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Predicting child maltreatment: A meta-analysis of the predictive validity of risk assessment instruments

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ABSTRACT

Risk assessment is crucial in preventing child maltreatment since it can identify high-risk cases in need of child protection intervention. Despite widespread use of risk assessment instruments in child welfare, it is unknown how well these instruments predict maltreatment and what instrument characteristics are associated with higher levels of predictive validity. Therefore, a multilevel meta-analysis was conducted to examine the predictive accuracy of (characteristics of) risk assessment instruments. A literature search yielded 30 independent studies (N = 87,329) examining the predictive validity of 27 different risk assessment instruments. From these studies, 67 effect sizes could be extracted. Overall, a medium significant effect was found (AUC = 0.681), indicating a moderate predictive accuracy. Moderator analyses revealed that onset of maltreatment can be better predicted than recurrence of maltreatment, which is a promising finding for early detection and prevention of child maltreatment. In addition, actuarial instruments were found to outperform clinical instruments. To bring risk and needs assessment in child welfare to a higher level, actuarial instruments should be further developed and strengthened by distinguishing risk assessment from needs assessment and by integrating risk assessment with case management.

1. Introduction

Child maltreatment is a widespread phenomenon affecting the lives of millions of children all over the world (Stoltenborgh, Bakermans-Kranenburg, Alink, & IJzendoorn, 2015). In case of (suspected) child maltreatment, child welfare staff are asked to make extremely difficult decisions about whether, and how best, to intervene so that a child's welfare is safeguarded (Arad-Davidson & Benbenishty, 2008; DePanfilis & Girvin, 2005; Munro, 1999; Pfister & Böhm, 2008). Identifying risks of maltreatment is of paramount importance in these decisions. In recent years, there has been a shift from using mainly unstructured clinical risk assessment to the widespread use of standardized risk assessment instruments (Munro, 2004; Tatara, 1996). Despite this shift, the development and evaluation of risk assessment instruments in the field of child protection is in its infancy. Risk assessment instruments are frequently implemented without proper empirical evaluation, and thus limited knowledge is available about their validity and effectiveness (Barlow, Fisher, & Jones, 2012; Knoke & Trocmé, 2005). Moreover, the child protection field is currently engaged in an intense debate about the most effective approach to assessing risks. However, the average performance of (different approaches to) risk assessment instruments is unknown, because meta-analyses evaluating the predictive accuracy of these instruments have not yet been performed in the child protection field. Therefore, the aim of the current study was to examine the overall

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predictive validity of risk assessment instruments for child maltreatment and to examine whether the overall predictive validity is influenced by study and instrument characteristics.

1.1. Approaches to risk assessment

Currently, there are two main approaches to risk assessment in child welfare: the clinical and the actuarial (statistical) approach. In the actuarial approach, conclusions are based solely on empirically established relationships between risk factors and child maltreatment, whereas in the clinical approach, conclusions are based on the judgment of a professional who combines and weighs information in a subjective manner (Dawes, Faust, & Meehl, 1989). Clinical approaches can be further divided into consensus-based instruments and structured clinical judgment (SCJ) instruments. With consensus-based instruments, clinical professionals rate characteristics that are deemed relevant because of consensus among experts. Next, the professionals process these ratings in a subjective manner and come to a conclusion using their own judgment. Structured clinical judgment is a more recently developed method in which variables identified as risk factors in empirical research are assessed, but in which the weighting of risk factors as well as coming to the final decision is left to the professional. Several validation studies indicate that many implemented instruments perform questionably, especially instruments that are based on the clinical approach to risk assessment (see for example, Barlow, Fisher, & Jones, 2012; D'Andrade, Austin, & Benton, 2008; Knoke & Trocmé, 2005). Some studies have even shown that clinical methods, which are widely used in practice, do not perform better than chance, meaning that in half of the cases an incorrect risk estimate is made (Baird & Wagner, 2000; Barber, Shlonsky, Black, Goodman, & Trocmé, 2008; Van der Put, Assink, & Stams, 2016b). This leads to many inappropriate clinical decisions, resulting in unjustified out-of-home placements or recurrence of maltreatment. Therefore, it is essential to gain insight into which types of instruments perform well and which instrumental characteristics influence the predictive validity either positively or negatively.

The development of risk assessment instruments in the field of child welfare lags behind other disciplines, such as the field of criminal (youth) justice. In criminal justice, the literature identifies four generations of risk assessment instruments (Andrews & Bonta, 2010). Clinical instruments are considered the first generation of instruments and actuarial instruments the second generation. Third generation actuarial instruments have been developed incorporating dynamic as well as static risk factors, so that risk assessment can be distinguished from needs assessment. The newest, fourth generation actuarial risk assessment instruments serve not only as a guide for the professional in determining appropriate goals for intervention, but also as a guide in case management planning by offering the possibility of linking re-assessments to the initial assessment, service plans, and service delivery (Andrews & Bonta, 2010). Instruments used in child welfare can be classified into either the first or the second generation of instruments. In most of these instruments, risk assessment is not discriminated from needs assessment. Moreover, the needs assessment instruments that are available have mainly been developed on the basis of expert consensus and have not been subjected to sound empirical validation (Schwalbe, 2008).

1.2. Results from previous review studies

As mentioned, there is an intense debate about which risk assessment approach is most effective in assessing the risk of child maltreatment, also referred to as the "risk assessment wars" (Johnson, 2006a; Johnson, 2006b; Morton, 2003; White & Wash, 2006). Earlier review studies on the predictive validity of risk assessment instruments for child maltreatment showed mixed results. D'andrade et al. (2008) summarized findings of research on seven risk assessment instruments and concluded that actuarial instruments appear to have greater predictive validity and inter-rater reliability than consensus-based instruments. Barlow et al. (2012) conducted a systematic review on the accuracy of risk assessment instruments for child maltreatment and identified 13 different tools. These authors concluded that there is currently limited evidence for the effectiveness of risk assessment instruments in the field of child protection. However, there is evidence supporting the use of one specific actuarial tool, the California Family Risk Assessment, particularly at referral or during initial assessment (Barlow et al., 2012). Bartelink, Van Yperen, and Ten Berge (2015) conducted a review of studies in which a comparison was made between the predictive accuracy of a) different risk assessment instruments or b) a risk assessment instrument and unstructured clinical judgment (i.e., not using an instrument at all). Based on this review, the authors concluded that: (a) actuarial instruments performed slightly better than consensus-based instruments, and that (b) the predictive validity of actuarial instruments did not outperform unstructured clinical judgment. However, the review of Bartelink and colleagues has been criticized by Van der Put, Assink, and Stams (2016a) because their decision to exclude articles reporting on the performance of individual instruments seems too restrictive. After all, studies comparing the predictive accuracy of at least two instruments for risk assessment using the same populations and outcome criteria are hardly available, as are studies in which the performance of a risk assessment instrument is compared to unstructured clinical judgment.

1.3. Research aims

Until today, only qualitative reviews have examined the predictive accuracy of risk assessment instruments used in child protection. Because these reviews lack *meta*-analysis of quantitative data, it is not yet known how these instruments perform on average. Furthermore, some primary studies report very low predictive accuracies (see, for instance, Barber et al., 2008; Ondersma, Chaffin, Mullins, & LeBreton, 2005), whereas others report far better predictive accuracies (see, for instance, Loman & Siegel, 2004; De Ruiter, Hildebrand, & Van der Hoorn, 2012). Given this rather wide range, synthesizing data in a quantitative manner is essential to get insight in the overall predictive accuracy of risk assessment instruments. A second merit of a quantitative review is that it can reveal

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