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Quality of Life Research

An International Journal of Quality of Life Aspects of Treatment, Care and Rehabilitation - Official Journal of the International Society of Quality of Life Research

ISSN 0962-9343

Qual Life Res

DOI 10.1007/s11136-012-0262-z



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Health-related quality of life in the aftermath of child maltreatment: follow-up study of a hospital sample

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Accepted: 29 August 2012
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Abstract

Objective In the aftermath of child maltreatment or neglect, the health-related quality of life (HRQoL) in children is likely to be affected. However, research on quality of life in maltreated children is lacking. The aim of this study is to compare the HRQoL in a follow-up sample of children referred to an interdisciplinary hospital child protection team (CPT) to match controls and to explore correlates of HRQoL.

Method Of the 319 in- and outpatient children referred to the CPT at the University Children's Hospital Zurich between 2005 and 2006, an eligible sample of 180 children was contacted for a follow-up. HRQoL was assessed for 42 former patients using the self- and proxy-rated KID-SCREEN-27 for children above the age of 6 years and the TAPQOL parent report for children younger than 6 years. HRQoL-scores in the maltreatment group were compared with HRQoL in 39 matched controls.

Results Self-reported HRQoL in maltreated children above the age of 6 years was significantly impaired compared to matched controls. The caregiver-rated HRQoL of maltreated children, however, was not affected. Low socioeconomic status and number of life events were associated with impaired self-reported HRQoL. Analyzed together with these factors, maltreatment lost its predictive power on HRQoL.

Conclusion Maltreated children and adolescents suffer from impaired HRQoL even after the maltreatment has been disclosed and targeted by interventions. The impact of socioeconomic environment reinforces the importance of a multidisciplinary and systemic approach to maltreatment as applied by the CPT. Although the nature of discordance between child and caregiver report is not known, researchers and clinicians are strongly encouraged to assess the victim's self-reported HRQoL independently of their proxies' view.

Keywords Child maltreatment · Health-related quality of life · Hospital child protection · Follow-up study

Abbreviations

CPT Child protection team at University Children's Hospital Zurich
HRQoL Health-related quality of life

Background

Existing literature identifies that maltreated children are likely to suffer significant psychosocial sequelae and that different aspects of their future development may be compromised [e.g., 1–4]. To date, research on these sequelae has primarily been focused on behavior and mental health. The subjective component to the individual's well-being, introduced by the concept of quality of life [5], has not had the same attention. On a conceptual level, there is increasing consensus that health-related quality of life (HRQoL) as a multidimensional subjective concept covers the physical, social and psychological aspects of health [e.g., 6, 7]. For children and adolescents,

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relations with parents or caregivers, peers and school environment are suggested as further important domains of HRQoL [8, 9]. Although the concept of HRQoL has become quite popular in clinical studies related to child health [e.g., 10–12], research on HRQoL of maltreated children is lacking [13]. Several studies with adult survivors of child maltreatment have found significant and sustained impairments in HRQoL of maltreated compared with non-maltreated participants even after adjustment for demographic factors and variables such as psychiatric disorders, physical health conditions, socioeconomic status and other adverse childhood experiences [14–18]. The effects of child maltreatment not only reach into early adulthood, but appear to last a lifetime [15]. Potential correlates of HRQoL are maltreatment characteristics and subtypes. Reviews on maltreatment subtypes discuss different contexts of risks [19–22], and among adult survivors of child maltreatment, subtypes of maltreatment were associated with different aspects of HRQoL: Neglect, psychological and physical abuse were significantly associated with impaired mental HRQoL, and physical and psychological abuse with impaired physical HRQoL [14]. However, differences in mean HRQoL-scores between abuse types were small, and the relationship between exposure to sexual abuse and HRQoL only showed a trend toward significance ($p = 0.053$). The authors suggest that this surprising near miss may be a result of combining more severe acts of sexual abuse such as rape with less severe forms like being “sexually touched,” thereby diluting the effect of sexual abuse on HRQoL [14].

With HRQoL encompassing multiple domains [e.g., 8], it is likely affected not only by the presence/absence of maltreatment, but also by variables at the individual, family and social environment levels. Adult survivor studies that examined maltreatment in the context of other variables have treated some of these as confounders [14–17]. Rikhye et al. [18] reported that quality of the parent–child relationship as recalled by the research participants and concurrent adult depressive symptoms were stronger predictors of adult HRQoL than child maltreatment [18].

Unfortunately, the studies on adult survivors of child maltreatment have not articulated the relationship between most confounders and HRQoL. As a result, little is known about the direction of the relationship and the impact that confounders have on HRQoL. Furthermore, prospective population-based studies addressing individual risks of impaired HRQoL among children are rare. In one of the few, Wilkins et al. [23] followed-up an Australian birth cohort and measured HRQoL of 13 year olds using parent and adolescent reports. An interaction effect of gender and number of partner changes on HRQoL had been found; an increased number of maternal partner changes until the child was 5 years old affected adolescent boys but not girls.

It is important to note that nationality or ethnicity differences in HRQoL were not explored by Wilkins et al. [23]. On the family level, further risk factors had been identified by both adolescents and their mothers (Wilkins et al. [23]): young maternal age at pregnancy, negative attitude to pregnancy, maternal anxiety and depression in early childhood and child health at the age of 5 years.

The effect of maltreatment on HRQoL during childhood has yet to be based empirically. Given the multidimensionality of HRQoL [e.g., 10], the role that maltreatment plays in the expression of HRQoL must be considered in the context of other possible contributors to HRQoL that may vary from associations found for adult survivors of child maltreatment.

Aims

This study aimed at comparing the HRQoL of maltreated children and non-maltreated matched controls. Based on empirical findings of HRQoL in adult survivors of child maltreatment, we expected an impaired HRQoL in maltreated children compared with controls. Besides demographic characteristics, analyses of possible contributors to HRQoL included the type of maltreatment, type of perpetrator, caregiver distress, life events and aspects of the intervention at baseline (whether there had been a criminal complaint or a referral to child welfare authorities).

Methods

Sample

During 2005 and 2006, the child protection team (CPT) at the University Children's Hospital Zurich evaluated 319 children as in- or outpatients; children were suspected to be maltreated by a parent, other caregiver or an extrafamilial perpetrator. From this sample, 139 children were excluded for different reasons such as Munchausen syndrome by proxy, because the maltreatment had been disproved, or the child was over the age of 16.5 years at the time of the follow-up contact [24]. A further category of exclusion comprised cases of custodial parents who had not been confronted with the fact that the CPT had discussed suspected maltreatment of their child, because no further child protection interventions were deemed necessary. A final sample of 180 children remained to contact for a follow-up interview, with the intention to analyze developmental outcomes of maltreated children in a variety of psychosocial and biological domains. The assessment of HRQoL was part of this larger study.

Eligible children and their parents were asked to participate in a face-to-face interview at the University

Children's Hospital Zurich; in 42 cases, the children and parents consented to do so. Alternatively, the parents could take part in a telephone interview ($n = 39$). Non-participation resulted because no contact or adequate communication in German, French, or English could be established ($n = 49$) or because the parent or child refused to participate ($n = 50$). The present article is about the fully participating group and their HRQoL at follow-up. Methodological challenges in following up patients and possible recruitment biases are described elsewhere [24].

Corresponding to their own former in- or outpatient status, each maltreated child participating in the face-to-face interview was matched with a control out of the former in- or outpatient population of the University Children's Hospital. The control child had to be the same gender and age (± 1 year) as the maltreated child, and if the latter had been a foreign national, the control had to be from the same country or region. However, in eight cases, this was not possible, as patients from certain countries are quite rare. In these cases, a Swiss child of the same age and gender was chosen as a control. Children with a chronic health condition or a severe surgical intervention were excluded from the control group. However, if the maltreated child had a chronic health condition or had suffered a severe surgical intervention, a control with the same condition was chosen. For each control child, a trauma interview was conducted (cf. "Measures"). If the interview showed that the control child had been maltreated, they were excluded and a new control child was chosen. For three mentally disabled maltreated children, we were not able to find a control child sharing the same demographics and impairment. The final sample was, therefore, restricted to $n = 78$ in the maltreatment and control group. The research design was approved by the local ethics committee.

The follow-up interview took place a mean 3 years ($\bar{x} = 1,101$ days; $s = 334$ days) after the case had been opened at the CPT. With 56 % girls ($n = 44$) compared with 44 % boys ($n = 34$), the female majority in the sample was consistent with the female majority of the CPT population [25]. Mean age was 8 years, ranging from 2.5 to 16.5 years. As described above, we were not able to match nationality completely. In the maltreatment group, 17 children (44 %) had a foreign nationality. Percentage was lower in the control group with 9 children (23 %) having a foreign citizenship ($\chi^2 = 3.69$; $p = 0.055$).

Measures

HRQoL was measured using two different instruments. In children aged 6–16.5 years, HRQoL was assessed through the *KIDSCREEN-27 Quality of Life Questionnaire* [8] that

had versions for both the child and a caregiver to complete. The 27 items of the inventory are grouped in five subscales: physical well-being; psychological well-being; autonomy and parent relations; peers and social support; and school environment. Scales were transformed to T-scores using Swiss norms [26]. The good internal consistencies in the current study for both the child (Cronbach's $\alpha = 0.82$) and the caregiver version (Cronbach's $\alpha = 0.81$) legitimated building a global HRQoL-index. The mean of the five subscale scores was used to represent the total score.

HRQoL in children below the age of 6 years was assessed only by caregivers using the authorized translation of the *TNO-AZL Preschool Quality of Life (TAPQOL) Questionnaire* [27]. The questionnaire's 43 items are grouped into the scales of physical, social, cognitive and emotional functioning. Like in the Kidscreen-27, the good internal consistency in the current study (Cronbach's $\alpha = 0.89$) legitimated the construction of a global score. The scales have been summed up to build the global score. No Swiss norms were available; scales are, therefore, presented as raw scores. However, the global score of the TAPQOL has been z-transformed using Dutch norms [27] as an approximation of Swiss norms based on the similarities of the two nations; both Switzerland and the Netherlands are democratic, economically stable, Western European nations. Together with the z-transformed proxy-rated global score of the KIDSCREEN-27, they yielded a HRQoL-proxy index which allowed comparisons for all ages. Both in the KIDSCREEN-27 and the TAPQOL, HRQoL is conceptualized as a multidimensional construct and global indices have not been proposed by the authors of these two inventories [8]. As global HRQoL-scores are debated, we will present descriptive analyses of the dimensions beside the analyses of global scores.

The well-known *Brief Symptom Inventory BSI* [28] was used to examine the mental health of caregivers. The questionnaire assesses symptoms on 53 Likert-scaled items yielding the Global Severity Index, a composite score with excellent internal consistency in the current study (Cronbach's $\alpha = 0.97$). The raw scores of the BSI were T-transformed applying German norms [29]. A higher score indicates a poorer mental health.

The primary caregiver rated whether any or several significant *life events* out of a list of thirteen had happened in the last 12 months [30].

The caregiver's information on his/her education and current employment was used to build a score of the family's socioeconomic status (SES) [31]. Both the education and the current employment were rated on a scale ranging from 1 to 6, with 6 being the highest education and the highest status of employment. The current employment status takes into account if the employment requires an university diploma or a lower education level. Both

education and employment scores were then added up to a scale representing socioeconomic status ranging from lowest status of two to highest status of twelve.

Demographic variables analyzed were gender, age at follow-up and nationality. Nationality was dichotomized, with the child categorized as either Swiss or foreign national.

Using the patients' records, the following additional variables were analyzed for the subgroup of maltreated children. Child maltreatment was categorized as physical, sexual, or psychological maltreatment or neglect. The definitions used are based on Leeb and colleagues [32] and are as follows: Physical maltreatment was coded in the case of intentional use of physical force against a child that resulted in, or had the potential to result in, physical injury. Psychological maltreatment was defined as intentional caregiver behavior that conveys to a child that he/she is worthless, flawed, unloved, unwanted, endangered, or of value only in meeting another's needs. As neglect, we considered failure by the caregiver to provide basic physical and psychological needs and failure by the caregiver to ensure a child's safety within and outside the home given the child's emotional and developmental needs. Finally, sexual abuse was defined as any completed or attempted sexual act, sexual contact with, or exploitation of a child by a caregiver. Non-contact sexual maltreatment can include acts that expose a child to sexual activity, filming of a child in a sexual manner, sexual harassment or prostitution of a child. The CPT coded one main type of maltreatment per child. If the child was suffering from multiple types of maltreatment, sexual or physical maltreatment was coded instead of psychological maltreatment or neglect. Sexual ($n = 14$) and physical maltreatment ($n = 10$) were most common. Because of the small sample size, two binary variables were created comparing each of these two forms against the all other forms of maltreatment ($n = 15$, respectively, $n = 29$). Perpetrators were categorized as intrafamilial, including relatives ($n = 25$), or extrafamilial ($n = 14$). Two further dichotomized variables indicated whether there had been a criminal complaint ($n = 16$) or not ($n = 23$), and whether there had been a referral to the child welfare authorities ($n = 10$) or not ($n = 29$).

Not all participants completed all of the questionnaires. The number of the subsample analyzed is reported in the tables.

Procedure

The sampled children and their custodial caregiver(s) were first sent an information letter and a written informed consent form. If the informed consent was not sent back within 2 weeks, the first author attempted to contact the family by telephone using a standardized script. After five

unsuccessful calls on different days of the week and at different times of the day, a written reminder was sent to the family. If the reminder and subsequent telephone calls still led to no contact, the child was categorized as non-contactable. If a letter was returned because of an invalid address, the child's new address was searched for via telephone directories or registration offices.

Upon arrival at the hospital, children were interviewed by the first or fourth author to complete the psychosocial assessment battery. Meanwhile, the accompanying caregiver filled in the questionnaires in the hospital's restaurant. After a break, where the child and caregiver had a snack free of charge, a pediatrician assessed the child's physical health. Results on the children's physical health will be described elsewhere. The caregiver was paid the travel expenses.

Statistical analyses

Distribution of gender and nationality was analyzed using chi-square tests; differences in mean scores of dependent variables were compared using *t* tests for normally distributed scales and subscales. Normal distribution was assumed if the joint analysis of skewness and kurtosis yielded a *p* value > 0.2 . Mean score differences for scales below $p = 0.2$ were analyzed using the Wilcoxon rank-sum test. Based on the main hypothesis of impaired HRQoL-scores in maltreated children and the opposite direction not theoretically deducible, we apply one-tailed *t* tests [cf. 33].

The self-rated KIDSCREEN-27 global score and the HRQoL-proxy index were introduced as dependent variables in linear regressions with possible predictors. Based on the small sample size, inferential statistics were restricted to bivariate linear regressions with maltreatment versus control group controlling for one demographic factor. Possible predictors analyzed were gender, age, type of maltreatment, intra- versus extrafamilial perpetrator, referral to child welfare, criminal complaint, nationality, socioeconomic status, primary caregiver distress, and life events. As the assumptions of normal distribution of residuals and heteroscedasticity were violated in several regressions for HRQoL-proxy, robust regressions were applied [e.g., 34]. All statistical analyses were conducted using the software Stata 10 [35].

Results

Proxy-rated HRQoL of maltreated versus non-maltreated participants did not differ significantly, except for impaired emotional functioning for maltreated children as measured by the TAPQOL questionnaire for children below the age

of 6 years (see Table 1). However, self-reported HRQoL of maltreated school-aged participants was significantly below the scores of the control group on the HRQoL total score and the dimensions of autonomy and parent relations, peers and social support; and school environment (see Table 1).

Descriptive statistics for the maltreatment and control group differed on all three proxy-rated independent variables: Controls had experienced significantly fewer life events in the past year, the caregivers of controls expressed significantly fewer symptoms on the BSI, and the scores indicated a significantly higher socioeconomic status for control families (see Table 2).

When proxy-rated HRQoL-scores were regressed on maltreatment group controlled for different possible predictors, none of the control variables was significantly associated with the dependent variable. In children above

the age of 6 years, a greater number of life events ($R_{adj}^2 = 0.35$) and lower socioeconomic status ($R_{adj}^2 = 0.18$) were associated with impaired HRQoL-self (Table 3). For the regressions including one of said predictors, the impact of whether one was maltreated or not was not significant. Among those who were maltreated, children with a familial perpetrator or whose relative was a perpetrator reported higher HRQoL-scores than those whose perpetrator was extrafamilial ($R_{adj}^2 = 0.22$).

Discussion

This is to our best knowledge the first study that systematically examined HRQoL in maltreated children. The school-aged victims of the current study had a significantly impaired self-reported HRQoL when compared to matched

Table 1 Descriptive statistics of dependent variable compared in maltreatment and control group

Children aged up to 5 years	Treatment group (n = 14)			Control group (n = 14)			t test statistics	
	n	Mean	SD	n	Mean	SD	t	p
<i>TAPQOL</i>								
Physical functioning ^a	9	86.65	14.42	9	93.63	4.40	-0.49	0.63
Cognitive functioning ^a	10	88.13	19.86	10	87.50	15.31	0.37	0.71
Social functioning	9	78.84	11.86	9	83.33	0.89	-0.87	0.20
Emotional functioning	10	74.44	16.40	10	91.11	7.94	-2.89	0.005
Total score	10	318.28	50.27	10	345.20	41.40	-1.31	0.10
Children aged 6 years or older	Treatment group (n = 25)			Control group (n = 25)			t test statistics	
	n	Mean	SD	n	Mean	SD	t	p
<i>KIDSCREEN-27 self-rated</i>								
Physical well-being ^a	22	50.58	10.00	22	48.44	13.30	0.50	0.62
Psychological well-being	22	53.26	13.17	22	54.07	7.52	-0.25	0.40
Autonomy and parent relation	21	44.10	9.39	21	52.99	11.78	-2.70	0.005
Peers and social support	22	49.33	11.54	22	55.26	9.52	-1.86	0.04
School environment	22	52.75	11.69	22	60.66	9.78	-2.43	0.01
Total score	22	50.14	7.95	22	54.37	7.24	-1.85	0.04
<i>KIDSCREEN-27 proxy-rated</i>								
Physical well-being	17	54.38	10.96	17	48.00	4.07	2.25	0.98
Psychological well-being	17	52.71	10.53	17	54.79	11.23	-0.56	0.29
Autonomy and parent relation ^a	15	49.16	10.80	15	50.93	7.00	-0.90	0.37
Peers and social support ^a	17	49.80	12.26	17	51.66	14.74	-0.67	0.50
School environment ^a	17	58.59	9.27	17	52.67	5.92	1.73	0.08
Total score	17	53.08	6.98	17	51.73	5.53	0.62	0.73
Children all ages	Treatment group (n = 39)			Control group (n = 39)			t test statistics	
	n	Mean	SD	n	Mean	SD	n	Mean
HRQOL-proxy ^a	27	-0.10	1.00	27	0.03	0.71	-0.60	0.55

Based on the main hypothesis of lower HRQoL in maltreatment group, the one-tailed significance of t tests is reported

^a The measure is not normally distributed; statistic displayed is the z-value of Wilcoxon rank-sum test

Significant p values are in bold type

Table 2 Descriptive and Wilcoxon rank-sum statistics of proxy-rated independent variables in maltreatment versus control group

Variable	Treatment group (<i>n</i> = 39)			Control group (<i>n</i> = 39)			Wilcoxon rank-sum test	
	<i>n</i>	Mean	SD	<i>n</i>	Mean	SD	<i>z</i>	<i>p</i>
SES continuous ^a	31	5.97	2.66	31	7.90	2.12	-3.17	0.002
BSI: Global Severity Index	28	48.71	14.75	28	41.89	15.31	1.93	0.05
Life events	27	2.15	1.63	27	1.11	1.22	2.41	0.02

^a The variable is normally distributed; *t* test statistics (2-tailed) are displayed

Significant *p* values are in bold type

Table 3 Summary of regression analyses predicting HRQoL-self (KIDSCREEN-27) score for maltreatment group controlling for case characteristics

Predictors	<i>B</i>	SEB	β
Equation 1 ^a			
Perpetrator: family, relatives	7.37	3.12	0.47*
Equation 2			
Maltreatment group	-0.17	2.60	-0.01
SES	1.26	0.53	0.42*
Equation 3			
Maltreatment group	-2.07	2.09	-0.14
Life events	-0.24	0.62	-0.55**

^a The 3 additional participants without matched controls have been included for the comparison within the maltreatment group; **p* < .05; ***p* < .01

controls at follow-up 2–4 years after referral to the CPT. HRQoL dimensions affected were the school environment, peer and parental relations, highlighting the importance of including these domains into the concept of HRQoL for children [e.g., 8, 9]. This suggests that consistent with previous studies, victims of maltreatment are likely to struggle with different aspects of their HRQoL over time [14–18].

Children's HRQoL was both measured by self- and proxy-report. Contrary to the children's self-assessment, caregiver reports of their children's HRQoL were not affected by the maltreatment. Discordance between child and caregiver report of HRQoL has been reported repeatedly [e.g., 36, 37]; however, knowledge about sources of discordance is still limited. For the self- and proxy-rated instrument of the present study, the KIDSCREEN-27 [8], discordance is not likely due to differences in interpretation of the items [38]. In rating their HRQoL based on the last week, children were rather relying on different experiences than their parents or applied different weights to their experiences [38]. This may highlight a lack of parental attunement to children's experiences and beliefs [36]. In parents of maltreated children, this may be exacerbated as they probably underestimate the upsettingness of the events on their child's beliefs. The result that maltreated children

rated the dimension of parent relations as most affected is consistent with this assumption. An essential lack of understanding of the child's experiences and beliefs is not only likely to affect the child's HRQoL, but may also contribute to current and future risk of maltreatment [39]. That no significant difference in HRQoL had been found for children under the age of 6 years, might therefore also be explained by the fact that it could only have been obtained via proxy measure or that the proxy measures lack the validity to adequately assess the young child's HRQoL.

Although being a victim of maltreatment may have an important influence, a child's HRQoL is also likely to be affected by various other individual, situational, family and social environment factors [e.g., 23]. However, no differences were found with regard to gender and age, neither was gender associated with different HRQoL in adult survivors of child maltreatment [e.g., 18]. Within the sample of maltreated children, having an intrafamilial perpetrator was significantly associated with higher self-reported HRQoL. Literature regarding the relationship of maltreated children with their perpetrator and different outcome variables exists mainly for sexual abuse. Results, however, are mixed and a meta-analysis did not find a mediating effect of the relationship to perpetrator [40]. It may be speculated that the referred extrafamilial cases in this sample were related to more severe maltreatment. They had often been referred to the CPT by law enforcement authorities who allegedly handle more serious cases than other agencies [41]. Unlike in studies of adult survivors of child maltreatment [14], the association between different types of maltreatment and mental or physical HRQoL was not reproduced for the child victims by the present study.

Several factors of the family and social environment were associated with the self-reported child's HRQoL, while the association between maltreatment and HRQoL turned non-significant. First, a low SES was related to a low self-reported HRQoL. This is in accordance with vast literature linking low SES to poor outcome in children [for poor HRQoL, e.g., 42, 43]. Furthermore, in agreement with the literature on general youth population [44], an increased number of life events were also significantly

associated with impaired HRQoL. As maltreatment was not significantly associated with HRQoL when analyzed together with one of these factors, it seems as if the circumstances within which maltreatment takes place are even more powerful than the maltreatment itself. The result of caregiver distress affecting a child's HRQoL [e.g., 23], however, was not reproduced by the present study. It has to be kept in mind that, apart from demographics and maltreatment characteristics, data have been collected at follow-up, and for these variables, directionality from predictor to dependent variable cannot be established.

Difficulties in recruiting former patients of the CPT and a resulting small sample size are one limitation of the present study, as non-participation may potentially be biased. Analyses of recruitment and participation data have shown that participants and non-participants did not differ significantly in mean child age at follow-up, gender, family status, place of residence, type of perpetrator, certainty and type of maltreatment [24]. The variable that was significantly associated with higher participation was foreign nationality of the child. However, in the present analyses, foreign nationality was not associated with the child's HRQoL. Due to the small sample size, statistical analyses with multiple predictors were not appropriate and the probability of a β error is increased. Second, internal validity is somewhat restricted due to missing items in caregiver questionnaires, leading to different sample sizes for different instruments. Additional analyses reveal that missings were likely due to caregivers' difficulties of adequately understanding certain questions: Missings were significantly more frequent when caregivers were not native German speakers. Third, although the controls have been matched regarding age, gender, nationality and chronic physical health condition, they do differ and were not matched regarding other possible influences on HRQoL, especially SES which had not been available for the control group at baseline. The same factors contributing to an impaired HRQoL, such as low SES, might also constitute a risk for maltreatment. Therefore, the unique contribution of the maltreatment to child's HRQoL could not be disentangled. Further predictors of HRQoL, such as the quality of parental care [cf. 18], have not been measured in this study. Unfortunately, the CPT's way of coding maltreatment types included a rank ordering which was not evidence-based and did not account for multiple types of maltreatment which are reportedly associated with an increased risk of severe psychological consequences [45]. Finally, although the wide age range and the heterogeneity of maltreatment experience in the sample are representative for the CPT population at University Children's Hospital in Zurich [25], generalizability of results to other settings is restricted. In a hospital sample, both the maltreated and non-maltreated group has experienced some impact on their physical health which might have biased the association

between maltreatment and physical well-being. Based on the strengths of having a clinical sample of maltreated children with matched controls, the present study nevertheless provides some first empirical insights into HRQoL in maltreated children.

Conclusions

The rather exploratory nature of the results should be supported by further research with larger samples and in different settings. Prospective studies would allow establishing directionality between predictors and the HRQoL outcome. Further possible predictors of HRQoL on the child, family and social environment level should be included and controlled for to disentangle the unique contribution of maltreatment on HRQoL. The understudied population of maltreated children at an early age would deserve special attention.

Independent of the reasons for discordance between child and caregiver report of HRQoL, it is essential, both in research and clinical work, to take into account not only the caregiver report, but also consider the self-assessment from the child. The different views together with the multiple domains assessed in HRQoL likely yield the most potent standardized way to measure health outcome in children. The importance of SES in the present results of children's HRQoL reinforces a multidisciplinary and systemic approach to maltreatment as applied by the CPT. Stabilizing a maltreated child's environment by assigning additional support to address socioeconomic inequity should not only diminish the risk of future maltreatment but also alleviate the potential for sustained impairment into adulthood.

Acknowledgments This study was funded by the "Perspectives" foundation of Swiss Life, Zurich, and the Olga Mayenfisch Foundation, Zurich. Special thanks go to Martina Hug, Michael Inauen, Sabine Keller, Rabia Liamlahi, Georg Staubli and Daniel Suter for the participation in data collection.

Conflict of interest The authors declare that they have no competing interests.

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