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Invited Commentary

Advances in research definitions of child maltreatment

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Although conceptualization of child maltreatment is an essential component to research on the phenomenon, researchers continue to struggle with optimal operational definitions of the central construct. Maltreatment research has received criticism that the definition of maltreatment is imprecise, that measurement strategies have been inadequate, that dimensions within the phenomenon are poorly understood, and that variability across laboratories and methodologies has obscured results and failed to elucidate linkages to child outcome variables. Despite the criticism, considerable methodological and empirical advances have been achieved in the decade since the National Research Council published their recommendations for improvements in maltreatment research (NRC, 1993). Clarity in defining and operationalizing maltreatment is necessary in order to improve communication across laboratories and enhance comparability across studies. Integration of information across investigations will assist researchers in drawing conclusions across larger groups of children and in improving our ability to understand the relations between maltreatment dimensions and etiological factors as well as sequelae of abuse and neglect. Improvements in the ability to predict critical factors related to perpetration could result in better social policy decisions and prevention strategies. More comprehensive predictions of pathways of child adaptation and maladaptation subsequent to maltreatment would enhance treatment approaches and better target available resources to victims' needs. While the focus in this issue is on maltreatment definitions that are specific to the purpose of improving research, clear research definitions could also improve the ability of researchers to communicate across disciplines to judges, Child Protective Services (CPS) workers, practitioners, educators, physicians, and other who interact with maltreated children to develop applications for research findings across a broader range of settings and to further refine definitional criteria for other purposes.

Maltreatment is challenging to operationalize because it involves a phenomenon that is associated with social stigma, that occurs frequently in the privacy of family homes, and that may result in severe consequences if disclosed. There is a significant disincentive, therefore, for families to be open and

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honest in their sharing of such information through direct self-report methods. Many of the experiences that could be categorized as maltreatment involve violations of social norms that have no clear standards for appropriate behavior. The behavior that does come to the attention of authorities may be only the more extreme end of a continuum of parenting practices, and the threshold for being judged as inappropriate varies across states, and across investigators. The range of maltreatment incidents that children experience is wide and varies along multiple dimensions that are interrelated and that are set in a context of multiple familial and community risk factors associated with poverty, violence, mental health, and other factors. Yet despite these challenges in defining maltreatment, clear progress is evident in recent publications on child maltreatment. This Special Issue provides an opportunity for researchers who have shared methodology and sampling strategies to direct close attention to the dimensions within maltreatment that contribute variance to several child outcome variables.

Past maltreatment research has been criticized for utilizing definitions of abuse and neglect that were vague, overly simplistic, lacking specificity, and too heavily reliant on Child Protective Service criteria that vary by local laws and practices. Previous definitions at times included tautological descriptions that incorporated outcomes as part of the definition (McGee & Wolfe, 1991). Increasingly, however, researchers have moved beyond CPS labels or unspecified criteria to provide more detailed information related to the specific definitions utilized for determining maltreatment status. More frequently, studies have examined dimensions within the phenomenon, such as subtypes, chronicity, and severity rather than simply designating maltreated and non-maltreated groups of children.

Maltreatment Classification System

It was with the recognition of the need for more definitional clarity and specificity that the Maltreatment Classification System (MCS) (Barnett, Manly, & Cicchetti, 1993) was developed over a decade ago. This classification system incorporated developmental considerations as an integral framework for quantifying aspects of children's experiences of maltreatment along multiple dimensions potentially related to children's psychological outcomes. The Maltreatment Classification System provided a multidimensional nosological system that emphasized aspects of maltreatment experiences that are nested within and across subtype classification. The MCS included operational definitions of each subtype and provision for coding multiple subtypes, with recognition of the frequency of multiple subtype co-occurrence. The MCS identified dimensions of maltreatment in addition to subtype that are expected to impact children's development from the theoretical perspective of developmental psychopathology. In particular, a recognition that the developmental period during which maltreatment occurs is likely to influence the impact of the experience on children's mastery of stage-salient developmental issues provided the impetus for quantifying these dimensions. The dimensions captured in the MCS include subtype, timing of maltreatment (age of onset, frequency, chronicity, developmental period), relationship of perpetrators, occurrence of separations and placements, and severity of maltreatment incidents. These dimensions can be captured both within and across subtypes. These aspects of children's maltreatment experiences yield depth and breadth to maltreatment assessment that is lacking in use of CPS labels alone. The comprehensive assessment derived through use of the MCS captures the interrelated components of children's experiences in a quantifiable way, such that the unique and shared variance associated with each dimension can be evaluated empirically. As researchers have utilized more sophisticated methodology for assessing these dimensions across studies, a more detailed and precise analysis is emerging that explores path-

ways between children's experiences and developmental outcomes (Cicchetti & Toth, 1995; Manly, Kim, Rogosch, & Cicchetti, 2001).

Although the Maltreatment Classification System was developed initially to capture information from Child Protective Services records, the ultimate goal was to integrate multiple informants and multiple sources of information within a developmental psychopathology framework to capture aspects of children's experiences that would be likely to impact their development. Originally, it was intended to provide a more systematic method to capture the information that is contained in CPS narratives in a way that would minimize the variability across reporters and across local practices. While CPS records have limitations, they do provide descriptions of incidents that have been investigated and documented for children of all ages, many of whom may be too young for self-report, incorporating information related to the allegations, the assessment of the child and family, and the determination based on the acquired evidence. Archival data from CPS records are available and maintained nation-wide, and such records minimize errors due to memory factors over time. The Maltreatment Classification System does not rely on CPS labels, which are subject to evidentiary standards that vary across locales, but instead utilizes the broader descriptive information contained in case records. Subsequently, this classification system has been applied not only to CPS records, but also to additional record data such as clinical treatment records, medical records, foster care placement histories, and so forth.

Use of archival data has limitations; however, other forms of assessment have advantages and disadvantages as well. Self-report by caregivers relies upon disclosure of information that could result in criminal prosecution for some actions. Although some information may be gathered that is valid and useful for research, any self-report methodology must recognize the high potential for nondisclosure. Self-report by victims runs a risk of children minimizing their experiences of maltreatment (McGee, Wolfe, Yuen, & Carnochan, 1991), and incidents that occurred early in life would be unlikely to be reported. Observational methodologies may be essential for assessing certain interactional patterns and family dynamics, but many acute episodes of maltreatment and certain subtypes, such as sexual abuse, are not likely to occur during observation. Ideally, multiple assessment methods and multiple sources of information should be integrated for a comprehensive portrayal of children's experiences. Utilization of multiple methods will require that standards be established for handling discrepant information and for developing best practices in accomplishing this integration.

When the Maltreatment Classification System was initially proposed, there were no systematic classification schemes for identifying important dimensions of maltreatment for investigation, and there were widely varying methodologies and definitions for maltreatment across research studies. In the intervening decade, laboratories across the country have been utilizing the MCS so that results can be compared, and investigators are speaking the same language. Studies are emerging in the literature that address which dimensions are related to a range of child outcomes. Because the MCS yields a breadth of information with possible options for how the variability across children's experience can be summarized, there is still a substantial amount of work that remains for determining the most parsimonious approach to analyzing these data. Papers such as those in this issue provide an opportunity to examine the methodological issues in detail and to make recommendations to enrich the field.

Although some might argue that such fine-grained analysis within each dimension is hair-splitting, it is essential that honing of definitional issues and data analytic approaches occurs in the context of empirical support. Despite the large number of children who are maltreated nationally, conducting large scale maltreatment research is extremely difficult; utilizing small samples sizes, however, may yield results that are spurious and not statistically powerful enough to examine dimensions of maltreatment nor to

determine the best models for compositing information. Research that has assessed more than one subtype has underscored the high frequency with which multiple subtypes co-occur, especially when maltreatment is assessed over time. Thus, researchers need to determine how to capture the variability over children's experiences both within single incidents and across multiple episodes throughout development.

Within maltreatment, dimensions such as subtype, severity, patterns of timing, and perpetrators are not unrelated, and in order to understand the relative contributions of each, we need to find ways of addressing the shared variance among them. The Maltreatment Classification System provides one approach to identifying, defining, and measuring these dimensions so that empirical examination can determine the relations between these dimensions and children's outcomes to weigh the relative contributions of each. With information from large longitudinal studies linking dimensions of maltreatment with children's functioning across multiple domains, we can begin to better understand the impact of various forms and timing of maltreatment on children's development, and to replicate these findings across laboratories. Simplistic models are no longer useful if we are to understand the broad range of children's maltreatment experiences and the impact that such experiences have in shaping development. Ultimately, the results of these research analyses can be utilized to plan for the best course of action and treatment related to child victims.

The LONGSCAN consortium's shared assessment protocols and maltreatment measurement strategy provide an opportunity to consolidate data across samples and to compile a large sample size that permits analysis with more detail than would be possible with a smaller sample. The synopsis of such broader scale efforts can provide recommendations that can be applicable for researchers without the resources to conduct such a large, multi-site study. Thus, this Special Issue provides a unique opportunity strategically to examine this large database with various lenses to determine which data analytic strategies yield the best approaches for analyzing each of the dimensions of maltreatment under investigation. The results of these investigations can refine our methods of utilizing well-defined maltreatment indices and can direct further efforts in the field that can investigate the relative contributions of each of these dimensions in shaping children's outcomes. In the sections that follow, research aspects of maltreatment definitions that are applicable within and across the papers in this issue will be discussed with regard to implications for future directions in maltreatment research. As maltreatment researchers are grappling with decisions such as whether to differentiate between substantiated and unfounded reports, which methods of classifying maltreatment information yield greatest predictive power, and how best to summarize dimensions within maltreatment for data analysis, the empirical approaches utilized by the LONGSCAN researchers can inform procedural approaches with greater specificity. As replications of these approaches emerge, researchers can begin to amass empirical evidence to refine definitional and analytical practices.

Unfounded reports

One controversial issue that is likely to create some debate is the inclusion of unfounded allegations of maltreatment synonymously with indicated reports. The Hussey et al. article (2005) addresses this issue directly by comparing children with substantiated and unsubstantiated reports and finding no significant differences between groups on child outcome measures. After controlling for a number of potential confounds, including prior maltreatment, the authors found no significant differences between children with substantiated versus unsubstantiated maltreatment reports between ages 4 and 8 for any outcome variables. In fact, the children with unsubstantiated reports differed from children with no maltreatment

reports on more dimensions than did children with substantiated reports. These results lend support to the argument that many reports are unfounded because the amount of available information is not sufficient to meet evidentiary requirements or because of other systemic issues rather than the absence of maltreatment. Although certainly there are some reports that are filed erroneously with no basis of validity, there are also many reports that reflect legitimate concerns for children's well-being that may not cross the threshold to warrant state intervention. Drake et al. (2003) have demonstrated high rates of recidivism in the CPS system for unsubstantiated reports, and the authors report that "clearly . . . these cases are not simply erroneous reports made against families unlikely to engage in child maltreatment" (p. 257). Evidence that children who receive unsubstantiated reports are functioning as maladaptively as children with substantiated reports has tremendous social policy implications. The reports that are unsubstantiated may, nevertheless, reflect dysfunction in families who could benefit from support and therapeutic preventive programming. A better understanding of the issues that contribute to increased behavior problems, depressive symptoms, traumatic stress, and dissociative symptoms for these children could target preventive programs to assist these children in developing more positive coping skills and the families to avoid the Child Welfare system.

Adopting the practice of including unfounded reports in research investigations, however, remains controversial. Including these children may yield a wider range of severity of maltreatment episodes and make the findings more generalizable to a broader population of maltreated children, including those who are not involved with CPS. Combining substantiated and unsubstantiated reports avoids concerns of bias regarding factors contributing to substantiation, as well as avoiding differences between states with 2-tiered versus 3-tiered substantiation practices. However, the lack of significant differences needs to be replicated lest decisions are made on the basis of confirming the null hypothesis and risking Type 2 error. Researchers may not be able to access information contained in unfounded reports systematically, especially if some state laws require such information to be expunged once the case is unsubstantiated. Because some unknown percentage of unfounded reports may actually contain spurious information, there may be higher degrees of error variance introduced that could reduce the validity of research findings. Unfounded reports often contain less information with less specificity of detail than reports with a determination report that document the results of the investigation. While the Hussey et al. article provides evidence for including the unsubstantiated allegations, and the articles in the Special Issue adopt the practice, additional investigations comparing unsubstantiated and substantiated reports are warranted.

Classification approaches

At the broadest level of operationalizing maltreatment definitions for research purposes, there is the question of which classification system should be used to determine presence or absence of maltreatment and maltreatment subtypes. Runyan et al. (2005) tackled this issue by comparing three approaches: the Maltreatment Classification System, the National Incidence Study criteria (Sedlak & Broadhurst, 1996), and CPS labeling. Maltreatment research has been criticized for relying on CPS labels for defining the central construct, but very little research has specifically addressed whether alternative approaches can improve predictive power for linking to child outcomes. Runyan and his colleagues were able to compare systems that all utilized archival record data to focus the comparison on classification system differences. There was shared method variance with the use of the same records and the same coders

to rate across different systems, which may have enhanced the rates of agreement and minimized the predictive magnitude of differences among approaches.

The authors noted moderately high concordance rates among the three methods of defining maltreatment, especially for physical and sexual abuse cases. The comparisons across systems highlighted the similarity between the MCS and NIS approaches. The CPS labels did not show as high a level of agreement with other systems, especially for Emotional Maltreatment, which is not surprising, given the infrequency of Emotional Maltreatment as a primary focus of CPS investigations.

The paper's central goal of predicting children's outcomes from maltreatment variables underscores the need for research to move beyond CPS labels, given that CPS labels were related to fewer domains of functioning than the other systems. While some people may argue that alternative systems do not warrant the additional time and effort needed for coding because they did not yield substantially greater predictive power, the authors concluded that while the more detailed classification methods did not contribute large amounts of variance, there were several advantages to using the research definitions. First, there were significant predictions that were detected with the research definitions that were not found using CPS labels. Second, although CPS labels uniquely predicted a few child outcome variables, CPS labels do not include clear definitional criteria. What CPS terms "neglect," for example, may include other subtypes or be adjudicated as neglect whereas it would be classified as a different subtype by another system. Additionally, the significant relation that was found between CPS-labeled neglect and children's socialization may have to do with a heavy emphasis on hygiene and medical neglect in CPS investigations. These were the aspects of neglect that were related to socialization in the Dubowitz et al. article on neglect (2005). Thus, the association between CPS neglect and socialization in the Runyan et al. article may be more accurately portrayed as an association with Failure to Provide medical care and adequate hygiene that are more clearly defined in the MCS.

There was some difficulty methodologically because of differences with multiple subtype reporting, especially when CPS reports are likely to focus on a primary or single issue, whereas the Maltreatment Classification System is designed to assess multiple subtype co-occurrence. The strategy of forced fitting into a single subtype and excluding multiple subtypes allowed for greater comparability across systems but may have been problematic in interpretation because of the high frequency of multiple subtype coding in the Maltreatment Classification System. The methods for selecting subtype groupings may make it more difficult to assess the contributions of multiple subtype co-occurrence. The results suggested a particularly deleterious consequence of sexual abuse, which predicted the greatest number of maladaptive outcomes. The method of selecting the predominant subtype for analyses, however, may have minimized the contribution of multiple subtype co-occurrence and the combination of sexual abuse with other subtypes that were significant predictors in alternate analytic approaches (see Lau et al., 2005). Thus, before concluding that any particular subtype carries unique detrimental effects, the interplay among multiple subtypes and multiple maltreatment dimensions must be considered.

Overall, the authors concluded that despite relatively high concordance between alternative classification systems and CPS labels and the modest magnitude of predictive power, that utilization of a classification system with clearly defined, replicable, objective criteria provided advantages that are of importance for the field. Because CPS labels are subject to changes over time according to policy and structural factors that influence which reports are screened in or excluded from the system, even estimates of maltreatment incidence and prevalence rates and resources dedicated to investigating and treating maltreated children may vary across locales and across political cycles. For advancement in research and a better understanding of the impact of abuse and neglect episodes on children's func-

tioning, researchers need mechanisms for assessment that are protected from these political changes and provide more valid indicators of children's experiences. Ideally, research definitions ultimately will integrate multiple informants and multiple sources of information, as well as assessing children's perspectives on their experiences. Because of the difficulties in measuring such perceptions, especially for children who are very young and who have many reasons not to disclose emotionally charged information, incorporating descriptive archival information will continue to be important in assessing children's experiences. Utilizing the best possible methods for classification of relevant dimensions within record data are essential for improving predictive validity. Additionally, utilizing a classification system with objective criteria that transcends variability in state laws and local policies will increase comparability across laboratories and improve research in the field.

Subtype

In the Maltreatment Classification System, operational definitions of each subtype of maltreatment are applied to narrative descriptions of case incidents to determine presence or absence of each subtype. Although one specific subtype may be the focus of the CPS investigation, any maltreatment issues that are mentioned in the report are coded. For example, Emotional Maltreatment rarely is the primary focus of CPS investigations, but if a report includes references to domestic violence in the household, the exposure to violence is coded under Emotional Maltreatment. For the purposes of maltreatment classification, maltreatment acts are separated from psychological consequences in order to ascertain the sequelae of maltreatment with fewer confounds. Through compilation of research investigations, empirical evidence utilizing the classifications can be amassed over time to determine what consequences for children are associated with various parenting behaviors.

Each subtype has some distinct characteristics that makes it qualitatively different from the other subtypes, but empirical evidence is required to examine which characteristics are necessary for predicting child outcomes. The focus of the definitions in the MCS is on parental actions that have the potential for harming children's psychological development. In the case of physical abuse, physical consequences (e.g., bruises, broken bones) are a proxy for the amount of force exerted by the perpetrator (in the absence of additional information on force or objects utilized), and reported physical evidence is utilized to code severity.

Some information contained in CPS narratives potentially could apply to several different subtypes. In these cases, multiple subtypes are coded in the MCS where appropriate, according to the definitions of overlap specified in the definitional criteria, and the emphasis is on the information that relates to parenting behavior. For example, information in a case record that suggests that caregivers abused drugs or alcohol is scrutinized to determine the impact of the substance abuse on parenting behavior, and then coded according to the aspect of inadequate care the child experienced (e.g., selling food stamps for drugs resulting in little food in the home would be considered Failure to Provide Neglect whereas volatile behavior while under the influence of substances that led the caregiver to be physically assaultive to the child would be coded Physical Abuse). Several of the subtypes could be broken down more specifically, as some of the papers in the volume have done, to include particular types of Failure to Provide (Medical, Hygiene, etc.) or subclassifications of Emotional Maltreatment (Safety & Restriction, Self-Esteem & Autonomy). Additional exploration with large samples can further elucidate the question of subtype combinations and divisions.

Because of the high frequency of multiple subtype co-occurrence, research on maltreatment requires a well-conceptualized and empirically sound rationale for handling comorbidity to prevent it from obfuscating distinctions among subtypes and the relative contributions of each. In the past, studies have focused on single subtypes or sought "pure" subtype occurrence, despite the rarity of such cases and the risk of minimizing the impact of additional subtypes. The infrequency of single subtype occurrence was highlighted in a large study including 492 maltreated children, in which only 8% of the physically abused children had physical abuse as a single subtype and 5% of the sexually abused children had only one subtype (Manly et al., 2001). Past research that has drawn conclusions based on a single subtype without assessing the occurrence of additional subtypes should be viewed cautiously because the results may actually reflect the effects of multiple subtype occurrence or of the subtype(s) that were not assessed rather than of the subtype under investigation. Focusing on a single subtype ignores the contribution of other experiences, and only if we examine the overlap will we know if the combination, for example, of neglect with abuse affects children differently than either form exerts independently.

In more recent studies, researchers have assessed the occurrence of additional subtypes and reported the frequency of multiple subtype co-occurrence more often, even when one subtype is the primary focus of the investigation. Despite methodological advances, it remains difficult to determine how best to parse the shared variance among multiple subtypes. Because some subtypes occur more frequently than others, uneven cell sizes across groups create some statistical challenges, but it is imperative that analytical decisions be made for conceptual and empirical reasons rather than for convenience. To the extent that subtypes are similar in impacting children's outcomes, there may be justification for combining certain subtypes. Bolger and Patterson (2001), for example, found a relatively high correlation between Emotional Maltreatment and Physical Abuse and combined them to form a "harsh and abusive parenting" subtype. Such intercorrelations and combinations require replication before being adopted definitively by the field. In other cases, researchers have advocated for sub-dividing subtypes to differentiate various aspects within subtypes. Specific types of Emotional Maltreatment could be separated to distinguish, for example, between exposure to domestic violence and other types of Emotional Maltreatment (Sternberg et al., 2004) or to identify categories such as terrorizing, spurning, isolating, exploiting, and denying emotional responsiveness (Hart & Brassard, 1991).

Lau et al. (2005) address these subtype questions directly by comparing three methods of categorizing maltreated children into subtype groupings. Their sample contained a high frequency of multiple subtype co-occurrence. The authors were able to conclude that the presence of multiple subtypes robustly was associated with worse child outcomes. In addition, there were specific effects that related to certain domains of functioning, and the authors found the best discriminative validity with an expanded hierarchical approach that subdivided children into groups by single subtypes and subtype combinations. This expanded approach predicted more outcomes than categorization based on most severe subtype occurrence or categorizing by a predetermined hierarchy based on deviation from community standards through active versus passive means. The results highlighted the negative consequences associated with sexual abuse in combination with additional subtypes, especially for behavior problems and externalizing behavior. The associations between sexual abuse and externalizing behavior are consistent with other studies on sexual abuse (Kendall-Tackett, Williams, & Finkelhor, 1993; Wolfe & Birt, 1995), but the pattern of outcomes also may depend on the developmental period, severity, and co-occurrence of sexual abuse with other subtypes (Manly et al., 2001).

This approach of dividing subtype co-occurrence into groups of single and combination profiles underscores that determining presence/absence of multiple subtypes or designating a predominant type of

maltreatment in a child's experience may not be specific enough to predict the trajectory of adaptation and maladaptation across domains of functioning for that child. The overarching goal of the Maltreatment Classification System within a developmental psychopathology framework has been to articulate how subtypes and their combinations that occur within specific developmental periods affect the development of competencies on stage-salient issue of that period and lead to distinguishable pathways of adaptation. The Lau et al. expanded hierarchy approach provides a more detailed analysis allowing for more specific grouping that may lead to a more comprehensive understanding of the role that each subtype plays in determining children's outcomes.

In the Lau et al. approach, the Physical Neglect group was used as the reference group against which the others were compared. These analyses suggested that children with sexual or physical abuse in combination with additional subtypes had worse outcomes in several domains. Because many of the children in the other groups also experienced neglect, it is difficult to assess the impact of neglect per se. In order to focus on the contributions that neglect exerts on children's functioning, Dubowitz et al. (2005) undertook a different approach to examine the effects of neglect specifically. This emphasis on neglect is important because neglect is the subtype that is most frequently found in CPS reports, and the effects of neglect are more poorly understood because of relatively limited attention to neglect in prior research (Dubowitz, 1999; National Research Council, 1993). Additionally, since neglect has often been combined with other subtypes in previous research, it is difficult to tease apart the impact of neglect from that of other subtypes. Neglect also is challenging to operationalize because it involves parental omission, which can be more difficult to detect than acts of commission. Neglect includes endangering children's welfare, and elements of risk have fewer objective criteria in the absence of demonstrable harm. Typically neglectful behavior exists on a continuum of inadequate parenting for which clear societal standards are not available and for which empirical causal linkages to negative child outcomes are absent. For example, there are no clear guidelines or laws regarding the age at which it is permissible to leave a child home alone; factors such as the length of time, the maturity of the child, and the dangers in the environment may heighten risk in ways that are difficult to calculate. Neglect also is difficult to disentangle from the effects of poverty, and definitions of neglect must contend with the circumstances under which limitations in family resources should be considered neglectful and whether negative child outcomes are the result of poverty, maltreatment, or both. If children lack adequate food, for example, does it make a difference in child outcomes whether their caregivers did not have access to adequate resources or whether they failed to obtain resources? Perhaps caloric intake is the most important variable, but there may be a qualitatively distinct phenomenon of caregiver inaction that has different psychological outcomes than inadequate food availability alone. These difficult issues have contributed to methodological variability across studies, and it is critical for the field to develop improved measurement strategies in order to examine this important construct.

Neglect also is characterized by a broad array of caregiver behaviors that could be subdivided according to the type of child need that is inadequately met. The Maltreatment Classification has three larger neglect categories, including Failure to Provide, Lack of Supervision, and Moral/Legal/Educational Maltreatment. Within these broader categories, the LONGSCAN group differentiated between subcategories such as medical neglect, lack of food, hygiene concerns, and so forth, and compared these classifications with CPS label definitions that were subdivided into General Neglect and Caregiver Absence. Overall, the authors found only modest relations between neglect and children's functioning at age 8, and CPS labels were comparable to MMCS measurement of neglect. Thus, general neglect indices were related to broad outcome variables that were assessed through parental report, but the authors expected that more variance

would be accounted for than the modest results they obtained. They offered several explanations for the modest results, including the additional risks in the sample, such as poverty, familial characteristics, placements outside the home, and other factors that may have impacted children's adaptation. Additionally, they noted that there may be other measurements or domains of functioning that were not assessed that may reflect the effects of neglect more sensitively. Including measures rated by teachers or adults other than parents may have provided alternative perspectives on children's functioning in addition to parental perceptions. The use of frequency of occurrence as a proxy for severity may have confounded the presence of neglect with the dimension of frequency, which English, Graham, Litrownik, Everson, and Bangdiwala (2005) found to be a significant predictor on several outcome variables, such that it minimized the impact of neglect. Perhaps the examination of neglect requires the inclusion of variables assessing the timing and developmental period of occurrence for the effects to become apparent. Some evidence has suggested that more severe neglect in early childhood is related to increased internalizing behavior (Manly et al., 2001).

The authors also noted the question of whether to "lump or divide" (p. 496) subcategories within neglect. They noted that there were smaller correlations than expected among neglect subcategories, which may reflect the heterogeneity within the phenomenon. There may be different patterns of neglect, and not all families demonstrated all the types of neglect. Medical neglect may reflect etiological factors and result in different sequelae than food, clothing, and hygiene neglect. Because neglect can involve many different aspects, further examination of possible differences among subcategories is warranted, and the question of whether to "lump or divide" remains to be examined further.

In another examination of the effect of a specific subtype, Schneider, Ross, Graham, and Derkacz (2005) addressed Emotional Maltreatment. Some researchers have postulated that Emotional Maltreatment may be the most important subtype of maltreatment underlying the detrimental impact of all abuse and neglect because of the psychological messages that are conveyed when a caregiver harms a child (Garbarino, Guttmann, & Seeley, 1986; Hamarman, Pope, & Czaja, 2002; Hart and Brassard, 1987). Emotional maltreatment is difficult to assess because it may occur through subtle parent-child interactional characteristics that can only be ascertained through sensitive relationship measures. As the authors discovered, Emotional Maltreatment occurs in CPS record data, but it is rarely the primary focus of CPS investigations and may be overlooked or not well documented in case files. Just as Physical Neglect may include a broad array of types of physical needs that are not sufficiently met, Emotional Maltreatment can include a variety of types of emotional and psychological needs that are inadequately addressed. Although many different types of Emotional Maltreatment could be identified (Hart & Brassard, 1991), the authors subdivided the category into Self-Esteem/Autonomy and Safety/Restriction subcategories. The presence of other subtypes of maltreatment contributed more predictive power on most outcome variables; however, it is interesting to note that after controlling for many possible confounds, including the presence of other subtypes, that Self-Esteem/Autonomy maltreatment contributed unique variance to predictions of behavior problems and traumatic stress. This finding is consistent with prior research that children with more severe Emotional Maltreatment occurring during infancy, toddler, and preschool developmental periods were rated as more aggressive and less ego resilient (Manly et al., 2001). Schneider and colleagues noted that these results may relate to children having more detrimental outcomes if their self-esteem has been damaged in conjunction with experiencing other forms of maltreatment. The authors also noted that the combination of Emotional Maltreatment with other subtypes related to differences in frequency and severity ratings, and these dimensions may have accounted for worse outcomes rather than the specific effect of Emotional Maltreatment. These alternative hypotheses require further examination,

and for Emotional Maltreatment, in particular, multiple sources of information may be necessary for the phenomenon to be assessed validly. The recording of Emotional Maltreatment in CPS records may indicate the presence of familial dysfunction that could require supplemental measurement strategies to assess comprehensively. As the authors note, these familial issues could be an important target of intervention.

Severity

Although subtype classifications have received more attention in research literature, there are many dimensions of maltreatment that may play an important role in shaping children's outcomes. There is an assumption in policy and treatment arenas that more severe maltreatment results in worse outcomes for children (Barnett et al., 1993; Manly, Cicchetti, & Barnett, 1994). Because of this assumption, more resources may be devoted to the extreme cases, and when economic resources become more limited, lower severity cases may be overlooked and may fail to receive adequate attention and services. Failing to intervene in the lower severity cases may have long-standing detrimental consequences for these children who may not receive the most extreme abuse and neglect, but who, nevertheless, are subjected to maltreatment and who may receive insufficient support and treatment. There is some prior research to suggest that low severity maltreatment, especially when the maltreatment is chronic, results in negative child outcomes that are similar to those of more severe cases (Manly et al., 1994), but in general, little research has focused on the issue of severity. Even when researchers assess severity of maltreatment episodes, there is little agreement in the research literature on how best to measure severity and to utilize the information across multiple reports of maltreatment in data analyses.

In the MCS, within each subtype classification is a rating of severity along a continuum from low severity (= 1) to potentially fatal, permanently disfiguring, or extremely severe (= 5). Each point along the continuum includes descriptions and exemplars, although the particular circumstances in a case could contribute to a higher or lower rating according to the child's developmental level and circumstances. Severity is rated according to the amount of risk or harm engendered by the perpetrator's actions. The amount of detail in the report is not utilized to determine severity, although a conservative approach is used, in that if there is no documentation to justify a higher severity rating, the coder is instructed to utilize a lesser rating. Because each subtype within each report is assigned its own severity rating, children may have reports of varying degrees of severity over time. Severity can be analyzed using the most severe incident the child experienced, the average of severity ratings across episodes, a summation of severity ratings, or frequency of reports as a proxy for severity, with the assumption that children who experience more abuse and neglect have experienced more serious maltreatment. Because each report can be coded with a separate severity rating for each subtype of maltreatment, severity can be analyzed as a separate dimension or explored as it is nested within subtype categories.

Investigations such as that conducted by Litrownik et al. (2005) are valuable to weigh the various methods of summarizing this range of severity ratings to ascertain, for example, whether the highest severity rating or the mean severity rating best captures the variance for predicting child outcomes. The authors tackle these various analytic approaches by comparing four different strategies for analyzing severity data that were coded according to the MCS. They controlled for earlier maltreatment experiences, potential confounding variables, and excluded children with no maltreatment experiences to examine the variability within the maltreated population. The authors concluded that maximum severity ratings that retained subtype information were optimal for predicting children's functioning at age 8. This strategy contains

empirical as well as conceptual rationale. The severity by subtype approach accounted for more variance and was significantly related to a greater number of outcome variables. Because of qualitative differences across subtypes, the severity scales cannot be exactly equivalent. The most severe forms of physical abuse and neglect can result in fatalities, whereas the most extreme forms of Emotional Maltreatment are likely to be psychologically traumatizing but not fatal. Thus, treating the severity ratings separately by subtype is a more valid approach. Because the authors distinguished between earlier maltreatment and later maltreatment, they were able to incorporate a developmental emphasis, in conjunction with severity and subtype. From a developmental psychopathology perspective, it is expected that severity and subtype would have differential impact on children's adaptation depending on when in development the experiences occurred. The authors emphasized the role of early physical and sexual abuse in predicting depression and anger, whereas Failure to Provide predicted lower adaptive functioning. The interplay among these dimensions is critical to our understanding of the heterogeneity within maltreatment, and the more detailed analyses that incorporate developmental considerations as well as multiple maltreatment dimensions are likely to provide more predictive and explanatory power than more simplistic models. The complexity of the phenomenon of maltreatment requires sophisticated strategies of analysis if we are to develop a more comprehensive understanding of the multiple pathways of adaptation and maladaptation that these children exhibit.

Maltreatment timing

According to tenets of developmental psychopathology, the transactional interplay of child maltreatment, parent-child relationships, and child development to predict children's developmental trajectories suggest that the timing of maltreatment experiences may be the most important dimension for examination. The developmental period during which maltreatment first occurs relates to how early in the developmental course serious parent-child dysfunction transpired. In addition to age of onset, the frequency of maltreatment and the patterning of episodes across development would be expected to relate to the number and continuity of developmental periods that would be affected by such perturbations. Thus, the chronicity and frequency of maltreatment episodes are particularly relevant as they affect the mastery of stage-salient tasks of development. While originally Barnett et al. (1993) referenced duration of CPS involvement as a proxy for chronicity, CPS length of involvement often is influenced by political and funding parameters that result in decisions that are not determined by family need or child risk. Thus, a more valid approach to understanding chronicity is to look at the pattern of maltreatment episodes over time to assess acute, episodic, and chronic patterns as they occur within the child development.

The importance of these developmental considerations underscores the need to articulate aspects of the timing of maltreatment. Timing can include age of onset, frequency of episodes, the duration of maltreatment, the developmental periods during which maltreatment occurred, the recurrence of maltreatment, continuity over time, and the time elapsed between the maltreatment episode and measurement of outcomes. All of these variables are potentially important, but because they are correlated with each other, it is difficult to analyze the unique contributions of each while minimizing confounds among them. Each of these variables can be measured within each subtype, and they may also be assessed across all types of maltreatment. Thus, it may be important to capture the duration of each type of maltreatment, but it also may be important to recognize the duration of any form of maltreatment or whether there were periods of time during which no maltreatment occurred for a child. Chronic-

ity has been found to be an important dimension in research on peer relationships (Bolger, Patterson, & Kupersmidt, 1998; Bolger & Patterson, 2001). Chronically maltreated children were less popular with peers, regardless of subtype or severity (Bolger et al., 1998; Bolger & Patterson, 2001). Chronically maltreated children also have been found to be more aggressive (Bolger & Patterson, 2001; Manly et al., 1994); the links between chronicity and peer rejection were found to occur via a mediational model in which chronic maltreatment was associated with more aggressive behavior, which in turn predicted peer rejection over time (Bolger & Patterson, 2001).

English et al. (2005) make an important contribution in recognizing different patterns in the occurrence of maltreatment ranging from acute to chronic and elucidating the dimensions of extent and continuity of these episodes. They took a unique approach of comparing episodes occurring during each year of the child's life with a more developmental approach of assessing by developmental period rather than calendar year. Their approach yielded empirical support for utilizing a developmental approach, which predicted more outcome variables. Also unique was their categorization of five patterns of continuity incorporating episodic and continuous patterns that occur over limited or continuous duration over time. The definitions of patterns of continuity allowed for distinguishing those domains of functioning in which onset and frequency were more important from those in which the continuity of maltreatment had a more detrimental effect. Thus, it appeared that behavior problems, especially externalizing behavior, have more to do with the frequency of maltreatment incidents, whereas the development of socialization skills may relate to the distribution of these episodes over time. Developmental continuity also predicted traumatic stress, anxiety, anger, and depression. The authors underscored that the developmental definition is theoretically informed and was the most sensitive across domains of functioning, thus providing empirical support as well as conceptual soundness to this approach. Although it is difficult to determine whether an absence of CPS reports during a developmental period equates with an absence of maltreatment, they noted that within a developmental perspective, episodic maltreatment in which maltreatment remits may provide some periods of respite, which may facilitate consolidation of developmental gains or recovery from the detrimental effects when maltreatment is present.

Summary

Across all of the articles, the authors have endeavored to advance the study of child maltreatment by examining definitional and analytic aspects of several different classification methods, dimensions, and data analytic approaches to provide empirical evidence for recommendations for future maltreatment research. The LONGSCAN collaboration provided an opportunity to compile data such that a large enough sample was available for the longitudinal, prospective design to assess predictors that could differentiate subgroups with large enough cell sizes to permit comparisons for more detailed analyses than would be possible with a smaller sample. Thus, the authors of each paper were able to conduct an in-depth, comprehensive examination of each dimension under investigation to yield a precise assessment. This step is important in determining which methods of measuring each dimension yield the greatest predictive power to prevent future assessments from identifying the correct dimension but with inadequate methodology to detect differences. Once these approaches are replicated and some consensus can be established, researchers can continue to analyze dimensions to determine which aspects of maltreatment are most central for impacting which domains of functioning during which developmental periods.

A broad look across the papers in this issue provides some tantalizing possibilities for further investigation. For example, with regard to behavior problems, especially externalizing behavior, more frequent maltreatment predicted greater behavior problems (English et al., 2005). Additionally, the relation between multiple subtype occurrence and behavior problems (Lau et al., 2005) suggest that multiple maltreatment experiences across subtype may be particularly likely to exacerbate externalizing behavior, particularly if the subtypes include sexual abuse and self-esteem damaging Emotional Maltreatment (Schneider et al., 2005). These externalizing behaviors may be related to children's experiences of anger, but anger seems to be predicted more by the developmental continuity of the combination of sexual abuse and other subtypes of maltreatment than by the number of incidents. In contrast, for development of daily living skills, age of onset, especially early experiences of medical neglect, may be the central variables (see Dubowitz et al., 2005; English et al., 2005). Early onset previously has been found to relate to lower self-esteem (Bolger et al., 1998). For children's traumatic stress, the combination of abuse and neglect that occurs in a chronic pattern over time appears to be particularly detrimental, especially when there is an element of undermining the child's self-esteem and autonomy.

Thus, an examination of factors within and across dimensions of maltreatment may provide the most comprehensive and sensitive assessment of pathways of development that can provide more extensive predictions of child outcomes across domains of functioning. Increasingly, research designs should focus on processes within maltreatment and the mechanisms by which maltreatment dimensions impact children's development (Barnett et al., 1993; Cicchetti & Lynch, 1995; Cicchetti & Toth, 2000; Manly et al., 2001; National Research Council, 1993; Trickett & McBride-Chang, 1995). An examination of the interplay among developmental timing, severity, subtype, and additional dimensions of maltreatment in predicting patterns of adaptation and maladaptation among maltreated children provides a more clearly delineated picture of the multifinality of outcomes within maltreatment than a simplistic or global label can provide (Manly et al., 2001). With such improvements in methodology, researchers will be better able to understand the dynamic nature and heterogeneity of children's experiences and to elucidate the processes of adaptation in the face of adversity.

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