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Systematic review of child maltreatment screening tools used by different occupational groups: a study protocol

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ABSTRACT

Background Child maltreatment (CM) encompasses physical, emotional or sexual abuse, physical or emotional/psychological neglect or intimate partner (or domestic) violence and is associated with adverse cognitive, behavioural, physical and social outcomes that often continue shaping adulthood. The early and valid detection of CM is essential to initiate treatment and intervention as well as to avoid continued violence against the child. Various occupational groups, such as healthcare providers, teachers, social workers, psychotherapists and others, encounter maltreated children in their professional settings. Systematic reviews on instruments to assess suspected CM often report on retrospective measurement via caregiver's or child's self-report and are frequently limited to the health system as a setting. The purpose of this Preferred Reporting Items for Systematic Reviews and Meta-Analyses-compliant systematic review is to synthesise the evidence on psychometric properties of instruments to assess suspected CM at the presentation to a broad range of different occupational groups who work with children inside and outside the healthcare system.

Method A systematic search will be performed in Scopus, PsycInfo, Medline and Web of Science with no limit on the earliest publication until January 2022. Eligibility criteria include studies that investigate psychometric properties of instruments to assess suspected CM in children and adolescents under 18 years by a professional proxy. After the independent screening of studies by two reviewers, quality assessment and data extraction will be performed using an adaptation of the COnsensus-based Standards for the selection of health Measurement INstruments Risk of Bias checklist, Strengthening the Reporting of Observational Studies in Epidemiology: Explanation and Elaboration report and Downs and Black checklist for measuring study quality. Screening, quality assessment and data extraction will be done using Covidence. The results will be presented in narrative form and, if adequate, a meta-analysis will be performed.

Discussion This review aims to give an overview of the psychometric properties of different instruments designed to screen suspected CM by professional proxies. The results will be of interest to different occupational groups who need information about methodological quality and characteristics of instruments to make decisions about the best-suited tool for a specific purpose. Furthermore, the results of this review will support the development of novel instruments and might improve the existing ones.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ We included instruments in our search strategy that can be used by a broad range of occupational groups from various settings.
⇒ The inclusion of studies in four different languages reduces the potential risk of language-related restrictions.
⇒ Varying definitions of maltreatment and the diverse instruments used to assess suspected child maltreatment may impede the comparability of results.
⇒ The use of a limited number of databases may have resulted in missing relevant studies.

Ethics and dissemination Ethics approval will not be required. The results of this systematic review will be submitted for publication in a peer-reviewed journal.
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BACKGROUND

The WHO defines child maltreatment (CM) as all forms of abuse (physical, sexual and emotional), neglect (physical or emotional) and child sexual exploitation that result in potential or actual harm to a child's physical or psychological health, development or survival.[1] An increasingly recognised sixth form of exposure is intimate partner violence (or domestic violence) during childhood, such as when a child witnesses a parent or family member experiencing assaults.[2] Around a quarter of all children will face abuse or neglect at some stage in their lives.[1 3] Additionally, two-thirds of children experience violent disciplinary practices from their caregivers and almost 75% of children between the ages of 2 and 4 are regularly subjected to physical punishment or psychological violence by those entrusted with their care.[4] Recent studies and reviews show that CM has detrimental emotional, cognitive, behavioural, physical and social outcomes that often continue until adulthood.[5–7] CM does not necessarily become apparent through consistent symptoms and

signs; however, existing guidelines[8] have undertaken extensive reviews on symptoms and signs and can guide practitioners. Symptoms might range from bruises to fractures and behavioural problems such as aggression and substance abuse.[9 10] Maltreatment often requires diagnostic input and treatment from multiple physicians and the process of identification is burdened by unavailable or inconclusive medical history, thus remains difficult and may suffer from misleading judgements.[11] Nevertheless, early and valid detection of CM is essential to initiate treatment and intervention as well as to avoid ongoing maltreatment.[12] Various occupational groups, such as healthcare providers, teachers, social workers, psychotherapists, psychological expert witnesses and others, encounter maltreated children in their professional settings. However, existing instruments to assess suspected CM rely on the results of medical examinations, analysis of medical records or the child's or caregivers' self-report.[13–15] Despite their potential role in detecting maltreatment, healthcare providers and other occupational groups in their settings often lack knowledge or confidence in screening for and detecting potential child abuse.[16] Using valid screening tools or instruments to assess suspected CM could increase knowledge and confidence in child physical abuse recognition[17 18] and improve reporting rates.[19]

Objectives/rationale

Systematic reviews on the psychometric properties of instruments to assess suspected CM exist.[13–15 20–22] Most of them focus on caregiver and child self-report instruments.[14 20 21] These instruments have shortcomings, such as not being appropriate for infants and being influenced by recall bias and social desirability, which makes them primarily used in research but not everyday care practice. To our knowledge, only a few systematic reviews report on instruments that can be completed by healthcare professionals.[13 15 22] Evidence on instruments that can be used by occupational groups other than health professionals (eg, social workers, psychotherapists, psychological expert witnesses or professionals in child protection systems) working with potentially maltreated children in multiple settings (eg, youth services, out-of-hours primary care locations, and family counselling services) is lacking hitherto. However, to enable improved detection of CM at scale, instruments for broader occupational groups and settings are essential. In addition, previous reviews that report on self-report instruments focused on studies published in English or Chinese,[13 15 22] whereas those on healthcare professionals only included English language publications.[14 20 21]

Therefore, the objective of the planned review is to assess and compare psychometric properties and study quality for existing instruments to identify suspected CM, which can be used by different occupational groups working with children in multiple settings, as searched for in four languages.

The review questions will be given as follows.

1. Which (screening) instruments exist for different occupational groups to identify suspected CM (at least one type of CM)?
2. What are their psychometric properties, how do these compare across instruments and how is the quality of the underlying study?
3. Do instruments exist in German, and have they been validated for the German context?

METHODS/DESIGN

The systematic review will be conducted and reported in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines.[23] The review protocol has been written according to the PRISMA Protocols guideline.[24] The checklist can be found in online supplemental appendix A. To provide transparent documentation and illustration of the review process, we will include a PRISMA Chart.[23]The protocol has been registered at the International Prospective Register of Systematic Reviews in January 2022 (PROSPERO registration number: CRD42022297997).

Search strategy

The following databases were searched with no limit on the earliest publication until 19 January 2022: Scopus, Web of Science, PsycInfo (via Ovid) and MEDLINE (via Ovid). Journal articles, in-press articles and conference papers were searched in English, German, French and Spanish. Reviews and meta-analyses on similar topics around the measurement of CM are used to develop the search terms.[13–15] We will select terms based on the population (eg, children and adolescents), exposure (eg, maltreatment, abuse and neglect), instruments (eg, instrument, score and scale) and psychometric properties (eg, reliability and validity). The initial search strategy was tested on Scopus and adapted for use in other databases after it had been finalised. The search strategy for each database can be found in online supplemental appendix B. Reference lists of included papers and reviews on similar topics will also be searched to identify any additional relevant papers.

Eligibility criteria

Population

The study population will include instruments used by a broad range of occupational groups to assess suspected CM in children and adolescents 18 years or younger in various settings.

Exposure

Studies should include instruments that assess at least one or multiple types of CM. CM encompasses the following[1 2 25]: physical, emotional or sexual abuse, physical or emotional/psychological neglect or intimate partner (or domestic) violence in childhood before the age of 18 years. Other childhood experiences that can be considered adversities or trauma rather than CM[25] will be excluded. Physical abuse is defined as the use of

intentional force against a child resulting in harm to the child's health, development or survival. Sexual abuse involves a child in sexual activity that she or he does not fully comprehend. Emotional abuse involves the failure of a caregiver to provide a supportive and developmentally appropriate environment. Neglect is defined as the failure to provide for the child in one or more of the following areas: health, education, emotional development, nutrition, shelter and safe living conditions. An abuse must have been committed by an adult. A child is exposed to domestic violence when the child observes a parent or family member experiencing assaults, threats or property damage inflicted by another adult or teenager who typically resides in the home.[26]

Outcome

The study should report on testing at least one psychometric property listed by the COnsensus-based Standards for the selection of health Measurement INstruments (COSMIN) checklist[27] of instruments designed to assess suspected CM for use by different occupational groups that encounter potentially maltreated children. The outcomes that are extracted and evaluated criteria for this review include content validity, structural validity, internal consistency, measurement invariance, reliability, measurement error, criterion validity, hypothesis testing and information in diagnostic tests such as sensitivity, specificity and predictive values. All these outcomes were defined in the COSMIN checklist, including their potential operationalisation (eg, Crohnbach's alpha, receiver operating characteristic curve, Cohen's kappa and t-test).

Inclusion criteria

Studies will be included if they were original empirical studies published or in press or conference proceedings that report on psychometric properties of instruments to assess suspected CM. The instruments, which will be included in this systematic review, are required to meet the following inclusion criteria: (a) have as their main objective the evaluation of at least one psychometric property; (b) be applicable to children less than 18 years old and (c) be designed for use by occupational groups such as social workers, psychotherapists, psychological expert witnesses or professionals in child protection systems.

Language of publication

Studies conducted in any country and reported in English, German, French or Spanish are included based on the language capabilities of the review team.

Exclusion criteria

Studies on individuals older than 18 years, single case studies, case series and studies on the prevention of CM or on risk factors for maltreatment will be excluded. Book chapters, letters, commentaries, reviews, meta-analyses, editorials, discussion papers and dissertations will be excluded. Studies that focus on maltreatment carried out by individuals younger than 18 years old or childhood experiences that can be considered adversities or trauma rather than maltreatment will not be included. Self-report instruments, reports through caregivers and retrospective assessment of CM in adulthood will also not be included.

Data management

Studies will be exported from the respective databases to Endnote X9 in order to import them to Covidence.[28] Covidence will be used to remove duplicates, screen titles and abstracts, execute risk of bias assessment and data extraction and to calculate inter-rater agreement between reviewers.

Selection process

Two reviewers will independently screen titles and abstracts based on the inclusion and exclusion criteria. Studies will be rated as *maybe* when title or abstract does not provide enough information to determine inclusion or exclusion. The full text will then be screened. Articles that clearly do not meet the inclusion criteria based on title, abstract or full text will be excluded. Inconsistencies between the two reviewers will be resolved through discussion or consultation with a third reviewer (BG or LK). After piloting the selection criteria, the inter-rater agreement will be calculated for 20% of the articles. If the agreement is high enough (ie, Cohen's kappa>0.6), the remaining articles will be screened by either DC or JS. If the agreement is not high enough, the reviewers will go through their conflicts and discuss the selection criteria before continuing to screen. More articles will be screened by both reviewers until the inter-rater agreement is satisfactory. Reference lists of included papers and reviews on similar topics will be searched by DC, BG and LK to identify any additional relevant papers. In the second stage, reviewers will independently screen full texts (DC and JS) to determine if studies can be included or excluded for quality assessment and data extraction based on the defined criteria. The inter-rater agreement will again be calculated. The reasons for excluded studies will be documented.

Data extraction

A template based on Strengthening the Reporting of Observational Studies in Epidemiology: Explanation and Elaboration report[29] and the COSMIN Risk of Bias checklist[27] will be modified for the purpose of this review and used to extract relevant data from included studies. The template will be piloted using 20% of eligible articles. Based on the pilot, adjustments to the template will be made when deemed necessary. The pilot will be done independently by three reviewers (DC, JS and LR). After pilot testing and relevant adjustments, reviewers will independently extract data and the other will check the accuracy of the extracted data. Discrepancies will be discussed. If no consensus can be reached, another reviewer will decide (BG or LK). The preliminary data extraction template covers the following topics: type of record, title, authors, publication year/year of study, country, aim of study, study design, sample source,

method of recruitment, sample size, individual characteristics such as age, gender, socioeconomic status and ethnicity, study setting, type of maltreatment measured, number of subscales, number of items, time to complete the instrument, handling of missing items, target population (age, nationality and gender), purpose of use, range of scores, response options, occupational group to use the instrument, psychometric properties and whether the instrument is available in German and has been validated for Germany, method of data analysis and statistical outcomes. If any new categories are identified during the course of the review, they will be added, and the extraction database will be modified as needed. Studies with insufficient data will be excluded if contacting the corresponding authors by email will not contribute to clarification.

Quality assessment

The quality of the individual studies will be assessed using relevant items from the COSMIN checklist[27 30] and Downs and Black[31] checklist for measuring study quality. The items will be adapted for this review and will include the following: clear aim/hypothesis; clear description of outcomes, maltreatment, population and procedure; recruitment bias; statistical methods used; missing data; study design and measurement of psychometric properties according to the COSMIN Risk of Bias checklist. Incongruent ratings will be solved through discussion, if necessary, including a third reviewer. Whenever articles lack relevant information, we will email the corresponding authors. A narrative summary of the quality of each study will be provided. The quality assessment will be done by PR and LR. The overall rating for each study will not be determined by taking the lowest rating of the assessed psychometric property as recommended in the COSMIN manual[30] since subtle differences in quality cannot be differentiated. A revised scoring system expressed as a percentage will be applied as suggested by others[32 33]: poor (0–25%), fair (25–50%), good (50–75%) and excellent (75–100%).

Data analysis and synthesis

A qualitative synthesis of findings will be performed. All included studies will be presented in a table providing information on type of record, authors, country, sample size, gender, age, form of maltreatment, measurement of maltreatment, respondent type (occupational group) and study design. A second table will provide information on the rated quality of the included studies such as clear study aim, measurement of psychometric properties, content validity, internal consistency or report of results. A third table will present information on the identified instruments, the number of studies that contain information on psychometric criteria and information on the psychometric properties of the instruments and whether it is available in the German language and has been validated for the German population. A narrative synthesis of the findings from the included studies will be presented, which will be structured by the type of instrument and the responding occupational group. Summaries of psychometric properties and the quality of the included studies will also be provided in the text.

A meta-analysis will be performed if there are enough studies with information on psychometric properties and depending on the heterogeneity of types of maltreatment and psychometric properties assessed in the different studies.[34] Results will be analysed using forest plots. Results from different study designs will not be pooled together (eg, studies that assessed different types of maltreatment and studies that assessed different types of psychometric criteria) to prevent a misleading summary of the study effect. We, therefore, plan to analyse data separately. Statistical heterogeneity will be assessed by calculating I^2 or Cochran's Q test.[35] Publication bias will be assessed using a funnel plot for each outcome by plotting the standardised psychometric indicator against study size. To statistically test for publication bias, we plan to use the Egger regression test[36] and the trim and fill method[37] to assess the significance of potential publication bias as well as to adjust for it.[38]

Patient and public involvement

Neither patients nor children, adolescents or parents could be involved because of the risk of traumatisation or retraumatisation. Instead, our research team sought advice from different professionals with expertise in CM for developing the research question and study protocol for this review. Therefore, we were able to gather expertise from members of the local child protection group, medical doctors and management of the children's hospital besides our own experience in different fields.

DISCUSSION

Prior research[17 39] has highlighted the importance of valid measurement of suspected CM to improve early detection. The studies that will be summarised in this review might indicate that multiple occupational groups such as healthcare providers, teachers, social workers, psychotherapists and psychological experts in various settings (eg, youth services, out-of-hours primary care locations, family counselling services, etc) may encounter CM and have a need for validated instruments.

Systematic reviews hitherto have investigated psychometric properties of instruments designed to assess different forms of CM, however focusing on caregiver or child's self-report,[20] the potential use of results of medical examinations and medical records[13 15 22] or retrospective measurements of suspected CM and instruments primarily used in the research.[13–15] To the best of our knowledge, this is the first systematic review that will explore psychometric properties of instruments to assess suspected CM that can be used by different occupational groups in different settings of routine practice.

Through the review, the comparison of the studies and the thorough data extraction process, we will provide

insights into the quality of the reporting of existing studies as well as the range in validity. In addition, by giving an oversight over items from reliable and valid existing instruments, this review may inform professionals who work with children in and outside the healthcare system and support the use of instruments in practice; if needed, the development of novel instruments might be inspired. This, in turn, might increase future intervention possibilities across multiple settings. The findings of this review might also lead to the validation and cultural adaptation of instruments in German-speaking countries and, thus, increase their availability for the German child protection system.

Strengths and limitations

The varying definitions of maltreatment and types of instruments used to assess suspected CM might make results difficult to compare, despite of the consistent definition that we used throughout our project.[25] A strength of our review is that we will be able to increase the number of languages searched into four (English, German, Spanish and French). However, due to resource issues, we will only search for articles in four databases, potentially missing out on studies published in databases not covered by this review.

CONCLUSIONS

By its broad approach, this review will present the international evidence on the validity and psychometric results of existing screening tools to assess suspected CM across various occupational groups and in multiple settings. By evaluating and comparing the psychometric properties and study quality, this review will increase the utilisation of existing tools and inspire the development of new tools, with the effect to increase the overall validity and reliability of instruments in the field. By additionally inquiring the availability and validation of these instruments in German-speaking countries, we may ease the utilisation of existing tools in German contexts.

Contributors DC, JS, BG and EM conceived the idea; DC planned and designed the study protocol, FDB revised it and gave advice on methods and extraction plans; DC and JS will perform the screening; DC, BG and LK will search eligible papers for additional articles; PR and LR will conduct the quality assessment; DC, JS and LR will conduct the data extraction; DC performed the initial writing up; all authors contributed to the manuscript and agreed on methods for the study selection, extraction, synthesis and the final written manuscript of the protocol; all authors have read and approved the final manuscript. FDB will be the guarantor of the review.

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Competing interests None declared.

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