in self-assertion (Bunford et al., 2018; Dvir et al., 2014; Walker & Wamser-Nanney, 2023), placing them in situations with heightened risk of further maltreatment. This is illustrated by the Sexual Abuse chronology scores in our study. During the teenage years there is a rapid increase in maltreatment from other adults and peers, despite being placed into care. This is in line with the findings by Kim and Drake (2019), who found that increased exposure to maltreatment correlates with a higher risk of further maltreatment.

Our findings of continued maltreatment after placement may also be partly explained by vulnerabilities related to disordered relational behavior. Adolescents in RYC also have a high prevalence of Disinhibited Social Engagement Disorder compared to the general population (Seim et al., 2020). The indiscriminate relational style associated with this disorder may perhaps increase maltreatment exposure because participants are less likely to identify or dismiss poor or potentially dangerous relationships (Kerig, 2019; Seim et al., 2021). Furthermore, when lacking adequate caregiving, children and youth may seek adult attention elsewhere, heightening the risk of encountering perpetrators and further increasing the likelihood of revictimization (Pears et al., 2010). International studies on children in out-of-home care illustrate this by showing high rates of physical, verbal, and sexual abuse and high bullying rates, despite protective measures (Attar-Schwartz & Khoury-Kassabri, 2015; Ellonen & Pösö, 2011; Euser et al., 2013; Euser et al., 2014; Mazzone et al., 2018; Segura et al., 2015; Sterzing et al., 2020). While the CWS provides support and protection, significant risks also persist within out-of-home care. We still do not understand why the risk of further maltreatment exposure persists, but exploring this further would be of great importance to enhancing the safety of young people in out-of-home care.

We also found that specific forms of maltreatment, such as Emotional and Physical Neglect, persisted for more than half of the participants post-placement. These findings indicate that while out-of-home placement can reduce overall maltreatment, certain forms of maltreatment remain prevalent. The stability of the Neglect subscales across time may partly be explained by the questions included in the two subscales. The Emotional Neglect subscale included questions about the unavailability or lack of interest shown by caregivers. It assesses familial closeness, support, and whether the participant felt loved or important. Participants' responses might have been influenced by uncertainty over which caregivers to consider: their foster family, birth family, or current important others. This ambiguity could have affected the accuracy of their answers. Furthermore, a complicated relationship with the birth family is unlikely to cease upon being placed into care and may even worsen due to conflicts arising from CWS interventions (Bjella et al., 2022). The Physical Neglect subscale included questions about the caregiver's ability to provide protection, the lack of food and clothing, or being left unsupervised at a young age. However, hardly any participant reported starvation or dirty clothes, and it is likely the remaining questions that elevated this score. Also here, we do not know whether they refer to birth family, foster family, or other caregivers.

The elevated Neglect scores across time may reflect participants feeling a lack of support and protection after entering out-of-home care. This is supported by a study on adolescents in RYC, where the participants reported that adults do not listen, lacked time for them, or were too strict (Bjella et al., 2022). This also aligns with another study on adolescents in foster care, which found that the ability to participate in decision-making processes impacted the participants well-being and perception of receiving adequate help (Fylkesnes et al., 2021). If participants considered their RYC experiences when answering the Neglect questions, it may partly explain the elevated scores across time. Participants may have perceived RYC as neglectful, potentially failing to meet their emotional and practical needs. Exploring these issues further could provide key quality indicators for RYC programs, guiding improvements to better fulfill the emotional and practical needs of the youth in their care.

4.1. Strengths and limitations

This study provides valuable insights into maltreatment exposure as reported from young adults with history of living in RYC. It is unique in that it collects detailed information about exposure forms and rates across childhood. This identifies patterns that otherwise would go unrecognized, such as changes in maltreatment forms and rates following placement into out-of-home care.

A criticism of retrospective reporting in general and therefore also the MACE, is the challenge of obtaining consistent and accurate answers when individuals are asked about their early childhood experiences, which they may not directly recall. Instead, the information they disclose may be based on what others have told them or inferred from similar childhood experiences (Teicher & Parigger, 2015). Self-reports are vulnerable to recall bias which can skew the results. A risk with self-report is therefore that it relies on participants' memories. However, the participants in our study have by law (Public Administration Act; 18, 2022) access to the casefiles from the municipal CWS, where suspected or substantiated maltreatment often are documented by the child's caseworker Although it is unknown how many have read their casefiles, those who have, will know detailed information about maltreatment during early childhood. Still, maltreatment reported before the age of 4 (which is of low frequency in the current sample) should be interpreted with care. Despite the challenges with retrospective reporting, self-report is still viewed as the most accurate representation of prevalence (Pinto et al., 2014). The prevalence of child maltreatment is underreported in public registries and thus only using official reports would increase the risk of deflated prevalence rates (Gilbert et al., 2009).

In the current study, the MACE was administered as a questionnaire, although it is more commonly used as an interview-based assessment (Teicher & Parigger, 2015). This difference in methodology could potentially have impacted the maltreatment reports, but without more comparable studies it is not possible to truly assess the effect of this. However, participants may have felt more comfortable and open when answering questions independently, which could have led to greater disclosure. Conversely, in interviews, participants might receive guidance from interviewers on how to respond to challenging questions, potentially avoiding answers tainted by misunderstandings, uncertainty, or ambiguity (as seen in the present study for items on emotional and physical neglect).

A limitation in this study was the high rate of *I don't want to answer* responses, as outlined in Supplement Table 4. Although this option was given to avoid false negatives or positives, we do not know why participants opted out of answering. Notably, the statement eliciting the highest rate of *I don't want to answer* responses was *People in your family felt close to each other*. This question is fraught with complexity, perhaps due to the participants' experience with different family structures/living arrangements, interpretation of family and the nuanced nature of familial closeness. Therefore, this question may be difficult to interpret and therefore respond to. In contrast, items addressing more overtly critical topics, such as sexual abuse had less *I don't want to answer* responses. Future research involving similar populations should consider adjusting questions about familial relationships by more clearly defining what terms such as *family*, *closeness* or *support* means in this setting.

Recruitment to the follow-up study was challenging, but given the high-risk of the study population, the response rate was satisfactory (Wu et al., 2022). Attrition analysis also showed that participants at follow-up had a higher baseline rate of mental disorders and substance abuse, compared to non-participants. This was surprising, as we expected that the healthiest individuals would partake in the follow-up study. This finding may in part have been influenced by a higher representation on females in the follow-up study. Individuals with a higher health burden may also have been more motivated to participate, perhaps because they wanted to contribute to change or because they hoped they would receive some kind of help. The proportion of individuals reporting any maltreatment was similar between participants and non-participants, suggesting that the risk of overestimating the results is minimal.

Lastly, a limitation of this study is the ambiguity of the term *sex*. Participants reported their sex, but it was unclear whether this referred to gender or sex assigned at birth, especially since the Norwegian language tend to use the same word for both. Since no participants reported changes in gender/sex identity between baseline and follow-up, it is likely that most participants interpreted sex as *sex assigned at birth*.

4.2. Implications

The high occurrence of exposure to multiple maltreatment forms prior to placement highlights the complex and severe needs of this group. Young adults with out-of-home care histories report more challenges with self-support, education, and physical and mental health than the general population (Bronsard et al., 2016; Greeson et al., 2011; Kääriälä & Hiilamo, 2017; Vinnerljung & Sallnäs, 2008). These findings emphasize the necessity of early intervention for maltreated children and their families to mitigate future exposure to maltreatment. The continued exposure to maltreatment after placement suggests that the existing protective measures for this group may be insufficient to fully safeguard children from further maltreatment. Interventions may include a more comprehensive risk assessments for each child, ongoing monitoring for signs of maltreatment, trama-informred care and targeted support to address peer violence and risk-seeking behaviors, i.e. through support groups for adolescents in RYC.

Further research is needed to explore the specific factors contributing to the continued exposure to maltreatment post-placement. This may include investigating the effectiveness of interventions designed to protect affected children. Also, further research into characteristics of RYC institutions that serves as protective or risk factors for revictimization among residents is crucial for improved safeguarding of residents and quality of care provided. Examining the long-term outcomes of children who experience multiple forms of maltreatment, and the role of early and integrated support services may also be important for improving these outcomes.

5. Conclusion

Young adults with a history of RYC report high levels and long duration of child maltreatment compared to most other groups. A

large subgroup of individuals kept experiencing maltreatment after first out-of-home placement. Thus, although being placed into care by the CWS provides protection, these adolescents still face a high risk of revictimization. Further research is needed to fully understand how to better protect and decrease the risk of revictimization for youth placed in RYC.

Statement

During the preparation of this work the author(s) used Chat-GPT 3 in order to check grammar and improve readability. After using this tool/service, the author(s) reviewed and edited the content as needed and take(s) full responsibility for the content of the publication.

CRediT authorship contribution statement

Mirjam Elisabeth Åsen: Writing – original draft, Visualization, Investigation, Funding acquisition, Conceptualization. **Inga Schalinski:** Writing – review & editing, Methodology, Conceptualization. **Stine Lehmann:** Writing – review & editing, Conceptualization. **Stian Lydersen:** Writing – review & editing, Formal analysis. **Timo Von Oertzen:** Writing – review & editing, Formal analysis. **Hanne Klæboe Greger:** Writing – review & editing, Supervision, Project administration, Methodology, Investigation, Funding acquisition, Conceptualization.

Declaration of competing interest

None.

Data availability

Data will be made available on request.

Acknowledgment

This work was supported by Liaison Committee for Education, Research and Innovation in Central Norway (Samarbeidsorganet Helse Midt-Norge), Grant number 2023-32997. The funder had no role in the preparation of this manuscript.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.chiabu.2024.107074.

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