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Systematic Review of Screening Tools for Child Maltreatment used by different occupational groups - A Study Protocol

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| Keywords: | Systematic Review, Psychometrics, Child protection < PAEDIATRICS, PUBLIC HEALTH |
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Systematic Review of Screening Tools for Child Maltreatment used by different occupational groups - A Study Protocol

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Keywords: systematic review, child maltreatment, child abuse, child neglect, instrument, screening, psychometric properties

Word count: 3884

Abstract

Background: Child maltreatment is associated with adverse cognitive, behavioral, physical and social outcomes that often continue until adulthood. The early and valid detection of child maltreatment is essential to initiate treatment and intervention as well as to avoid ongoing maltreatment. Various occupational groups such as health care providers, teachers, social workers, psychotherapists and others encounter maltreated children in their professional settings. Systematic reviews on instruments to assess child maltreatment often consider retrospective measurement and caregiver's or child's self-report. The purpose of this review is to synthesize the evidence on psychometric properties of instruments to assess child maltreatment at the presentation to professionals who work with children in- 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 child maltreatment in children and adolescents under 18 years by a professional proxy. After independent screening of studies by two reviewers, quality assessment and data extraction will be performed using an adaptation of the COSMIN Risk of Bias checklist, the STROBE 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 measure child maltreatment by professional proxies. The review focuses on instruments that can be used by occupational groups working with children and might therefore encounter maltreated children. 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.

Systematic review registration: PROSPERO registration number: CRD42022297997

Strength and Limitations:

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- 59 • To account for the multiplicity of contexts in which child maltreatment can be
60 encountered this study seeks to identify existing screening instruments used by various
61 occupational groups in different settings, rather than limiting the search strategy to
62 instruments for health care provider, caregiver and child self-report instruments only.
- 63 • COSMIN-Checklist will be used to assess the quality of instruments.
- 64 • For feasibility reasons, this study is limited to four databases (Medline, PsycInfo,
65 Scopus, Web of Science).

For peer review only

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Background

The World Health Organization (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, its development or survival [1]. Recent studies and reviews show that CM has detrimental emotional, cognitive, behavioral, physical and social outcomes that often continue until adulthood [2-8]. CM does not necessarily become apparent through consistent symptoms and signs. However, if symptoms arise, they might range from bruises to fractures and behavioral problems such as aggression and substance abuse. With requesting treatment from multiple physicians and unavailable or inconclusive medical history the identification of CM remains difficult and may suffer from mislead judgements. Nevertheless, an early and valid detection of CM is essential to initiate treatment and intervention as well as to avoid ongoing maltreatment. Various occupational groups such as health care providers, teachers, social workers, psychotherapists, psychological expert witnesses and others encounter maltreated children in their professional settings. However, existing instruments to assess CM rely on results of examinations, an analysis of medical records or the child's or caregivers' self-report. Despite their potential role in detecting maltreatment health-care providers and other professional groups in their settings often lack knowledge or confidence in screening for and detecting child abuse. Using valid screening tools or instruments to assess CM could increase knowledge and confidence in child physical abuse recognition [9] and improve reporting rates [10].

Objectives/Rationale

Systematic reviews of instruments to assess CM exist. However, these reviews focus on caregiver and child self-report instruments [11, 12]. These have shortcomings, such as that they are not appropriate for infants, are influenced by recall bias and social desirability and thus are only used in research but not every care practice. To our knowledge, only one systematic review reports on instruments that can be used by healthcare providers. However, this did not include other occupational groups that encounter maltreated children and would have to be included for an effective detection at scale. In addition, previous reviews focus on studies published in English only. A comprehensive review of existing instruments to be used by different occupational groups working with children, summarizing their psychometric

properties and their availability for German-speaking countries does not yet exist. This review aims to close this gap. Furthermore, by identifying reliable and valid items on existing instruments this review may support the development of novel instruments and may hence improve intervention possibilities. It will also provide an overview of the quality of empirical studies. The review questions will be:

1. Which (screening) instruments exist for different occupational groups to assess child maltreatment?
2. What are their psychometric properties?
3. Does a German version exist, and has it been validated?

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 [13]. The review protocol has been written according to the PRISMA-P (Preferred Reporting Items for Systematic Reviews and Meta-Analyses Protocols) guideline [14]. The checklist can be found in appendix A. 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 January 19th, 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. The search will be updated prior to analyses. Reviews and meta-analyses on similar topics regarding the measurement of child maltreatment were used to develop the search terms [11, 12, 15, 16]. We selected terms based on the population (e.g., children, adolescents), exposure (e.g., maltreatment, abuse, and neglect), instruments (e.g., instrument, score, scale) and psychometric properties (e.g., reliability, validity). The initial search strategy was tested on Scopus and adapted for use in other databases after it had been finalized. The search strategy for each database can be found in 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 various occupational groups to assess CM in children and adolescents 18 years or younger.

Exposure

Studies should report one or multiple of the following: Physical, emotional or sexual abuse or physical or emotional neglect before the age of 18 years. Other adverse childhood experiences such as dating violence/intimate partner violence experienced by the child in intimate relationships, violence during adulthood, loss of a parent, poverty, poor parent-child relationship, parental potential to maltreat children, neighborhood/community violence, violence or bullying by peers, parents' attachment disorders and parenting stress as well as studies on determining risk factors for child maltreatment will be excluded. Types of maltreatment will be defined according to the WHO and the International Society for Prevention of Child Abuse and Neglect [17]. 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 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.

Outcome

The study should report on testing at least one psychometric property defined by the COSMIN (CONsensus-based Standards for the selection of health Measurement Instruments) checklist [18] of instruments designed to assess CM for use by different occupational groups that encounter maltreated children. The 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.

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Including 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 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 healthcare providers, teachers, social workers, psychotherapists or psychological expert witnesses.

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 child maltreatment 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 by individuals younger than 18 years old, intimate partner violence in adolescent’s relationships, violence or bullying by peers, determining risk factors for child maltreatment, parental potential to maltreat children, community violence, loss of a parent, parents’ attachment disorders and difficulties with the upbringing other than maltreatment will not be included. Self-report instruments, reports through caregivers and retrospective assessment of child maltreatment in adulthood will not be included in this review.

Data management

Studies will be exported from the respective databases to Endnote X9 in order to import them to Covidence [19]. 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.

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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 do 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 and abstract or the full text will be excluded. Inconsistencies between the two reviewers will be resolved through discussion or in 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 (i.e. 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 a 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 the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology: Explanation and Elaboration) report [20] and the COSMIN Risk of Bias Checklist [18] 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 % 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: title, authors, publication year/year of study, country, aim of study, study design, sample source, method of recruitment, sample size, patient 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, gender), purpose of use, range of scores, response options, professional 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 [18, 21] and Downs and Black [22] 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; 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 for each study will be provided. The quality assessment will be done by DC 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 [21] since subtle differences in quality cannot be differentiated. A revised scoring system expressed as a percentage will be applied as suggested by others [23, 24]: 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 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 quality of the included studies such as clear aim, measurement psychometric properties, report of results. A third table will present information on the identified instruments, the number of studies that contain information on psychometric criteria, information on the psychometric properties of the instruments and whether it is available in 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 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. Results will be analyzed using a forest plot. Results from different study designs will not be pooled together (e.g., studies that assessed different types of maltreatment maltreatment and studies that assessed different types of psychometric criteria) to prevent a misleading summary of the study effect. We therefore plan to analyze data separately. Statistical heterogeneity will be assessed by calculating I^2 . Publication bias will be assessed using a funnel plot for each outcome by plotting the effect size against study size. An Egger test and the trim and fill method will be used to statistically test for publication bias.

Discussion

Prior studies, reviews and meta-analyses have highlighted the importance of valid measurement of CM to improve early detection. Systematic reviews hitherto have investigated psychometric properties of instruments designed to assess different forms of CM, focusing on caregiver or child's self-report, retrospective measurements of CM or primarily instruments for use in research. To the best of our knowledge, this is the first systematic review exploring psychometric properties of instruments to assess CM that can be used by different occupational groups in routine practice. The findings of this study will contribute to the development of novel instruments, the improvement of existing instruments and the validation and cultural adaptation of instruments for their use in German-speaking countries. It must be acknowledged that the review will have some limitations. The varying definitions of maltreatment and types of instruments used to assess CM might make results difficult to compare. This review aims to give a broad overview on the topic. Furthermore, studies published in languages not covered by this review might not be identified. Author affiliation

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Patient and public involvement

Neither patients nor children, adolescents or parents could be involved because of the risk of traumatization or retraumatization. Instead our research team sought advice from different professionals with expertise in child abuse and neglect 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 beside our own experience in different fields.

Ethics and Dissemination

For this systematic review an ethical approval is not required because we will not be collecting any personal, sensitive or confidential data. The results of this systematic review will be disseminated by submission for publication in a peer-reviewed journal and presentations at important conferences.

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; DC 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.

Competing interest

None

Funding

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Patient consent for publication

Not applicable.

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Search Strategy

Database Host: Ovid

Database: PsycINFO

Date: 2.2.2022

Results: 2676

Limits: English, German, French, Spanish Language; Publication Year: no limit, Document Type: article, conference proceedings

| Concept 1 | Concept 2 | Concept 3 | Concept 4 | Concept 5 |
|--|--|---|--|---|
| Population | Maltreatment | Psychometric Properties | Measurement | Entire Search Term |
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| | intercourse" OR "unwanted intercourse" OR "forced penetration" OR "unwanted penetration" OR rape OR "sexual violence" OR "unwanted touching" OR "forced touching" OR "sexual harrassment" OR "physical harm" OR "corporal punishment" OR "physical punishment" | | | (abus* or maltreat* or ill-treatm*" or "ill treatm*" or neglect* or "exposure to intimate partner violence" or "exposure to domestic violence" or mistreat* or assault* or molest* or "forced sex" or "coerced sex" or "unwanted sex" or "forced intercourse" or "unwanted intercourse" or "forced penetration" or "unwanted penetration" or rape or "sexual violence" or "unwanted touching" or "forced touching" or "sexual harrassment" or "physical harm" or "corporal punishment" or "physical punishment")) and (instrument* or scor* or screen* or scal* or question* or report* or measur* or inventor* or intervew* or survey* or test* or construct* or evaluat* or analys* or assess* and (valid* or reliab* or psychometric* or accura* or "sensitivity" or "specificity" or "ROC" or "AUC")) not ("substance abuse" or substance misuse" or "alcohol abuse" or "alcohol misuse" or "drug abuse" or "drug misuse")).ab. or (((child* or infan* or adolescen* or teen* or youth* or pediatr* or paediatr* or young* or baby or babies or toddler* or minor* or girl* or boy*) adj4 (abus* or maltreat* or ill-treatm*" or "ill treatm*" or neglect* or "exposure to intimate partner violence" or "exposure to domestic violence" or mistreat* or assault* or molest* or "forced sex" or "coerced sex" or "unwanted sex" or "forced intercourse" or "unwanted intercourse" or "forced penetration" or "unwanted penetration" or rape or "sexual violence" or "unwanted touching" or "forced touching" or "sexual harrassment" or "physical harm" or "corporal punishment" or "physical punishment")) and (instrument* or scor* or screen* or scal* or question* or report* or measur* or inventor* or intervew* or survey* or test* or construct* or evaluat* or analys* or assess* and (valid* or reliab* or psychometric* or accura* or "sensitivity" or "specificity" or "ROC" or "AUC")) not ("substance abuse" or substance misuse" or "alcohol abuse" or "alcohol misuse" or "drug abuse" or "drug misuse")).id. |
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Database Host: Ovid

Database: Medline

Date: 2.2.2022

Results: 2661

Limits: English, German, French, Spanish Language; Publication Year: no limit, Document Type: article, conference proceedings

| Concept 1 | Concept 2 | Concept 3 | Concept 4 | Concept 5 |
|--|---|--|--|--|
| Population | Maltreatment | Psychometric Properties | Measurement | Entire Search Text |
| child* OR infan* OR adolescen* OR teen* OR youth* OR pediater* OR paediatr* OR young* OR baby OR babies OR toddler* OR minor* OR girl* OR boy* | abus* OR maltreat* OR "ill-treatm*" OR "ill treatm*" OR neglect* OR "exposure to intimate partner violence" OR "exposure to domestic violence" OR mistreat* OR assault* OR molest* OR "forced sex" OR "coerced sex" OR "unwanted sex" OR "forced intercourse" OR "unwanted | valid* OR reliab* OR psychometric* OR accura* OR "sensitivity" OR "specificity" OR "ROC" OR "AUC" | instrument* OR scor* OR screen* OR scal* OR question* OR report* OR measur* OR inventor* OR interview* OR survey* OR test* OR construct* OR evaluat* OR analys* OR assess* | (((((child* or infan* or adolescen* or teen* or youth* or pediater* or paediatr* or young* or baby or babies or toddler* or minor* or girl* or boy*) adj4 (abus* or maltreat* or "ill-treatm*" or "ill treatm*" or neglect* or "exposure to intimate partner violence" or "exposure to domestic violence" or mistreat* or assault* or molest* or "forced sex" or "coerced sex" or "unwanted sex" or "forced intercourse" or "unwanted intercourse" or "forced penetration" or "unwanted penetration" or rape* or "sexual violence" or "unwanted touching" or "forced touching" or "sexual harrassment" or "physical harm" or "corporal punishment" or "physical punishment")) and (instrument* or scor* or screen* or scal* or question* or report* or measur* or inventor* or interview* or survey* or test* or construct* or evaluat* or analys* or assess*) and (valid* or reliab* or psychometric* or accura* or "sensitivity" or "specificity" or "ROC" or "AUC")) not ("substance abuse" or "substance misuse" or "alcohol abuse" or "alcohol misuse" or "drug abuse" or "drug misuse"))).ti. or (((child* or infan* or adolescen* or teen* or youth* or pediater* or paediatr* or young* or baby or babies or toddler* or minor* or girl* or boy*) adj4 (abus* or maltreat* or "ill-treatm*" or "ill treatm*" or neglect* or "exposure to intimate partner violence" or "exposure to domestic |

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| | intercourse" OR "forced penetration" OR "unwanted penetration" OR rape OR "sexual violence" OR "unwanted touching" OR "forced touching" OR "sexual harrassment" OR "physical harm" OR "corporal punishment" OR "physical punishment" | | | violence" or mistreat* or assault* or molest* or "forced sex" or "coerced sex" or "unwanted sex" or "forced intercourse" or "unwanted intercourse" or "forced penetration" or "unwanted penetration" or rape or "sexual violence" or "unwanted touching" or "forced touching" or "sexual harrassment" or "physical harm" or "corporal punishment" or "physical punishment")) and (instrument* or scor* or screen* or qual* or question* or report* or measur* or inventor* or interview* or survey* or test* or construct* or evaluat* or analys* or assess* or valid* or reliab* or psychometric* or accura* or "sensitivity" or "specificity" or "ROC" or "AUC")) not ("substance abuse" or "substance misuse" or "alcohol abuse" or "alcohol misuse" or "drug abuse" or "drug misuse")).ab. or (((child* or infan* or adoles* or teen* or youth* or pediatr* or paediatr* or young* or baby or babies or toddler* or minor* or girl* or boy*) adj4 (abus* or maltreat* or "ill-treatm*" or "ill treatm*" or neglect* or "exposure to intimate partner violence" or "exposure to domestic violence" or mistreat* or assault* or molest* or "forced sex" or "coerced sex" or "unwanted sex" or "forced intercourse" or "unwanted intercourse" or "forced penetration" or "unwanted penetration" or rape or "sexual violence" or "unwanted touching" or "forced touching" or "sexual harrassment" or "physical harm" or "corporal punishment" or "physical punishment")) and (instrument* or scor* or screen* or qual* or question* or report* or measur* or inventor* or interview* or survey* or test* or construct* or evaluat* or analys* or assess* or valid* or reliab* or psychometric* or accura* or "sensitivity" or "specificity" or "ROC" or "AUC")) not ("substance abuse" or "substance misuse" or "alcohol abuse" or "alcohol misuse" or "drug abuse" or "drug misuse")).kw. |
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Database: Scopus

Date: 2.2.2022

Results: 5523

Limits: English, German, French, Spanish Language; Publication Year: no limit, Document Type: article, conference proceedings

| Concept 1 | Concept 2 | Concept 3 | Concept 4 | Concept 5 |
|--|--|---|--|--|
| Population | Maltreatment | Psychometric Properties | Measurement | Entire Search Text |
| child* OR infan* OR adolescen* OR teen* OR youth* OR pediater* OR paediatr* OR young* OR baby OR babies OR toddler* OR minor* OR girl* OR boy* | abus* OR maltreat* OR "ill-treatm*" OR "ill treatm*" OR neglect* OR "exposure to intimate partner violence" OR "exposure to domestic violence" OR mistreat* OR assault* OR molest* OR "forced sex" OR "coerced sex" OR "unwanted sex" OR "forced intercourse" OR "unwanted intercourse" OR "forced | valid* OR reliab* OR psychometric* OR accura* OR "sensitivity" OR "specificity" OR "ROC" OR "AUC" | instrument* OR scor* OR screen* OR scal* OR question* OR report* OR measur* OR inventor* OR interview* OR survey* OR test* OR construct* OR evaluat* OR analys* OR assess* | TITLE-ABS-KEY (((child* OR infan* OR adolescen* OR teen* OR youth* OR pediater* OR paediatr* OR young* OR baby OR babies OR toddler* OR minor* OR girl* OR boy*) W/4 (abus* OR maltreat* OR "ill-treatm*" OR "ill treatm*" OR neglect* OR "exposure to intimate partner violence" OR "exposure to domestic violence" OR mistreat* OR assault* OR molest* OR "forced sex" OR "coerced sex" OR "unwanted sex" OR "forced intercourse" OR "unwanted intercourse" OR "forced penetration" OR "unwanted penetration" OR rape* OR "sexual violence" OR "unwanted touching" OR "forced touching" OR "sexual harrassment" OR "physical harm" OR "corporal punishment" OR "physical punishment")) AND (instrument* OR scor* OR screen* OR scal* OR question* OR report* OR measur* OR inventor* OR interview* OR survey* OR test* OR construct* OR evaluat* OR analys* OR assess*) AND (valid* OR reliab* OR psychometric* OR accura* OR "sensitivity" OR "specificity" OR "ROC" OR "AUC") AND NOT ("substance abuse" OR "substance misuse" OR "alcohol abuse" OR "alcohol misuse" OR "drug abuse" OR "drug misuse")) AND (LIMIT-TO (LANGUAGE , "English") OR LIMIT-TO (LANGUAGE , "German") OR LIMIT-TO (LANGUAGE , "French") OR LIMIT-TO (LANGUAGE , "Spanish")) AND (LIMIT-TO (DOCTYPE , "ar") OR LIMIT-TO (DOCTYPE , "cp")) |

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| | penetration" OR "unwanted penetration" OR rape OR "sexual violence" OR "unwanted touching" OR "forced touching" OR "sexual harrassment" OR "physical harm" OR "corporal punishment" OR "physical punishment" | | | | |
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Database: Web of Science

Date: 2.2.2022

Results: 2939

Limits: English, German, French, Spanish Language; Publication Year: no limit, Document Type: article, conference proceedings

| Concept 1 | Concept 2 | Concept 3 | Concept 4 | Concept 5 |
|---|--|---|--|---|
| Population | Maltreatment | Psychometric Properties | Measurement | Entire Search Term |
| child* OR infan* OR adolescen* OR teen* OR youth* OR pediatr* OR paediatr* OR young* OR baby OR babies OR toddler* OR minor* OR girl* OR boy* | abus* OR maltreat* OR "ill-treatm*" OR "ill treatm*" OR neglect* OR "exposure to intimate partner violence" OR "exposure to domestic violence" OR mistreat* OR assault* OR molest* OR "forced sex" OR "coerced sex" OR "unwanted sex" OR "forced intercourse" OR "unwanted intercourse" OR "forced | valid* OR reliab* OR psychometric* OR accura* OR "sensitivity" OR "specificity" OR "ROC" OR "AUC" | instrument* OR scor* OR screen* OR scal* OR question* OR report* OR measur* OR inventor* OR interview* OR survey* OR test* OR construct* OR evaluat* OR analys* OR assess* | ((TI=(((child* OR infan* OR adolescen* OR teen* OR youth* OR pediatr* OR paediatr* OR young* OR baby OR babies OR toddler* OR minor* OR girl* OR boy*) NEAR/4 (abus* OR maltreat* OR "ill-treatm*" OR "ill treatm*" OR neglect* OR "exposure to intimate partner violence" OR "exposure to domestic violence" OR mistreat* OR assault* OR molest* OR "forced sex" OR "coerced sex" OR "unwanted sex" OR "forced intercourse" OR "unwanted intercourse" OR "forced penetration" OR "unwanted penetration" OR rape OR "sexual violence" OR "unwanted touching" OR "forced touching" OR "sexual harrassment" OR "physical harm" OR "corporal punishment" OR "physical punishment")) AND (instrument* OR scor* OR screen* OR scal* OR question* OR report* OR measur* OR inventor* OR interview* OR survey* OR test* OR construct* OR evaluat* OR analys* OR assess* AND (valid* OR reliab* OR psychometric* OR accura* OR "sensitivity" OR "specificity" OR "ROC" OR "AUC") NOT ("substance abuse" OR "substance misuse" OR "alcohol abuse" OR "alcohol misuse" OR "drug abuse" OR "drug misuse")))) OR AB=(((child* OR infan* OR adolescen* OR teen* OR youth* OR pediatr* OR paediatr* OR young* OR baby OR babies OR toddler* OR minor* OR girl* OR boy*) NEAR/4 (abus* OR maltreat* OR "ill-treatm*" OR "ill treatm*" OR neglect* OR "exposure to intimate partner violence" OR "exposure to domestic violence" OR mistreat* |

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| | penetration" OR "unwanted penetration" OR rape OR "sexual violence" OR "unwanted touching" OR "forced touching" OR "sexual harrassment" OR "physical harm" OR "corporal punishment" OR "physical punishment" | | | OR assault* OR molest* OR "forced sex" OR "coerced sex" OR "unwanted sex" OR "forced intercourse" OR "unwanted intercourse" OR "forced penetration" OR "unwanted penetration" OR rape OR "sexual violence" OR "unwanted touching" OR "forced touching" OR "sexual harrassment" OR "physical harm" OR "corporal punishment" OR "physical punishment")) AND (instrument* OR scor* OR screen* OR scal* OR question* OR report* OR measur* OR inventor* OR interview* OR survey* OR test* OR construct* OR evaluat* OR analys* OR assess* AND (valid* OR reliab* OR psychometric* OR accura* OR "sensitivity" OR "specificity" OR "ROC" OR "AUC") NOT ("substance abuse" OR "substance misuse" OR "alcohol abuse" OR "alcohol misuse" OR "drug abuse" OR "drug misuse")) OR AK=(((child* OR infant* OR adolescen* OR teen* OR youth* OR pediatr* OR paediatr* OR young* OR baby OR babies OR toddler* OR minor* OR girl* OR boy*) NEAR/4 (abus* OR maltreat* OR "ill- treatm*" OR "ill treatm*" OR neglect* OR "exposure to intimate partner violence" OR "exposure to domestic violence" OR mistreat* OR assault* OR molest* OR "forced sex" OR "coerced sex" OR "unwanted sex" OR "forced intercourse" OR "unwanted intercourse" OR "forced penetration" OR "unwanted penetration" OR rape OR "sexual violence" OR "unwanted touching" OR "forced touching" OR "sexual harrassment" OR "physical harm" OR "corporal punishment" OR "physical punishment")) AND (instrument* OR scor* OR screen* OR scal* OR question* OR report* OR measur* OR inventor* OR interview* OR survey* OR test* OR construct* OR evaluat* OR analys* OR assess* AND (valid* OR reliab* OR psychometric* OR accura* OR "sensitivity" OR "specificity" OR "ROC" OR "AUC") NOT ("substance abuse" OR "substance misuse" OR "alcohol abuse" OR "alcohol misuse" OR "drug abuse" OR "drug misuse")) and English or Spanish or German or French (Languages) and Articles or Proceedings Papers (Document Type) |
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For peer review only

BMJ Open

Systematic Review of child maltreatment screening tools used by different occupational groups - A Study Protocol

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| Primary Subject Heading: | Paediatrics |
| Secondary Subject Heading: | Public health |
| Keywords: | Systematic Review, Psychometrics, Child protection < PAEDIATRICS, PUBLIC HEALTH |
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Systematic Review of child maltreatment screening tools used by different occupational groups - A Study Protocol

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Keywords: systematic review, child maltreatment, child abuse, child neglect, instrument, screening, psychometric properties

Word count: 3440

Abstract

Background: Child maltreatment encompasses physical, emotional or sexual abuse, physical or emotional/psychological neglect, or intimate partner (or domestic) violence and is associated with adverse cognitive, behavioral, physical and social outcomes that often continue shaping adulthood. The early and valid detection of child maltreatment is essential to initiate treatment and intervention as well as to avoid that violence against the child continues. Various occupational groups such as health care providers, teachers, social workers, psychotherapists and others encounter maltreated children in their professional settings. Systematic reviews on instruments to assess suspected child maltreatment 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 PRISMA-compliant systematic review is to synthesize the evidence on psychometric properties of instruments to assess suspected child maltreatment at the presentation to a broad range of different occupational groups who work with children in- 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 child maltreatment in children and adolescents under 18 years by a professional proxy. After independent screening of studies by two reviewers, quality assessment and data extraction will be performed using an adaptation of the COSMIN Risk of Bias checklist, the STROBE 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 child maltreatment 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.

Systematic review registration: PROSPERO registration number: CRD42022297997

Funding: Funded by the Jürgen Manchot Stiftung, an institution subject to public law (grant number 701 800 897).

Strengths and Limitations:

- A broad range of occupational groups from various settings was included in our search strategy.
- Studies in four different languages were incorporated.
- Varying definitions of maltreatment and the diverse instruments used to assess suspected CM may impede the comparability of results.
- The use of a limited number of databases may have resulted in missing relevant studies.

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Background

The World Health Organization (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]. Increasingly, an additional form of exposure can be recognized, namely intimate partner violence (or domestic violence) during childhood [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 two and four 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, behavioral, 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 behavioral 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, an 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 health care 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 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, health-care 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, 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 professionalss [13, 15, 22] . Evidence on instruments that can be used by occupational groups other than health professionals (e.g. social workers, psychotherapists, psychological expert witnesses or professionals in Child Protection Systems) working with potentially maltreated children in multiple settings (e.g. youth services, out-of-hours primary care locations, family counselling services etc.) 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] 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:

1. Which (screening) instruments exist for different occupational groups to identify suspected child maltreatment (at least on 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-P (Preferred Reporting Items for

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3 132 Systematic Reviews and Meta-Analyses Protocols) guideline [24]. The checklist can be found
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5 133 in Appendix A. To provide a transparent documentation and illustration of the review process,
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7 134 we will include a PRISMA Chart [23].The protocol has been registered at the International
8
9 135 Prospective Register of Systematic Reviews in January 2022 (PROSPERO, registration number:
10
11 136 CRD42022297997).

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13 137 **Search Strategy**

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16 138 The following databases were searched with no limit on the earliest publication until January
17
18 139 19th, 2022: Scopus, Web of Science, PsycInfo (via Ovid) and MEDLINE (via Ovid). Journal
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20 140 articles, in press articles and conference papers were searched in English, German, French and
21
22 141 Spanish. Reviews and meta-analyses on similar topics aroundthe measurement of child
23
24 142 maltreatment are used to develop the search terms [13-15]. We will select terms based on
25
26 143 the population (e.g., children, adolescents), exposure (e.g., maltreatment, abuse, and
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28 144 neglect), instruments (e.g., instrument, score, scale) and psychometric properties (e.g.,
29
30 145 reliability, validity). The initial search strategy was tested on Scopus and adapted for use in
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32 146 other databases after it had been finalized. The search strategy for each database can be
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34 147 found in Appendix B. Reference lists of included papers and reviews on similar topics will also
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36 148 be searched to identify any additional relevant papers.
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39 150 **Eligibility criteria**

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41 151 **Population**

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43 152 The study population will include instruments used by a broad range of occupational groups
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45 153 to assess suspected CM in children and adolescents 18 years or younger in various settings.

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47 154 **Exposure**

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49 155 Studies should include instruments that assess at least one or multiple types of child
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51 156 maltreatment (CM). CM encompasses the following [1, 2, 25]: Physical, emotional or sexual
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53 157 abuse, physical or emotional/psychological neglect, or intimate partner (or domestic) violence
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55 158 in childhood before the age of 18 years. Other childhood experiences that can be considered
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57 159 as adversities or trauma rather than CM [25] will be excluded. Physical abuse is defined as the
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59 160 use of intentional force against a child resulting in harm to the child’s health, development or
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161 161 survival. Sexual abuse involves a child in sexual activity that she or he does not fully

comprehend. Emotional abuse involves 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 [27].

Outcome

The study should report on testing at least one psychometric property listed by the COSMIN (COnsensus-based Standards for the selection of health Measurement Instruments) checklist [28] 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 operationalization (e.g. Crohnbach's alpha, Receiver Operator Characteristic Curve (ROC), Cohen's Kappa, 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.

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Exclusion Criteria

Studies on individuals older than 18 years, single case studies, case series, and studies on the prevention of child maltreatment 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 child maltreatment 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 [29]. 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 do 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 and abstract or the full text will be excluded. Inconsistencies between the two reviewers will be resolved through discussion or in 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 (i.e. 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 a 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 the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology: Explanation and Elaboration) report [30] and the COSMIN Risk of Bias Checklist [28] 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 % 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: 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, 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 [28, 31] and Downs and Black [32] 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; 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 for 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 [31] since subtle differences in quality cannot be differentiated. A revised scoring system expressed as a percentage will be applied as suggested by others [33, 34]: 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 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 quality of the included studies such as clear aim, measurement psychometric properties, report of results. A third table will present information on the identified instruments, the number of studies that contain information on psychometric criteria, information on the psychometric properties of the instruments and whether it is available in 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 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 [35]. Results will be analyzed using forest plots. Results from different study designs will not be pooled together (e.g., 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 analyze data separately. Statistical heterogeneity will be assessed by, e.g. by calculating I^2 or Cochran's Q-Test [36] . Publication bias will be assessed using a funnel plot for each outcome by plotting the standardized psychometric indicator against study size. To statistically test for publication bias, we plan to use e.g the Egger regression test [37] and the

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trim and fill method [38], to assess the significance of potential publication bias as well as to adjust for it [39].

Patient and public involvement

Neither patients nor children, adolescents or parents could be involved because of the risk of traumatization or retraumatization. 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 beside our own experience in different fields.

Discussion

Prior research [17, 40] has highlighted the importance of valid measurement of suspected CM to improve early detection. The studies that will be summarized in this review might indicate that multiple occupational groups such as health care providers, teachers, social workers, psychotherapists, psychological experts in various settings (e.g. youth services, out-of-hours primary care locations, family counselling services etc.) may encounter child maltreatment (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 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

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3 311 validation and cultural adaptation of instruments in German-speaking countries and thus
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5 312 increase their availability for the German child protection system.
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10 313 *Strengths and limitations*

11 314 The varying definitions of maltreatment and types of instruments used to assess suspected
12 315 CM might make results difficult to compare, despite of the consistent definition that we used
13 316 throughout our project [25]. A strength of our review is that we will be able to increase the
14 317 number of languages searched in to four (English, German, Spanish, French). However, due to
15 318 resource issues, we will only search for articles in four databases, potentially missing out on
16 319 studies published in data bases not covered by this review.
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22 320 **Conclusions**

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25 321 By its broad approach, this review will present the international evidence on the validity
26 322 and psychometric results of existing screening tools to assess suspected CM across various
27 323 occupational groups and in multiple settings. By evaluating and comparing the psychometric
28 324 properties and study quality, this review will increase the utilization of existing tools and
29 325 inspire the development of new tools, with the effect to increase the overall validity and
30 326 reliability of instruments in the field. By additionally inquiring the availability and validation of
31 327 these instruments in German-speaking countries, we may ease the utilization of existing tools
32 328 in German contexts.
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40 329 **Ethics and Dissemination**

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42 330 For this systematic review an ethical approval is not required because we will not be
43 331 collecting any personal, sensitive or confidential data. The results of this systematic review
44 332 will be disseminated by submission for publication in a peer-reviewed journal and
45 333 presentations at important conferences.
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50 334 **Contributors**

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52 335 DC, JS, BG and EM conceived the idea; DC planned and designed the study protocol, FDB
53 336 revised it and gave advice on methods and extraction plans; DC and JS will perform the
54 337 screening; DC, BG and LK will search eligible papers for additional articles; PR and LR will
55 338 conduct the quality assessment; DC, JS and LR will conduct the data extraction; DC performed
56 339 the initial writing up; all authors contributed to the manuscript and agreed on methods for
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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.

Competing interest

None

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Patient consent for publication

Not applicable.

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Search Strategy

Database Host: Ovid

Database: PsycINFO

Date: 2.2.2022

Results: 2676

Limits: English, German, French, Spanish Language; Publication Year: no limit, Document Type: article, conference proceedings

| Concept 1 | Concept 2 | Concept 3 | Concept 4 | Concept 5 |
|--|--|---|--|---|
| Population | Maltreatment | Psychometric Properties | Measurement | Entire Search Term |
| child* OR infan* OR adolescen* OR teen* OR youth* OR pediatri* OR paediatr* OR young* OR baby OR babies OR toddler* OR minor* OR girl* OR boy* | abus* OR maltreat* OR "ill-treatm*" OR "ill treatm*" OR neglect* OR "exposure to intimate partner violence" OR "exposure to domestic violence" OR mistreat* OR assault* OR molest* OR "forced sex" OR "coerced sex" OR "unwanted sex" OR "forced | valid* OR reliab* OR psychometric* OR accura* OR "sensitivity" OR "specificity" OR "ROC" OR "AUC" | instrument* OR scor* OR screen* OR scal* OR question* OR report* OR measur* OR inventor* OR interview* OR survey* OR test* OR construct* OR evaluat* OR analys* OR assess* | (((((child* or infan* or adolescen* or teen* or youth* or pediatri* or paediatr* or young* or baby or babies or toddler* or minor* or girl* or boy*) adj4 (abus* or maltreat* or "ill-treatm*" or "ill treatm*" or neglect* or "exposure to intimate partner violence" or "exposure to domestic violence" or mistreat* or assault* or molest* or "forced sex" or "coerced sex" or "unwanted sex" or "forced intercourse" or "unwanted intercourse" or "forced penetration" or "unwanted penetration" or rape* or "sexual violence" or "unwanted touching" or "forced touching" or "sexual harrassment" or "physical harm" or "corporal punishment" or "physical punishment")) and (instrument* or scor* or screen* or scal* or question* or report* or measur* or inventor* or interview* or survey* or test* or construct* or evaluat* or analys* or assess*) and (valid* or reliab* or psychometric* or accura* or "sensitivity" or "specificity" or "ROC" or "AUC")) not ("substance abuse" or "substance misuse" or "alcohol abuse" or "alcohol misuse" or "drug abuse" or "drug misuse")).ti. or (((child* or infan* or adolescen* or teen* or youth* or pediatri* or paediatr* or young* or baby or babies or toddler* or minor* or girl* or boy*) adj4 |

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| | intercourse" OR "unwanted intercourse" OR "forced penetration" OR "unwanted penetration" OR rape OR "sexual violence" OR "unwanted touching" OR "forced touching" OR "sexual harrassment" OR "physical harm" OR "corporal punishment" OR "physical punishment" | | | (abus* or maltreat* or ill-treatm*" or "ill treatm*" or neglect* or "exposure to intimate partner violence" or "exposure to domestic violence" or mistreat* or assault* or molest* or "forced sex" or "coerced sex" or "unwanted sex" or "forced intercourse" or "unwanted intercourse" or "forced penetration" or "unwanted penetration" or rape or "sexual violence" or "unwanted touching" or "forced touching" or "sexual harrassment" or "physical harm" or "corporal punishment" or "physical punishment")) and (instrument* or scor* or screen* or scal* or question* or report* or measur* or inventor* or intervew* or survey* or test* or construct* or evaluat* or analys* or assess* and (valid* or reliab* or psychometric* or accura* or "sensitivity" or "specificity" or "ROC" or "AUC")) not ("substance abuse" or substance misuse" or "alcohol abuse" or "alcohol misuse" or "drug abuse" or "drug misuse")).ab. or (((child* or infan* or adolescen* or teen* or youth* or pediatr* or paediatr* or young* or baby or babies or toddler* or minor* or girl* or boy*) adj4 (abus* or maltreat* or ill-treatm*" or "ill treatm*" or neglect* or "exposure to intimate partner violence" or "exposure to domestic violence" or mistreat* or assault* or molest* or "forced sex" or "coerced sex" or "unwanted sex" or "forced intercourse" or "unwanted intercourse" or "forced penetration" or "unwanted penetration" or rape or "sexual violence" or "unwanted touching" or "forced touching" or "sexual harrassment" or "physical harm" or "corporal punishment" or "physical punishment")) and (instrument* or scor* or screen* or scal* or question* or report* or measur* or inventor* or intervew* or survey* or test* or construct* or evaluat* or analys* or assess* and (valid* or reliab* or psychometric* or accura* or "sensitivity" or "specificity" or "ROC" or "AUC")) not ("substance abuse" or substance misuse" or "alcohol abuse" or "alcohol misuse" or "drug abuse" or "drug misuse")).id. |
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Database Host: Ovid

Database: Medline

Date: 2.2.2022

Results: 2661

Limits: English, German, French, Spanish Language; Publication Year: no limit, Document Type: article, conference proceedings

| Concept 1 | Concept 2 | Concept 3 | Concept 4 | Concept 5 |
|--|---|--|--|---|
| Population | Maltreatment | Psychometric Properties | Measurement | Entire Search Text |
| child* OR infan* OR adolescen* OR teen* OR youth* OR pediater* OR paediatr* OR young* OR baby OR babies OR toddler* OR minor* OR girl* OR boy* | abus* OR maltreat* OR "ill-treatm*" OR "ill treatm*" OR neglect* OR "exposure to intimate partner violence" OR "exposure to domestic violence" OR mistreat* OR assault* OR molest* OR "forced sex" OR "coerced sex" OR "unwanted sex" OR "forced intercourse" OR "unwanted | valid* OR reliab* OR psychometric* OR accura* OR "sensitivity" OR "specificity" OR "ROC" OR "AUC" | instrument* OR scor* OR screen* OR scal* OR question* OR report* OR measur* OR inventor* OR interview* OR survey* OR test* OR construct* OR evaluat* OR analys* OR assess* | (((((child* or infan* or adolescen* or teen* or youth* or pediater* or paediatr* or young* or baby or babies or toddler* or minor* or girl* or boy*) adj4 (abus* or maltreat* or "ill-treatm*" or "ill treatm*" or neglect* or "exposure to intimate partner violence" or "exposure to domestic violence" or "maltreat* or assault* or molest* or "forced sex" or "coerced sex" or "unwanted sex" or "forced intercourse" or "unwanted intercourse" or "forced penetration" or "unwanted penetration" or rape* or "sexual violence" or "unwanted touching" or "forced touching" or "sexual harrassment" or "physical harm" or "corporal punishment" or "physical punishment")) and (instrument* or scor* or screen* or scal* or question* or report* or measur* or inventor* or interview* or survey* or test* or construct* or evaluat* or analys* or assess*) and (valid* or reliab* or psychometric* or accura* or "sensitivity" or "specificity" or "ROC" or "AUC")) not ("substance abuse" or "substance misuse" or "alcohol abuse" or "alcohol misuse" or "drug abuse" or "drug misuse")).ti. or (((child* or infan* or adolescen* or teen* or youth* or pediater* or paediatr* or young* or baby or babies or toddler* or minor* or girl* or boy*) adj4 (abus* or maltreat* or "ill-treatm*" or "ill treatm*" or neglect* or "exposure to intimate partner violence" or "exposure to domestic |

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| | intercourse" OR "forced penetration" OR "unwanted penetration" OR rape OR "sexual violence" OR "unwanted touching" OR "forced touching" OR "sexual harrassment" OR "physical harm" OR "corporal punishment" OR "physical punishment" | | | violence" or mistreat* or assault* or molest* or "forced sex" or "coerced sex" or "unwanted sex" or "forced intercourse" or "unwanted intercourse" or "forced penetration" or "unwanted penetration" or rape or "sexual violence" or "unwanted touching" or "forced touching" or "sexual harrassment" or "physical harm" or "corporal punishment" or "physical punishment")) and (instrument* or scor* or screen* or qual* or question* or report* or measur* or inventor* or interview* or survey* or test* or construct* or evaluat* or analys* or assess* and (valid* or reliab* or psychometric* or accura* or "sensitivity" or "specificity" or "ROC" or "AUC")) not ("substance abuse" or "substance misuse" or "alcohol abuse" or "alcohol misuse" or "drug abuse" or "drug misuse")).ab. or (((child* or infan* or adoles* or teen* or youth* or pediatr* or paediatr* or young* or baby or babies or toddler* or minor* or girl* or boy*) adj4 (abus* or maltreat* or "ill-treatm*" or "ill treatm*" or neglect* or "exposure to intimate partner violence" or "exposure to domestic violence" or mistreat* or assault* or molest* or "forced sex" or "coerced sex" or "unwanted sex" or "forced intercourse" or "unwanted intercourse" or "forced penetration" or "unwanted penetration" or rape or "sexual violence" or "unwanted touching" or "forced touching" or "sexual harrassment" or "physical harm" or "corporal punishment" or "physical punishment")) and (instrument* or scor* or screen* or qual* or question* or report* or measur* or inventor* or interview* or survey* or test* or construct* or evaluat* or analys* or assess* and (valid* or reliab* or psychometric* or accura* or "sensitivity" or "specificity" or "ROC" or "AUC")) not ("substance abuse" or "substance misuse" or "alcohol abuse" or "alcohol misuse" or "drug abuse" or "drug misuse")).kw. |
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Database: Scopus

Date: 2.2.2022

Results: 5523

Limits: English, German, French, Spanish Language; Publication Year: no limit, Document Type: article, conference proceedings

| Concept 1 | Concept 2 | Concept 3 | Concept 4 | Concept 5 |
|--|--|---|--|--|
| Population | Maltreatment | Psychometric Properties | Measurement | Entire Search Text |
| child* OR infan* OR adolescen* OR teen* OR youth* OR pediater* OR paediatr* OR young* OR baby OR babies OR toddler* OR minor* OR girl* OR boy* | abus* OR maltreat* OR "ill-treatm*" OR "ill treatm*" OR neglect* OR "exposure to intimate partner violence" OR "exposure to domestic violence" OR mistreat* OR assault* OR molest* OR "forced sex" OR "coerced sex" OR "unwanted sex" OR "forced intercourse" OR "unwanted intercourse" OR "forced | valid* OR reliab* OR psychometric* OR accura* OR "sensitivity" OR "specificity" OR "ROC" OR "AUC" | instrument* OR scor* OR screen* OR scal* OR question* OR report* OR measur* OR inventor* OR interview* OR survey* OR test* OR construct* OR evaluat* OR analys* OR assess* | TITLE-ABS-KEY (((child* OR infan* OR adolescen* OR teen* OR youth* OR pediater* OR paediatr* OR young* OR baby OR babies OR toddler* OR minor* OR girl* OR boy*) W/4 (abus* OR maltreat* OR "ill-treatm*" OR "ill treatm*" OR neglect* OR "exposure to intimate partner violence" OR "exposure to domestic violence" OR mistreat* OR assault* OR molest* OR "forced sex" OR "coerced sex" OR "unwanted sex" OR "forced intercourse" OR "unwanted intercourse" OR "forced penetration" OR "unwanted penetration" OR rape* OR "sexual violence" OR "unwanted touching" OR "forced touching" OR "sexual harrassment" OR "physical harm" OR "corporal punishment" OR "physical punishment")) AND (instrument* OR scor* OR screen* OR scal* OR question* OR report* OR measur* OR inventor* OR interview* OR survey* OR test* OR construct* OR evaluat* OR analys* OR assess*) AND (valid* OR reliab* OR psychometric* OR accura* OR "sensitivity" OR "specificity" OR "ROC" OR "AUC") AND NOT ("substance abuse" OR "substance misuse" OR "alcohol abuse" OR "alcohol misuse" OR "drug abuse" OR "drug misuse")) AND (LIMIT-TO (LANGUAGE , "English") OR LIMIT-TO (LANGUAGE , "German") OR LIMIT-TO (LANGUAGE , "French") OR LIMIT-TO (LANGUAGE , "Spanish")) AND (LIMIT-TO (DOCTYPE , "ar") OR LIMIT-TO (DOCTYPE , "cp")) |

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| | penetration" OR "unwanted penetration" OR rape OR "sexual violence" OR "unwanted touching" OR "forced touching" OR "sexual harrassment" OR "physical harm" OR "corporal punishment" OR "physical punishment" | | | | |
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Database: Web of Science

Date: 2.2.2022

Results: 2939

Limits: English, German, French, Spanish Language; Publication Year: no limit, Document Type: article, conference proceedings

| Concept 1 | Concept 2 | Concept 3 | Concept 4 | Concept 5 |
|--|--|---|--|---|
| Population | Maltreatment | Psychometric Properties | Measurement | Entire Search Term |
| child* OR infan* OR adolescen* OR teen* OR youth* OR pediater* OR paediatr* OR young* OR baby OR babies OR toddler* OR minor* OR girl* OR boy* | abus* OR maltreat* OR "ill-treatm*" OR "ill treatm*" OR neglect* OR "exposure to intimate partner violence" OR "exposure to domestic violence" OR mistreat* OR assault* OR molest* OR "forced sex" OR "coerced sex" OR "unwanted sex" OR "forced intercourse" OR "unwanted intercourse" OR "forced | valid* OR reliab* OR psychometric* OR accura* OR "sensitivity" OR "specificity" OR "ROC" OR "AUC" | instrument* OR scor* OR screen* OR scal* OR question* OR report* OR measur* OR inventor* OR interview* OR survey* OR test* OR construct* OR evaluat* OR analys* OR assess* | ((TI=(((child* OR infan* OR adolescen* OR teen* OR youth* OR pediater* OR paediatr* OR young* OR baby OR babies OR toddler* OR minor* OR girl* OR boy*) NEAR/4 (abus* OR maltreat* OR "ill-treatm*" OR "ill treatm*" OR neglect* OR "exposure to intimate partner violence" OR "exposure to domestic violence" OR mistreat* OR assault* OR molest* OR "forced sex" OR "coerced sex" OR "unwanted sex" OR "forced intercourse" OR "unwanted intercourse" OR "forced penetration" OR "unwanted penetration" OR rape OR "sexual violence" OR "unwanted touching" OR "forced touching" OR "sexual harrassment" OR "physical harm" OR "corporal punishment" OR "physical punishment")) AND (instrument* OR scor* OR screen* OR scal* OR question* OR report* OR measur* OR inventor* OR interview* OR survey* OR test* OR construct* OR evaluat* OR analys* OR assess* AND (valid* OR reliab* OR psychometric* OR accura* OR "sensitivity" OR "specificity" OR "ROC" OR "AUC") NOT ("substance abuse" OR "substance misuse" OR "alcohol abuse" OR "alcohol misuse" OR "drug abuse" OR "drug misuse")))) OR AB=(((child* OR infan* OR adolescen* OR teen* OR youth* OR pediater* OR paediatr* OR young* OR baby OR babies OR toddler* OR minor* OR girl* OR boy*) NEAR/4 (abus* OR maltreat* OR "ill-treatm*" OR "ill treatm*" OR neglect* OR "exposure to intimate partner violence" OR "exposure to domestic violence" OR mistreat* |

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|--|--|--|--|---|
| | penetration" OR "unwanted penetration" OR rape OR "sexual violence" OR "unwanted touching" OR "forced touching" OR "sexual harrassment" OR "physical harm" OR "corporal punishment" OR "physical punishment" | | | OR assault* OR molest* OR "forced sex" OR "coerced sex" OR "unwanted sex" OR "forced intercourse" OR "unwanted intercourse" OR "forced penetration" OR "unwanted penetration" OR rape OR "sexual violence" OR "unwanted touching" OR "forced touching" OR "sexual harrassment" OR "physical harm" OR "corporal punishment" OR "physical punishment")) AND (instrument* OR scor* OR screen* OR scal* OR question* OR report* OR measur* OR inventor* OR interview* OR survey* OR test* OR construct* OR evaluat* OR analys* OR assess* AND (valid* OR reliab* OR psychometric* OR accura* OR "sensitivity" OR "specificity" OR "ROC" OR "AUC") NOT ("substance abuse" OR substance misuse" OR "alcohol abuse" OR "alcohol misuse" OR "drug abuse" OR "drug misuse")) OR AK=(((child* OR infant* OR adolescen* OR teen* OR youth* OR pediatr* OR paediatr* OR young* OR baby OR babies OR toddler* OR minor* OR girl* OR boy*) NEAR/4 (abus* OR maltreat* OR "ill- treatm*" OR "ill treatm*" OR neglect* OR "exposure to intimate partner violence" OR "exposure to domestic violence" OR mistreat* OR assault* OR molest* OR "forced sex" OR "coerced sex" OR "unwanted sex" OR "forced intercourse" OR "unwanted intercourse" OR "forced penetration" OR "unwanted penetration" OR rape OR "sexual violence" OR "unwanted touching" OR "forced touching" OR "sexual harrassment" OR "physical harm" OR "corporal punishment" OR "physical punishment")) AND (instrument* OR scor* OR screen* OR scal* OR question* OR report* OR measur* OR inventor* OR interview* OR survey* OR test* OR construct* OR evaluat* OR analys* OR assess* AND (valid* OR reliab* OR psychometric* OR accura* OR "sensitivity" OR "specificity" OR "ROC" OR "AUC") NOT ("substance abuse" OR substance misuse" OR "alcohol abuse" OR "alcohol misuse" OR "drug abuse" OR "drug misuse")) and English or Spanish or German or French (Languages) and Articles or Proceedings Papers (Document Type) |
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For peer review only

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Systematic Review of child maltreatment screening tools used by different occupational groups - A Study Protocol

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Systematic Review of child maltreatment screening tools used by different occupational groups - A Study Protocol

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Keywords: systematic review, child maltreatment, child abuse, child neglect, instrument, screening, psychometric properties

Word count: 3632

Abstract

Background: Child maltreatment encompasses physical, emotional or sexual abuse, physical or emotional/psychological neglect, or intimate partner (or domestic) violence and is associated with adverse cognitive, behavioral, physical and social outcomes that often continue shaping adulthood. The early and valid detection of child maltreatment is essential to initiate treatment and intervention as well as to avoid that violence against the child continues. Various occupational groups such as health care providers, teachers, social workers, psychotherapists and others encounter maltreated children in their professional settings. Systematic reviews on instruments to assess suspected child maltreatment 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 PRISMA-compliant systematic review is to synthesize the evidence on psychometric properties of instruments to assess suspected child maltreatment at the presentation to a broad range of different occupational groups who work with children in- 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 child maltreatment in children and adolescents under 18 years by a professional proxy. After independent screening of studies by two reviewers, quality assessment and data extraction will be performed using an adaptation of the COSMIN Risk of Bias checklist, the STROBE 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 child maltreatment 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.

Systematic review registration: PROSPERO registration number: CRD42022297997

Funding: Funded by the Jürgen Manchot Stiftung, an institution subject to public law (grant number 701 800 897).

Strengths and Limitations:

- 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 CM may impede the comparability of results.
- The use of a limited number of databases may have resulted in missing relevant studies.

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Background

The World Health Organization (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 recognized 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 two and four 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, behavioral, 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 behavioral 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, an 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 health care 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 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, health-care 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, 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 (e.g. social workers, psychotherapists, psychological expert witnesses or professionals in child protection systems) working with potentially maltreated children in multiple settings (e.g. youth services, out-of-hours primary care locations, family counselling services etc.) 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] 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:

1. Which (screening) instruments exist for different occupational groups to identify suspected child maltreatment (at least on 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-P (Preferred Reporting Items for

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3 133 Systematic Reviews and Meta-Analyses Protocols) guideline [24]. The checklist can be found
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5 134 in Appendix A. To provide a transparent documentation and illustration of the review process,
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7 135 we will include a PRISMA Chart [23].The protocol has been registered at the International
8
9 136 Prospective Register of Systematic Reviews in January 2022 (PROSPERO, registration number:
10
11 137 CRD42022297997).

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13 138 **Search Strategy**

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16 139 The following databases were searched with no limit on the earliest publication until January
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18 140 19th, 2022: Scopus, Web of Science, PsycInfo (via Ovid) and MEDLINE (via Ovid). Journal
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20 141 articles, in press articles and conference papers were searched in English, German, French and
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22 142 Spanish. Reviews and meta-analyses on similar topics around the measurement of child
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24 143 maltreatment are used to develop the search terms [13-15]. We will select terms based on
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26 144 the population (e.g., children, adolescents), exposure (e.g., maltreatment, abuse, and
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28 145 neglect), instruments (e.g., instrument, score, scale) and psychometric properties (e.g.,
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30 146 reliability, validity). The initial search strategy was tested on Scopus and adapted for use in
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32 147 other databases after it had been finalized. The search strategy for each database can be
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34 148 found in Appendix B. Reference lists of included papers and reviews on similar topics will also
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36 149 be searched to identify any additional relevant papers.
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39 151 **Eligibility criteria**

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41 152 **Population**

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43 153 The study population will include instruments used by a broad range of occupational groups
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45 154 to assess suspected CM in children and adolescents 18 years or younger in various settings.

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47 155 **Exposure**

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49 156 Studies should include instruments that assess at least one or multiple types of child
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51 157 maltreatment (CM). CM encompasses the following [1, 2, 25]: Physical, emotional or sexual
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53 158 abuse, physical or emotional/psychological neglect, or intimate partner (or domestic) violence
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55 159 in childhood before the age of 18 years. Other childhood experiences that can be considered
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57 160 as adversities or trauma rather than CM [25] will be excluded. Physical abuse is defined as the
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59 161 use of intentional force against a child resulting in harm to the child’s health, development or
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162 survival. Sexual abuse involves a child in sexual activity that she or he does not fully

comprehend. Emotional abuse involves 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 [27].

Outcome

The study should report on testing at least one psychometric property listed by the COSMIN (COnsensus-based Standards for the selection of health Measurement INstruments) checklist [28] 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 operationalization (e.g. Crohnbach's alpha, Receiver Operator Characteristic Curve (ROC), Cohen's Kappa, 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.

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Exclusion Criteria

Studies on individuals older than 18 years, single case studies, case series, and studies on the prevention of child maltreatment 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 child maltreatment 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 [29]. 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 do 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 and abstract or the full text will be excluded. Inconsistencies between the two reviewers will be resolved through discussion or in 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 (i.e. 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 a 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 the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology: Explanation and Elaboration) report [30] and the COSMIN Risk of Bias Checklist [28] 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 % 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, 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 [28, 31] and Downs and Black [32] 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; 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 for 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 [31] since subtle differences in quality cannot be differentiated. A revised scoring system expressed as a percentage will be applied as suggested by others [33, 34]: 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, information on the psychometric properties of the instruments and whether it is available in 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 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 [35]. Results will be analyzed using forest plots. Results from different study designs will not be pooled together (e.g., 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 analyze data separately. Statistical heterogeneity will be assessed by, e.g. by calculating I^2 or Cochran's Q-Test [36]. Publication bias will be assessed using a funnel plot for each outcome by plotting the standardized psychometric indicator against study size. To statistically test for publication bias, we plan to use e.g the Egger regression test [37] and the trim and fill method [38],to assess the significance of potential publication bias as well as to adjust for it [39].

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283 Patient and public involvement

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

290 Discussion

291 Prior research [17, 40] has highlighted the importance of valid measurement of suspected
292 CM to improve early detection. The studies that will be summarized in this review might
293 indicate that multiple occupational groups such as health care providers, teachers, social
294 workers, psychotherapists, psychological experts in various settings (e.g. youth services, out-
295 of-hours primary care locations, family counselling services etc.) may encounter child
296 maltreatment (CM) and have a need for validated instruments.

297 Systematic reviews hitherto have investigated psychometric properties of instruments
298 designed to assess different forms of CM, however focusing on caregiver or child's self-report
299 [20], the potential use of results of medical examinations and medical records [13, 15, 22], or
300 retrospective measurements of suspected CM and instruments primarily used in research [13-
301 15]. To the best of our knowledge, this is the first systematic review that will explore
302 psychometric properties of instruments to assess suspected CM that can be used by different
303 occupational groups in different settings of routine practice.

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

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3 313 *Strengths and limitations*
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6 314 The varying definitions of maltreatment and types of instruments used to assess suspected
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8 315 CM might make results difficult to compare, despite of the consistent definition that we used
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10 316 throughout our project [25]. A strength of our review is that we will be able to increase the
11
12 317 number of languages searched in to four (English, German, Spanish, French). However, due to
13
14 318 resource issues, we will only search for articles in four databases, potentially missing out on
15
16 319 studies published in data bases not covered by this review.
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18 320 **Conclusions**
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21 321 By its broad approach, this review will present the international evidence on the validity
22
23 322 and psychometric results of existing screening tools to assess suspected CM across various
24
25 323 occupational groups and in multiple settings. By evaluating and comparing the psychometric
26
27 324 properties and study quality, this review will increase the utilization of existing tools and
28
29 325 inspire the development of new tools, with the effect to increase the overall validity and
30
31 326 reliability of instruments in the field. By additionally inquiring the availability and validation of
32
33 327 these instruments in German-speaking countries, we may ease the utilization of existing tools
34
35 328 in German contexts.

36 329 **Ethics and Dissemination**
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38 330 For this systematic review an ethical approval is not required because we will not be
39
40 331 collecting any personal, sensitive or confidential data. The results of this systematic review
41
42 332 will be disseminated by submission for publication in a peer-reviewed journal and
43
44 333 presentations at important conferences.
45

46 334 **Contributors**
47

48 335 DC, JS, BG and EM conceived the idea; DC planned and designed the study protocol, FDB
49
50 336 revised it and gave advice on methods and extraction plans; DC and JS will perform the
51
52 337 screening; DC, BG and LK will search eligible papers for additional articles; PR and LR will
53
54 338 conduct the quality assessment; DC, JS and LR will conduct the data extraction; DC performed
55
56 339 the initial writing up; all authors contributed to the manuscript and agreed on methods for
57
58 340 the study selection, extraction, synthesis and the final written manuscript of the protocol; all
59
60 341 authors have read and approved the final manuscript, FDB will be the guarantor of the review.

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342 **Competing interest**

343 None

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347 **Patient consent for publication**

348 Not applicable.

For peer review only

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Search Strategy

Database Host: Ovid

Database: PsycINFO

Date: 2.2.2022

Results: 2676

Limits: English, German, French, Spanish Language; Publication Year: no limit, Document Type: article, conference proceedings

| Concept 1 | Concept 2 | Concept 3 | Concept 4 | Concept 5 |
|--|--|---|--|---|
| Population | Maltreatment | Psychometric Properties | Measurement | Entire Search Term |
| child* OR infan* OR adolescen* OR teen* OR youth* OR pediatri* OR paediatr* OR young* OR baby OR babies OR toddler* OR minor* OR girl* OR boy* | abus* OR maltreat* OR "ill-treatm*" OR "ill treatm*" OR neglect* OR "exposure to intimate partner violence" OR "exposure to domestic violence" OR mistreat* OR assault* OR molest* OR "forced sex" OR "coerced sex" OR "unwanted sex" OR "forced | valid* OR reliab* OR psychometric* OR accura* OR "sensitivity" OR "specificity" OR "ROC" OR "AUC" | instrument* OR scor* OR screen* OR scal* OR question* OR report* OR measur* OR inventor* OR interview* OR survey* OR test* OR construct* OR evaluat* OR analys* OR assess* | (((((child* or infan* or adolescen* or teen* or youth* or pediatri* or paediatr* or young* or baby or babies or toddler* or minor* or girl* or boy*) adj4 (abus* or maltreat* or "ill-treatm*" or "ill treatm*" or neglect* or "exposure to intimate partner violence" or "exposure to domestic violence" or mistreat* or assault* or molest* or "forced sex" or "coerced sex" or "unwanted sex" or "forced intercourse" or "unwanted intercourse" or "forced penetration" or "unwanted penetration" or rape* or "sexual violence" or "unwanted touching" or "forced touching" or "sexual harrassment" or "physical harm" or "corporal punishment" or "physical punishment")) and (instrument* or scor* or screen* or scal* or question* or report* or measur* or inventor* or interview* or survey* or test* or construct* or evaluat* or analys* or assess*) and (valid* or reliab* or psychometric* or accura* or "sensitivity" or "specificity" or "ROC" or "AUC")) not ("substance abuse" or "substance misuse" or "alcohol abuse" or "alcohol misuse" or "drug abuse" or "drug misuse")).ti. or (((child* or infan* or adolescen* or teen* or youth* or pediatri* or paediatr* or young* or baby or babies or toddler* or minor* or girl* or boy*) adj4 |

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| | intercourse" OR "unwanted intercourse" OR "forced penetration" OR "unwanted penetration" OR rape OR "sexual violence" OR "unwanted touching" OR "forced touching" OR "sexual harrassment" OR "physical harm" OR "corporal punishment" OR "physical punishment" | | | (abus* or maltreat* or ill-treatm*" or "ill treatm*" or neglect* or "exposure to intimate partner violence" or "exposure to domestic violence" or mistreat* or assault* or molest* or "forced sex" or "coerced sex" or "unwanted sex" or "forced intercourse" or "unwanted intercourse" or "forced penetration" or "unwanted penetration" or rape or "sexual violence" or "unwanted touching" or "forced touching" or "sexual harrassment" or "physical harm" or "corporal punishment" or "physical punishment")) and (instrument* or scor* or screen* or scal* or question* or report* or measur* or inventor* or intervew* or survey* or test* or construct* or evaluat* or analys* or assess* and (valid* or reliab* or psychometric* or accura* or "sensitivity" or "specificity" or "ROC" or "AUC")) not ("substance abuse" or substance misuse" or "alcohol abuse" or "alcohol misuse" or "drug abuse" or "drug misuse")).ab. or (((child* or infan* or adolescen* or teen* or youth* or pediatr* or paediatr* or young* or baby or babies or toddler* or minor* or girl* or boy*) adj4 (abus* or maltreat* or ill-treatm*" or "ill treatm*" or neglect* or "exposure to intimate partner violence" or "exposure to domestic violence" or mistreat* or assault* or molest* or "forced sex" or "coerced sex" or "unwanted sex" or "forced intercourse" or "unwanted intercourse" or "forced penetration" or "unwanted penetration" or rape or "sexual violence" or "unwanted touching" or "forced touching" or "sexual harrassment" or "physical harm" or "corporal punishment" or "physical punishment")) and (instrument* or scor* or screen* or scal* or question* or report* or measur* or inventor* or intervew* or survey* or test* or construct* or evaluat* or analys* or assess* and (valid* or reliab* or psychometric* or accura* or "sensitivity" or "specificity" or "ROC" or "AUC")) not ("substance abuse" or substance misuse" or "alcohol abuse" or "alcohol misuse" or "drug abuse" or "drug misuse")).id. |
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Database Host: Ovid

Database: Medline

Date: 2.2.2022

Results: 2661

Limits: English, German, French, Spanish Language; Publication Year: no limit, Document Type: article, conference proceedings

| Concept 1 | Concept 2 | Concept 3 | Concept 4 | Concept 5 |
|--|---|--|--|--|
| Population | Maltreatment | Psychometric Properties | Measurement | Entire Search Text |
| child* OR infan* OR adolescen* OR teen* OR youth* OR pediater* OR paediatr* OR young* OR baby OR babies OR toddler* OR minor* OR girl* OR boy* | abus* OR maltreat* OR "ill-treatm*" OR "ill treatm*" OR neglect* OR "exposure to intimate partner violence" OR "exposure to domestic violence" OR mistreat* OR assault* OR molest* OR "forced sex" OR "coerced sex" OR "unwanted sex" OR "forced intercourse" OR "unwanted | valid* OR reliab* OR psychometric* OR accura* OR "sensitivity" OR "specificity" OR "ROC" OR "AUC" | instrument* OR scor* OR screen* OR scal* OR question* OR report* OR measur* OR inventor* OR interview* OR survey* OR test* OR construct* OR evaluat* OR analys* OR assess* | (((((child* or infan* or adolescen* or teen* or youth* or pediater* or paediatr* or young* or baby or babies or toddler* or minor* or girl* or boy*) adj4 (abus* or maltreat* or "ill-treatm*" or "ill treatm*" or neglect* or "exposure to intimate partner violence" or "exposure to domestic violence" or mistreat* or assault* or molest* or "forced sex" or "coerced sex" or "unwanted sex" or "forced intercourse" or "unwanted intercourse" or "forced penetration" or "unwanted penetration" or rape* or "sexual violence" or "unwanted touching" or "forced touching" or "sexual harrassment" or "physical harm" or "corporal punishment" or "physical punishment")) and (instrument* or scor* or screen* or scal* or question* or report* or measur* or inventor* or interview* or survey* or test* or construct* or evaluat* or analys* or assess*) and (valid* or reliab* or psychometric* or accura* or "sensitivity" or "specificity" or "ROC" or "AUC")) not ("substance abuse" or "substance misuse" or "alcohol abuse" or "alcohol misuse" or "drug abuse" or "drug misuse"))).ti. or (((child* or infan* or adolescen* or teen* or youth* or pediater* or paediatr* or young* or baby or babies or toddler* or minor* or girl* or boy*) adj4 (abus* or maltreat* or "ill-treatm*" or "ill treatm*" or neglect* or "exposure to intimate partner violence" or "exposure to domestic |

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| | intercourse" OR "forced penetration" OR "unwanted penetration" OR rape OR "sexual violence" OR "unwanted touching" OR "forced touching" OR "sexual harrassment" OR "physical harm" OR "corporal punishment" OR "physical punishment" | | | violence" or mistreat* or assault* or molest* or "forced sex" or "coerced sex" or "unwanted sex" or "forced intercourse" or "unwanted intercourse" or "forced penetration" or "unwanted penetration" or rape or "sexual violence" or "unwanted touching" or "forced touching" or "sexual harrassment" or "physical harm" or "corporal punishment" or "physical punishment")) and (instrument* or scor* or screen* or qual* or question* or report* or measur* or inventor* or intervew* or survey* or test* or construct* or evaluat* or analys* or assess* and (valid* or reliab* or psychometric* or accura* or "sensitivity" or "specificity" or "ROC" or "AUC")) not ("substance abuse" or "substance misuse" or "alcohol abuse" or "alcohol misuse" or "drug abuse" or "drug misuse")).ab. or (((child* or infan* or adoles* or teen* or youth* or pediatr* or paediatr* or young* or baby or babies or toddler* or minor* or girl* or boy*) adj4 (abus* or maltreat* or "ill-treatm*" or "ill treatm*" or neglect* or "exposure to intimate partner violence" or "exposure to domestic violence" or mistreat* or assault* or molest* or "forced sex" or "coerced sex" or "unwanted sex" or "forced intercourse" or "unwanted intercourse" or "forced penetration" or "unwanted penetration" or rape or "sexual violence" or "unwanted touching" or "forced touching" or "sexual harrassment" or "physical harm" or "corporal punishment" or "physical punishment")) and (instrument* or scor* or screen* or qual* or question* or report* or measur* or inventor* or intervew* or survey* or test* or construct* or evaluat* or analys* or assess* and (valid* or reliab* or psychometric* or accura* or "sensitivity" or "specificity" or "ROC" or "AUC")) not ("substance abuse" or "substance misuse" or "alcohol abuse" or "alcohol misuse" or "drug abuse" or "drug misuse")).kw. |
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Database: Scopus

Date: 2.2.2022

Results: 5523

Limits: English, German, French, Spanish Language; Publication Year: no limit, Document Type: article, conference proceedings

| Concept 1 | Concept 2 | Concept 3 | Concept 4 | Concept 5 |
|--|--|---|--|--|
| Population | Maltreatment | Psychometric Properties | Measurement | Entire Search Term |
| child* OR infan* OR adolescen* OR teen* OR youth* OR pediater* OR paediatr* OR young* OR baby OR babies OR toddler* OR minor* OR girl* OR boy* | abus* OR maltreat* OR "ill-treatm*" OR "ill treatm*" OR neglect* OR "exposure to intimate partner violence" OR "exposure to domestic violence" OR mistreat* OR assault* OR molest* OR "forced sex" OR "coerced sex" OR "unwanted sex" OR "forced intercourse" OR "unwanted intercourse" OR "forced | valid* OR reliab* OR psychometric* OR accura* OR "sensitivity" OR "specificity" OR "ROC" OR "AUC" | instrument* OR scor* OR screen* OR scal* OR question* OR report* OR measur* OR inventor* OR interview* OR survey* OR test* OR construct* OR evaluat* OR analys* OR assess* | TITLE-ABS-KEY (((child* OR infan* OR adolescen* OR teen* OR youth* OR pediater* OR paediatr* OR young* OR baby OR babies OR toddler* OR minor* OR girl* OR boy*) W/4 (abus* OR maltreat* OR "ill-treatm*" OR "ill treatm*" OR neglect* OR "exposure to intimate partner violence" OR "exposure to domestic violence" OR mistreat* OR assault* OR molest* OR "forced sex" OR "coerced sex" OR "unwanted sex" OR "forced intercourse" OR "unwanted intercourse" OR "forced penetration" OR "unwanted penetration" OR rape* OR "sexual violence" OR "unwanted touching" OR "forced touching" OR "sexual harrassment" OR "physical harm" OR "corporal punishment" OR "physical punishment")) AND (instrument* OR scor* OR screen* OR scal* OR question* OR report* OR measur* OR inventor* OR interview* OR survey* OR test* OR construct* OR evaluat* OR analys* OR assess*) AND (valid* OR reliab* OR psychometric* OR accura* OR "sensitivity" OR "specificity" OR "ROC" OR "AUC") AND NOT ("substance abuse" OR "substance misuse" OR "alcohol abuse" OR "alcohol misuse" OR "drug abuse" OR "drug misuse")) AND (LIMIT-TO (LANGUAGE , "English") OR LIMIT-TO (LANGUAGE , "German") OR LIMIT-TO (LANGUAGE , "French") OR LIMIT-TO (LANGUAGE , "Spanish")) AND (LIMIT-TO (DOCTYPE , "ar") OR LIMIT-TO (DOCTYPE , "cp")) |

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|--|--|--|--|--|--|
| | penetration" OR "unwanted penetration" OR rape OR "sexual violence" OR "unwanted touching" OR "forced touching" OR "sexual harrassment" OR "physical harm" OR "corporal punishment" OR "physical punishment" | | | | |
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Database: Web of Science

Date: 2.2.2022

Results: 2939

Limits: English, German, French, Spanish Language; Publication Year: no limit, Document Type: article, conference proceedings

| Concept 1 | Concept 2 | Concept 3 | Concept 4 | Concept 5 |
|--|--|---|--|---|
| Population | Maltreatment | Psychometric Properties | Measurement | Entire Search Term |
| child* OR infan* OR adolescen* OR teen* OR youth* OR pediater* OR paediatr* OR young* OR baby OR babies OR toddler* OR minor* OR girl* OR boy* | abus* OR maltreat* OR "ill-treatm*" OR "ill treatm*" OR neglect* OR "exposure to intimate partner violence" OR "exposure to domestic violence" OR mistreat* OR assault* OR molest* OR "forced sex" OR "coerced sex" OR "unwanted sex" OR "forced intercourse" OR "unwanted intercourse" OR "forced | valid* OR reliab* OR psychometric* OR accura* OR "sensitivity" OR "specificity" OR "ROC" OR "AUC" | instrument* OR scor* OR screen* OR scal* OR question* OR report* OR measur* OR inventor* OR interview* OR survey* OR test* OR construct* OR evaluat* OR analys* OR assess* | ((TI=(((child* OR infan* OR adolescen* OR teen* OR youth* OR pediater* OR paediatr* OR young* OR baby OR babies OR toddler* OR minor* OR girl* OR boy*) NEAR/4 (abus* OR maltreat* OR "ill-treatm*" OR "ill treatm*" OR neglect* OR "exposure to intimate partner violence" OR "exposure to domestic violence" OR mistreat* OR assault* OR molest* OR "forced sex" OR "coerced sex" OR "unwanted sex" OR "forced intercourse" OR "unwanted intercourse" OR "forced penetration" OR "unwanted penetration" OR rape OR "sexual violence" OR "unwanted touching" OR "forced touching" OR "sexual harrassment" OR "physical harm" OR "corporal punishment" OR "physical punishment")) AND (instrument* OR scor* OR screen* OR scal* OR question* OR report* OR measur* OR inventor* OR interview* OR survey* OR test* OR construct* OR evaluat* OR analys* OR assess* AND (valid* OR reliab* OR psychometric* OR accura* OR "sensitivity" OR "specificity" OR "ROC" OR "AUC") NOT ("substance abuse" OR "substance misuse" OR "alcohol abuse" OR "alcohol misuse" OR "drug abuse" OR "drug misuse")))) OR AB=(((child* OR infan* OR adolescen* OR teen* OR youth* OR pediater* OR paediatr* OR young* OR baby OR babies OR toddler* OR minor* OR girl* OR boy*) NEAR/4 (abus* OR maltreat* OR "ill-treatm*" OR "ill treatm*" OR neglect* OR "exposure to intimate partner violence" OR "exposure to domestic violence" OR mistreat* |

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| | penetration" OR "unwanted penetration" OR rape OR "sexual violence" OR "unwanted touching" OR "forced touching" OR "sexual harrassment" OR "physical harm" OR "corporal punishment" OR "physical punishment" | | | OR assault* OR molest* OR "forced sex" OR "coerced sex" OR "unwanted sex" OR "forced intercourse" OR "unwanted intercourse" OR "forced penetration" OR "unwanted penetration" OR rape OR "sexual violence" OR "unwanted touching" OR "forced touching" OR "sexual harrassment" OR "physical harm" OR "corporal punishment" OR "physical punishment")) AND (instrument* OR scor* OR screen* OR scal* OR question* OR report* OR measur* OR inventor* OR interview* OR survey* OR test* OR construct* OR evaluat* OR analys* OR assess* AND (valid* OR reliab* OR psychometric* OR accura* OR "sensitivity" OR "specificity" OR "ROC" OR "AUC") NOT ("substance abuse" OR "substance misuse" OR "alcohol abuse" OR "alcohol misuse" OR "drug abuse" OR "drug misuse")) OR AK=(((child* OR infant* OR adolescen* OR teen* OR youth* OR pediatr* OR paediatr* OR young* OR baby OR babies OR toddler* OR minor* OR girl* OR boy*) NEAR/4 (abus* OR maltreat* OR "ill- treatm*" OR "ill treatm*" OR neglect* OR "exposure to intimate partner violence" OR "exposure to domestic violence" OR mistreat* OR assault* OR molest* OR "forced sex" OR "coerced sex" OR "unwanted sex" OR "forced intercourse" OR "unwanted intercourse" OR "forced penetration" OR "unwanted penetration" OR rape OR "sexual violence" OR "unwanted touching" OR "forced touching" OR "sexual harrassment" OR "physical harm" OR "corporal punishment" OR "physical punishment")) AND (instrument* OR scor* OR screen* OR scal* OR question* OR report* OR measur* OR inventor* OR interview* OR survey* OR test* OR construct* OR evaluat* OR analys* OR assess* AND (valid* OR reliab* OR psychometric* OR accura* OR "sensitivity" OR "specificity" OR "ROC" OR "AUC") NOT ("substance abuse" OR "substance misuse" OR "alcohol abuse" OR "alcohol misuse" OR "drug abuse" OR "drug misuse")) and English or Spanish or German or French (Languages) and Articles or Proceedings Papers (Document Type) |
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