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The Effectiveness of Methods Designed to Identify Child Maltreatment in Social and Health Care: A Systematic Review

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Abstract

Child maltreatment, meaning the physical or psychological abuse or neglect of young people under 18 years of age, is a sensitive and complex issue, in terms of clinical practice and research. Child maltreatment is a matter of concern for child protective services and health services. Interventions designed to identify child maltreatment are often insufficient, and professionals require continuous training and coherent tools to identify cases of maltreatment.

The aim of this systematic review is to synthesize the best available evidence regarding the effectiveness of mechanisms or interventions of identifying child maltreatment in social and health care settings.

The search strategy aimed to find studies published from 2003 to 2017 for inclusion. The results are presented in a narrative form, in four themes:identifying physical abuse, use of screening tools, multiprofessional working practices and education concerning the identification.

Methods for examining, identifying, and evaluating physical injuries like rib fractures, abdominal injuries, and bruises were found. Screening tools have been developed for emergency care and risk assessment. Evidence of the need to develop multi-professional practice services, including policy and organizational development, was found. Educating staff concerning child maltreatment issues was found to be effective.

Measures for identifying rib fractures, bruises, and abdominal injuries have a strong evidence base. In addition, the evidence supporting various screening instruments and checklists is strong. Multi-professional collaboration and training in the improved identification of child maltreatment are very promising.However, none of these options provides a total, pivotal, or unambiguous mechanism to identify child maltreatment because it is a complex issue. There remains the need to integrate different mechanisms for increasing systematic identification.

Keywords: Child maltreatment; Child abuse; Physical; Psychological; Emotional; Neglect; Effective identification methods

Introduction

Health and social care professionals today have knowledge of child maltreatment, but formal identification of the phenomenon is complicated by its sensitive nature, a given job's time pressures, and the absence of uniform guidelines [1,2]. Interventions designed to identify child maltreatment may be further complicated by conceptions of family privacy, the fear of false allegations, and the client families' ensuing loss of trust in the services available [3]. The World Health Organization (WHO) recently introduced the INSPIRE Programme, which aims to prevent child maltreatment globally [4]. Guidelines for increasing identification and prevention of child maltreatment have also been developed for use by multiple professionals in many countries, such as in the United Kingdom (UK) [5] and Finland [6,7].

For reasons presented above and despite global and national guidelines aiming to help identify and prevent child maltreatment, it remains a sensitive and complex issue, in terms of clinical practice and research. Child maltreatment is a matter of concern for child protective services, health services, and other services that provide support to families with children. Social and health care professionals are often reluctant to identify maltreatment or report or intervene in suspected cases of child maltreatment although these professional see children every day. Gilbert et al [8] estimated that internationally, only 10% of child maltreatment cases are identified.

Child maltreatment can be defined as the physical or psychological abuse or neglect of young people under 18 years of age. It also includes witnessing violence between parents or other adults within the family. Physical abuse includes acts that cause a child physical pain or impair a child's physical functioning, either temporarily or permanently. This abuse can include bruises, burns, head injuries, fractures, internal injuries, and gashes. Abuse may even result in the death of a child. In such cases, it has often been found that the abuse had persisted for a long period before death. Psychological abuse may involve terrorizing

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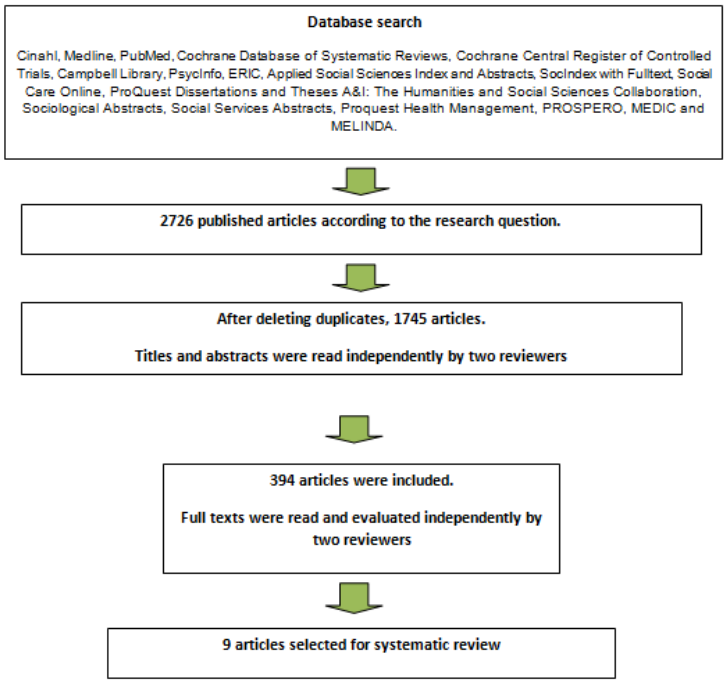

Figure 1: Data collection and selection procedure for systematic review.

or ridiculing a child, humiliating a child, belittling a child, or forms of psychological threat to the extent that the child's emotional well-being and development are placed at risk. Physical punishment and other types of physical abuse always include emotional abuse because they put the child in the position where he or she is not safe and his or her well-being is in danger. Child neglect involves the failure to provide appropriate care or protection and the failure to adequately provide for a child's physical and emotional needs. As a result, child neglect can impact a child's overall development. As with other forms of maltreatment, neglect can vary in type, severity, and duration [6].

Children subjected to violence do not usually seek help actively because they regard the behavior of their families as normal. Even if children are aware of the abnormality of the violence being perpetrated, they lack the means to seek help for the problem and are often faithful and loyal to their abusive family members. Help-seeking is further hindered by the secrecy and shame associated with maltreatment. Studies [9,10] have shown that interventions designed to identify child maltreatment are often insufficient and lack specificity and a systematic approach. Health and social welfare professionals require continuous training, attitude changes at the individual level, and coherent tools with which to identify cases of maltreatment and family violence in general [7,11]. Mechanisms and interventions designed to identify child maltreatment include the use of screening tools and questionnaires for children and families, training programs, observation, discussions with families, home visits, and physical and psychological examinations of children. Social welfare and health professionals, including nurses, physicians, and social workers, are in a very good position to identify child maltreatment because they meet with and examine children and families in settings, such as child welfare clinics, social service centers, or hospitals, where periodic and follow-up examinations take place and various injuries and symptoms of maltreatment are treated. Other professionals, such as teachers at day-care centers and schools, are also in a good position to identify symptoms of child maltreatment. These professionals see children in their everyday work and notice, eg, changes in behavior, including depression or restlessness that may result from child maltreatment.

Through a search of central databases, such as Cochrane, Campbell, and Prospero, we found one systematic review regarding this topic was performed in recent years [12], concentrating on accuracy in diagnosing child physical abuse. In that review, the focus was only on physical abuse and diagnosis of the signs. Research evidence from an effectiveness point of view, meaning how different mechanisms or tools help in identifying different forms of maltreatment, is scarcely available. For example, risk assessment scales [12-15] show potential for use in identifying a child's physical or emotional maltreatment, and multiple professionals are involved in identifying child maltreatment in general [16]. We noticed that different forms of child maltreatment have been studied quite separately. However, we know that they are integrated. The sensitiveness of the phenomenon and the challenges of multiprofessonal or multiagency collaboration have not been integrated in the same study.We also noticed the lack of systematic reviews integrating different forms of child maltreatment and how different, effective mechanisms or interventions can be used to identify child maltreatment. By effective, we mean that the outcome of the mechanism or intervention has been scientifically measured as explained in the Methods section in more detail.

To further advance the research and development of identification mechanisms and practices in social and health care settings globally, a broader synthesis and picture of previous knowledge, especially concerning the effectiveness of identifying mechanisms of child maltreatment, is needed.

Aim

The aim of this systematic review is to synthesize the best available evidence regarding the effectiveness of mechanisms or interventions of identifying child maltreatment in social and health care settings.

Methods

We conducted this systematic review using the method presented by Joanna Briggs Institute [17]. The process of data search, collection and selection is presented in Figure 1. As the studies selected in this review were done using different methods, and presented results about the evaluation of different kind of mechanisms or interventions, the data were extracted by meta-aggregation. This means extracting and presenting details of the included studies in a narrative form (Table 1). After that synthesis was made by evaluating and combining similar results in themes. These four themes are described in the results section.

Search strategy

The search strategy aimed to find published and unpublished studies. A search using the relevant identified keywords and index terms, as well as database-specific keywords and subject headings, was undertaken across all included databases (Figure 1). Then, the reference list of all the identified reports and articles was searched for additional studies. Studies published in English, Finnish, or Swedish during or after 2003 were considered for inclusion in this review.

The databases that were searched included the following: CINAHL, Medline, PubMed, Cochrane Database of Systematic Reviews, Cochrane Central Register of Controlled Trials, Campbell Library, PsycInfo, ERIC, Applied Social Sciences Index and Abstracts, SocINDEX with Full Text, Social Care Online, ProQuest Dissertations and Theses A&I: The Humanities and Social Sciences Collaboration, Sociological Abstracts, Social Services Abstracts, ProQuestHealth Management, PROSPERO, MEDIC, and MELINDA.

The search for unpublished studies and other materials included Internet searches to find the homepages of child maltreatment-related organizations, projects, child protection sites, etc. We also searched for papers that have not been commercially published, such as theses and dissertations, reports, blogs, technical notes, non-independent research, or other documents produced and published by government agencies, academic institutions, or other groups that are not distributed or indexed by commercial publishers. No relevant studies were found.

The initial key words used were as follows, with the search strategies modified according to the database:

1. child abuse

2. (child*violence or child*abuse or child*maltreatment or child*neglect).mp (mp = title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept, rare disease supplementary concept, unique identifier)

3. 1 or 2

4. (violence* or physical abuse* or emotional abuse* or psychological abuse*).mp

5. (child* or adolescen*).mp

6. 4 and 5

7. 3 or 6

8. prevent* or interven* or diagnos* or screen* or identif* or recogn* or monitor* or scale* or evaluat* or measur*).mp

9. 7 and 8

10. (impact* or effective* or influen*).mp

11. 9 and 10

12. (systematic review* or controlled trial* or meta-analysis* or quasi-experiments* or before and after*).mp

13. 11 and 12

14. 9 and 12

15. limit 14 to yr="2003-

Inclusion criteria

The types of participants: This review considered studies that included social welfare and health care settings, as well as other settings that children and their families visit (including child welfare clinics, maternity clinics, schools, kindergartens and day-care centers, physicians'offices, pediatric and adolescent units at hospitals, and child protection) and the professionals who take care of children, adolescents, and their families in those settings (including nurses, public health nurses, school health nurses, physicians, dentists, social workers, kindergarten teachers and other school teachers, physiotherapists, speech therapists, and psychologists). It is obvious that different professionals have very different roles in identifying child maltreatment. However, it is important to examine professionals' positions together and help them integrate their work to best help children who are being maltreated. All professionals have skills that are useful in multiprofessional collaboration, and they can learn from each other. Children up to 18 years of age and their families were also considered the participants.

The types of interventions: This review considered studies that evaluated mechanisms or interventions designed to identify the physical or psychological/emotional abuse and/or neglect of children aged up to 18 years of age, including screening tools,tests,questionnaires, discussions with families, observations, home visits, physical and psychological examinations, diagnostic tools or criteria, risk evaluations, and other kinds of multi-professional work practices targeted at examining and identifying child maltreatment or evaluating the family situation. In addition,training for professionals can be seen as a method for increasing identification.

The types of studies included: This review considered experimental and epidemiological study designs (including Randomized Controlled Trials [RCTs], non-randomized controlled trials, quasi-experiments, before-and-after studies, prospective and retrospective cohort studies, case control studies, and analytical cross-sectional studies) concerning effective methods for identifying physical or psychological/emotional abuse or neglect of children age 0-18 for inclusion.

The exclusion criteria were studies on sexual abuse, therapies, and

Table 1: The studies included in the systematic review.

Author(s), year, country, critical appraisal result	Aims	Methods	Results describing child maltreatment identification
Barsness K, Cha ES, Bensard D, Calkins C, Partrick D, Karrer F, Strain J. The positive predictive value of rib fractures as an indicator of nonaccidental trauma in children. The Journal of Trauma2003; 54(6): 1107-1110. USA 7/9	To detect rib fractures of children	Descriptive study Review of the medical records and imaging of all children with rib fractures over a 6-year period Over the 6-year study period, 3758 trauma evaluations, of them 336 rib fractures (children aged from 3 weeks old to 15 years old). Divided into NAT versus non-NAT groups	The predictive value of a rib injury as an indication of child abuse was 95%. Fractures in children under the age of 3 should be assessed and examined carefully to detect child abuse.
Dubowitz H, Lane W, Semiatin J, Mahder L, Venepally M, Jans M. The Safe Environment for Every Kid Model: Impact on pediatric primary care professionals. Pediatrics 2011; 127(4): e962-e970 USA 6/10	To determine whether or not the SEEK (Safe Environment for Every Kid) model and the training associated with it improve the attitudes, knowledge, self-confidence, skills and behaviour of paediatric health care professionals.	Cluster randomized controlled trial Randomly assigned primary care practices	The questionnaire suggests positive changes occurred in all areas - especially in addressing and handling risks such as stress, alcohol use and violence (p<.05). The outcomes were long-lasting (36 months). The members of the intervention group were more able to identify problems than those of the control group both on the basis of documents and observations (p<.001).
Smeekens A, Broekhuisen-van Henten D, Sittig J, Russel M, ten Cate O, Turner N, van de Putte E. (2011) Successful e-learning programme on the detection of child abuse in emergency departments: A randomised controlled trial. Arch Dis Child 2011; 96: 330-334 Netherlands 7/10	To evaluate the effects of an electronic learning intervention on the ability of nurses to detect child abuse.	A blinded randomized-controlled trial on the emergency care staff of a hospital	Improvements in detecting child abuse were measured by means of self and group evaluation. The performance of the nurses improved according to the group evaluations (intervention group 89 vs. control group 71, 95% CI 2.9 to 33.3), while the self-confidence, skills and knowledge of the nurses improved according to the self-evaluations (intervention group 502 vs. control group 447, 95% CI 25.4 to 134.7).
Louwers E, Korfage I, Affourtit M, Scheewe D, van der Merwe M, Vooijs-Moulaert AF, van den Elzen A, Jonjegan M, Ruge M, Manai B, Looman C, Bosschaart A, Teeuw A, Moll H, de Koning H. Effects of systematic screening and detection of child abuse in emergency departments. Pediatrics 2012; 130(3): 457-464 Netherlands 5/9	To promote the detection of child abuse and to influence and systematise the operational culture of emergency care units.	A cohort study conducted on the basis of previous studies in the emergency care units of 7 hospitals to test a self-developed checklist and a training session for nurses.	The systematic use of the checklist encouraged the detection of child abuse: the number of detected child abuse cases grew five-fold (0.5% vs. 0.1%, p<.001) after the introduction of the checklist. The abuse was detected during the triage of the patients.
Chan K. Evaluating the risk of child abuse: The Child Abuse Risk Assessment Scale (CARAS). Journal of Interpersonal Violence 2012; 27(5): 951-973 China 4/9	To develop and evaluate an instrument for assessing the risk of physical child abuse	A descriptive, randomised quantitative study. Chinese families (n=2,363) selected from the population at large by random sampling. Completing the scale and conducting risk assessments on its basis.	It can be possible to detect physical child abuse with CARAS (sensitivity 81.9%, accuracy 77.8%, AUC 0.91: CI=0.88, 0.94, p<.001)
Pierce M, Kaczor K, Aldridge S, O'Flynn J, Lorenz D. Bruising characteristics discriminating physical child abuse from accidental trauma. Pediatrics 2010; 125(1): 67-74 USA 8/9	To identify children in emergency care with bruising caused by physical abuse.	A case-control, intervention-based pilot study 0-48-month-old children with bruising admitted to emergency care because of physical trauma (42 case subjects, 53 control subjects). The case subjects were admitted to emergency care because of physical abuse and the control subjects because of accidental trauma	Confirmed the criteria for abusive bruising. Bruising on the body, ear or neck in under 4-year-old children and any kind of bruising in under 4-month-old children are indications of abuse and warrant further examination.
Lindberg D, Shapiro R, Blood E, Steiner D, Berger R. Utility of hepatic transaminases in children with concern for abuse. Pediatrics 2013; 131(2): 268-275 United States 7/9	To determine a transaminase threshold indicative of abdominal injury.	A retrospective, descriptive multi-centre study conducted i to re-examine possible child abuse victims by means of hepatic transaminase screenings. Under 10-year-old child abuse victims (n=2,890) with abdominal injury (n=82)	The study successfully determined a hepatic transaminase threshold for diagnosing abdominal injury. A hepatic transaminase threshold of >80 IU/L is indicative of abdominal injury in child abuse victims and, therefore, warrants definitive testing.

McKeown K. Inter-agency cooperation between services for children and families in Ireland: Does it improve outcomes? Journal of Children's Services 2012; 7(3): 191-200 Ireland 4/9	To establish a jointly-developed and approved protocol for detecting child abuse.	A case study conducted as a 5-year research and development project among multi-professional staff working with disadvantaged families with 10-18-year-old children. Analyses of the documentation of 32 meetings and 43 staff interviews, in-depth analyses of 9 randomly-selected cases treated according to the jointly-approved protocol.	Improvements in child abuse detection and the situations of the families. The jointly-approved multi-professional protocol promoted child abuse detection moderately, but it alone was considered insufficient in the nine cases subjected to in-depth analyses as the observed changes were relatively insignificant. The following aspects were identified as a reason for the moderate changes based on the documentation and interview analyses: 1) situations in which the abuse had continued for a long period of time, 2) the varied and questionable quality of employee co-operation, 3) the failure of certain organisations to invest sufficiently in employee co-operation and skills, and 4) the failure of several organisations to take targeted action based on research-based evidence. A thorough harmonisation of the processes and protocols and national steering were also required. The results were also affected by the ability to consider the capabilities of individuals and groups and to reflect on the protocols radically.
Wills R, Ritchie M, Wilson M. Improving detection and quality of assessment of child abuse and partner abuse is achievable with a formal organisational change approach. Journal of Paediatrics and Child Health 2008; 44: 92-98 New Zealand 5/9	To find out whether the ability to detect child abuse of the staff can be improved by a protocol.	A descriptive research and development project on regional health services. The employees of regional health services (n>700). 85 interviews, over 6,000 medical records, auditing and evaluating the quality of child abuse detection. Content analysis.	The employees became more confident of their skills but continued to need support. An increase in the number of detected cases of child abuse (10cases/quarter to 70 cases/quarter). The analyses of the records and interviews suggest the cases were such that benefited from co-operation. Whenever obstacles to the co-operation -such as, the reluctance to enquire about child abuse or lack of information, time or privacy - were observed, it was possible to address them by means of supervision, feedback and continuous training, for example. Multi-professional development efforts promote the detection of child abuse.

prevention. Sexual abuse is different in nature from the other types of abuse that are the focus of this review. Including studies of sexual abuse, therefore, would have broadened the scope of this review too greatly.

The types of outcomes included: This review considered studies that included the following outcome measures: the confirmed occurrence of child maltreatment (physical or psychological abuse or neglect), for example, a family's home circumstances and their living conditions, the diagnosis of physical abuse or the observation of neglect, the effectiveness of multiple professionals' work, the effectiveness of training, a delay in the physical or mental development of the child, and the risk behaviors of parents (the risk of physically or psychologically abusive or neglectful behavior). "No identification" was also a potential outcome.

In this review, the comparator was the lack of an intervention or the continuance of usual care. Here, "usual care" means that the professionals did not identify maltreatment or its risk. Instead, the professionals simply performed the tasks they usually perform, such as vaccinating children, conducting routine follow-up of the growth and development of a child, taking care of wounds or bruises, etc, without coming to believe that any injuries present may be the consequence of child maltreatment.

The broad database search of the literature yielded a total of 2,726 potentially relevant papers. After 981duplicates were excluded, 1,745 papers were left. After the titles and abstracts were reviewed, 1,351 papers were excluded. Three hundred and ninety-four full-text papers were retrieved for further review because additional reading was needed to determine whether the paper met the inclusion criteria. After the full-text papers were reviewed, 385 were excluded because they did not meet the inclusion criteria. Many of those studies seemed very promising at first, but after they were carefully read and evaluated, they usually only defined or described an intervention, without evaluating its impact. A total of nine papers were appraised for methodological quality. Figure 1 outlines the stages of the process used to identify relevant studies for inclusion in this systematic review.

Before being included in the review, the papers selected were assessed by two independent reviewers for methodological validity using standardized critical appraisal instruments from the Joanna Briggs Institute [17]. Based on this assessment, the RCT studies received 6 or 7 points out of 10, the case-control studies 5, 6, or 8 out of 9, and the descriptive studies from 4 to 7 out of 9 (Table 1). Any disagreements that arose between the reviewers were resolved through discussion.

Data analysis

Data were extracted from the papers in a narrative form and are presented as follows in the text and in Table 1. The extracted data included specific details about the study's aim, methods, and results. The data were analyzed by extracting the content that was suitable given the aim of this review. The data were extracted by meta-aggregation meaning presenting details of the included studies in a narrative form. After that, the synthesis was made by combining the similar results in themes. After that they are described in the results section.

Results

The results are presented under four themes: identifying physical abuse, the use of screening tools, multiprofessional working practices

and education concerning the identification.

Identifying physical abuse

Barsness et al [18] explored rib fractures. Lindberg et al [19] explored hepatic transaminases in evaluating abdominal injuries. Pierce et al [20] explored bruises as markers of physical abuse. According to Barsness et al. [18], rib fractures in a child under 3 years of age should be investigated thoroughly. The predictive value of a rib injury as an indication of child maltreatment was 95%. Lindberg et al [19] showed that children evaluated for physical abuse with transaminase levels >80 IU/L should undergo definitive testing for abdominal injury. This provides further support for demonstrating abdominal injury in child physical abuse cases.

Use of screening tools

Pierce et al [20] provided an evaluation method for discriminating between abusive bruises and accidental trauma. The body region- and age-based bruising clinical decision rule model functions as a clinically sensible screening tool with which to identify young children who require further evaluation for abuse. Any bruises on an infant or bruises on the torso, ears, or neck of a child under 4 years old should be investigated.

Louwers et al [15] studied a screening tool developed especially for use in emergency care to identify physical child abuse. A screening checklist (the Escape Form) used by Emergency Department (ED) nurses during triage provides a potentially effective screening instrument for identifying physical child abuse in EDs. The systematic use of the checklist encouraged the detection of child maltreatment: The number of detected cases grew fivefold (0.5% *vs* 0.1%, p<.001) after the checklist was introduced. The use of the checklist was supported with training sessions.

Chan [21] developed and evaluated a screening tool, The Child Abuse Risk Assessment Scale (CARAS) for assessing child abuse risk. According to Chan [21], although several scales have been developed to measure child maltreatment risk, none has been shown to be valid in all situations (see also Bailhache et al [12]). CARAS provides a possible tool for measuring such risks.

Multiprofessional working practices

McKeown [22] and Wills et al [23] provided evidence of the importance of the development of multi-professional services when identifying child maltreatment. McKeown [22] studied inter-agency cooperation between services for children and families and concluded that an effective and inclusive inter-agency process is important in developing multi-professional services, as Wills et al [23] also concluded. Especially when policies, organizational changes, interagency cooperation, and effective leadership are developed as a process, they have an impact on child maltreatment identification.

Education concerning the identification

Dubowitz et al [24] and Smeekens et al [25] studied how educating staff influences their attitudes, knowledge, and skills concerning the identification of child maltreatment. Dubowitz et al [24] developed. The Safe Environment for Every Child (SEEK) Model, which includes education for staff and a checklist. According to Dubowitz et al [24], educating staff about such crucial issues as the risk factors for child maltreatment improves staff attitudes, knowledge, and skills in identifying child maltreatment. Improvements in identifying child maltreatment were observed in self and group evaluations. According to Smeekens et al [25], even a two-hour e-learning session for staff based on a clear checklist concerning the identification of child maltreatment (called SPUTOVAMO) has a clear impact on staff knowledge and skills, especially in addressing and handling risks such as stress, alcohol use, and violence. The SPUTOVAMO checklist is an acronym composed of the first letters of nine questions regarding the injury. The outcomes were long-lasting (36 months).

Discussion

Compelling evidence for methods for investigating rib fractures [18], bruises [20], and abdominal injuries [19] is available. The focus, according to previous studies included in this systematic review, has been on identifying child physical abuse. Child physical abuse causes perhaps clearer signs compared to emotional abuse of neglect. It seems that it is somewhat easier to define criteria concerning the diagnosis or identification of physical child abuse than other forms of maltreatment. Emotional or psychological abuse and neglect need further research, such as on how they are defined or identified.

Various instruments have been developed, and they are quite promising, especially when used in EDs [15,25] or risk assessment [21]. The efficacy of the instruments may depend on, for example, personal, professional, cultural, educational, and environmental issues. Testing different instruments in different contexts may be problematic because the backgrounds of the children, families, professionals, and interventions vary. However, the efficacy and sensitivity of the instruments should be tested in different countries, cultures, and contexts.

The results of the review support the conclusion that promising results indicate that health and social service providers can be effectively equipped to help them address maltreatment risk factors in families, increase the identification of maltreatment, and decrease the occurrence of maltreatment [24]. Child maltreatment should also be investigated more thoroughly in relation to other forms of family violence, especially intimate partner violence [6]. It is also crucial, according to Munro [26], to educate professionals in various fields so that they can better understand their roles in joint work and respect one another, especially in terms of taking others' knowledge of the situation of a child seriously.

Focusing on effective mechanisms or interventions designed to identify child maltreatment seemed to have an impact on the small number of studies that could be included in this systematic review. This also may be because the sensitive issue of identifying child maltreatment is difficult to measure from the perspective of effectiveness. This systematic review did not find an effective, pivotal, and unambiguous instrument with which to identify child maltreatment. Therefore, perhaps it is not possible to solve the problem of identifying child maltreatment with one mechanism or tool. We need several mechanisms to be able to identify different combinations of child maltreatment, in several contexts where children and their families stay and visit. Forms of child maltreatment integrate, also with other forms of family violence, as Intimate Partner Violence (IPV) [6].

Implications for practice

Strong evidence is available concerning identifying rib fractures

[18], bruises [20], and abdominal injuries [19] caused by physical child abuse. CARAS [21], the SEEK model [24], the bruising characteristics rule model [20], the Escape Form [15], and SPUTOVAMO-R [25] were shown to be simple, sensitive, empirically valid, user-friendly assessment tools for identifying child maltreatment or children or families who are at risk. Systematic screening, especially in EDs, proved to be effective in increasing the detection of suspected child abuse. These instruments may help especially health and social care professionals, but also day-care staff, and others who deal with children to address psychological, social, and psychosocial problems; issues of development; and safety-jeopardizing issues in the growth environments of children.

Improved multi-professional work, communication, and inter-agency processes, including the policy environment and data exchange, are needed. Multi-professional teams should work to deliver outcomes instead of services. The instruments should be practical, highly generalizable, non-stigmatizing, and user-friendly and should not label the children and their families. The instruments should be used while working with families, as a basis for starting discussions with families concerning their life situations. Enhancing the attitudes, knowledge, comfort, competence, and behavior of multi-professional staff is fundamental, in decreasing barriers to collaboration with families [3], at home and clinic visits.

Training in identifying child maltreatment, such as e-learning and case simulations, is effective in decreasing barriers between different professionals in dealing with child maltreatment issues. When professionals have more knowledge about child protective service procedures, these professionals have a better understanding of what happens in cases of maltreatment. Training should be made available to health care professionals, teachers, social workers, and others who deal with children and their families. It should also be included in practitioners' basic and further training. A legal requirement and staff training are recommended to significantly increase the extent of screening [4,7,15].

Improvements in education regarding interventions into and the documentation of maltreatment and staff training are needed. It is important to develop an instrument for the early identification of cases in which there is a high risk of significant mortality [12,27].

Effective and inclusive inter-agency processes are necessary but not sufficient for improving high-quality child services, including systematic screening; reflective inter-agency and interpersonal processes, procedures, and practices; and training. Guidelines and national policy implementation are needed [4]. However, it is worth remembering that outcomes also depend on the target group (e.g, the capacity of the professionals to be effective helpers and supporters) [22].

The continuum of commitment, enrollment, and compliance with the use of guidelines among staff should be encouraged by their superiors and by clarifying staff members' roles in inter-agency work [1,2]. Effective leadership is urgently needed in this regard. Anticipating resistance and developing strategies with which to identify enablers are critical to success. Organizational and personal barriers should be identified and overcome. Joint documentation systems in health and social care should be developed [1,2].

The implications for research

Additional development work and the testing of various instruments and methods are needed in various contexts and cultures [16]. These promising instruments should be further tested, including from a cost-effectiveness point of view. Sensitive topics, such as child maltreatment research, usually involve many limitations and biases. RCTs are especially needed and should be planned carefully. The further testing of screening tools in clinical use is needed [28,29]. Action research methodologies could be also useful, especially in developing identification and care practices.

Additional studies and further evaluation, testing, and validation in various clinical settings and contexts are needed. These studies should focus on the validation of screening instruments for child abuse identification. The wider implications of e-learning programs in various contexts and cultures should be evaluated.

Conclusion

Very promising identification mechanisms and tools were found concerning some central features of child maltreatment. These tools can be used to evaluate the situation of a child and his or her family. However, none of these tools provides a total or pivotal method for identifying child maltreatment because it is a complex issue. There remains the need to integrate different mechanisms for increasing systematic identification.

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