Child Mental Health: A Review of the Scientific Discourse

A FrameWorks Research Report

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INTRODUCTION

The research presented here constitutes the first phase of a larger research project sponsored by The Endowment for Health and Center on the Developing Child at Harvard University. In the larger research project, FrameWorks will employ qualitative and quantitative research to empirically test strategies to reframe the way that Americans think about child mental health and to translate the science on this topic. The following report represents a fundamental component and step in composing a condensed "core story" of child and family mental health. The core story provides Americans with the most fundamental principles they need to understand the issue of child mental health from a perspective that is consonant with the science. As a first step in our iterative research process, this report explores the *scientific discourse* on child mental health—that is the patterns in how scientists write about, explain, and talk about child mental health. This discourse emerges from both a review of the scientific literature on child mental health, and a series of interviews that FrameWorks conducted with experts in this field. This report captures the work of psychologists, psychiatrists, child health researchers, neuroscientists, epidemiologists, sociologists, and health care policy researchers.

The purpose of the larger research project is to better understand both the ways that scientists explain child mental health and the dominant patterns in how the public thinks and talks about this concept. Our research with both of these groups is designed to reveal specific areas where the understanding of scientists and that of the general public are dissonant—where gaps or holes between these two groups exist in thinking and understanding the topic of child mental health. These missing links then represent promising areas for reframing strategies designed to close the gap between the scientific knowledge and the public's understanding of the policy implications of this knowledge.

In our next research phase—cultural models interviews—FrameWorks will look at how the general public understands the topic of child mental health and compare this understanding to the scientific discourse presented in this report. Our research on both the expert discourse and the cultural models that the public employs to think about this topic will be analyzed not only to reveal the knowledge and cognitive tools these groups bring to bear on the subject, but to identify specific strategies to reframe the issues and bring the science to the general public. A final step in our research process will be to empirically test the reframing strategies that emerge from our qualitative research to determine the most effective strategies for bridging the gap

between what *scientists* know about child mental health and how *average Americans* understand this issue. These communication strategies will clarify the role the public, and the policies and policy makers they support, play in addressing issues emerging from the science of child mental health.

The findings presented in this report are organized into two sections based on the method from which they emerged: I) Review of Scientific Literature, and II) Expert Interviews. Within each of these sections, dominant themes and implications are presented. These sections are preceded by an executive summary of the combined findings, and an introduction to the issue.

EXECUTIVE SUMMARY

Our review of the scientific literature produced five themes, or tensions in scientific discourse: (1) individual and environment; (2) immaturity and maturity; (3) risk and protection; (4) transience and permanence; and (5) variation and pathology. Each of these themes presents challenges to communicating the science of child mental health, but also points to specific communications tasks, both in clarifying the science and in investigating the existing cognitive structures that Americans use to think about child mental health and more specific aspects of this concept.

In one on one interviews, experts explained that child mental illness is a real phenomenon rooted in the body not the mind, with clear long term implications over the course of an individual's life, manifest in the child's inability to function, caused by an interaction between genes and environmental context, and intricately tied to the more general functioning of the family. Experts emphasized that child mental health is conceptually similar to the physical health of a child, but were candid in explaining that for various reasons, the science of some areas of child mental health and illness remains somewhat blurry and imprecise. Our analysis also revealed that despite the existence of a concept of mental *health* in the literature, a classic ecological model of concentric circles of contextual influence, the experts we spoke to generally did not employ this or any other model of child mental *health* during interviews. In short, when asked to talk about child mental *health*, the scientific experts we spoke to consistently defaulted to concepts and models of child mental *illness*.

Experts employed a variety of metaphors in explaining the significance of the science of child mental health. These metaphors included: comparing mental illness to physical illness as a means of emphasizing the tangibility of child mental health; the idea that stressful environmental experiences get embedded in the child and incorporated into the child's physical body, leading to deleterious and maladaptive reactions and responses to subsequent contextual and environmental stimuli; the idea that isolated symptoms of mental health may on their own have negligible effect on the functioning of a child, but when multiple symptoms "pile-up" and accumulate the result can be seriously impaired functioning in the child; and finally that resiliency can be compared to and thought of as a skill that a child learns and employs to meet challenges. An account of metaphors suggested by these experts is presented as an appendix to this report; they will be empirically examined for their effectiveness in communicating the science of child mental health in subsequent phases of our research.

In both interviews and the literature review, we found a preoccupation with defending the existence of mental health and illness in children. This position is likely in response to the perceived or assumed existence of beliefs to the contrary in the general public. Future FrameWorks' research will investigate whether these assumptions are in fact characteristic of the public's understanding of child mental health, and whether there are better ways to counter what may be an array of "cognitive mistakes" that attach to the topic.

Findings from both methods emphasize the importance of early intervention to avoid long-term effects for children who experience symptoms of mental disorders. Framing this point is therefore a primary task as we move forward and begin designing communication strategies that allow the public to use scientific findings in informing opinions on public policies.

The findings from both the literature review and the expert interviews here described are similar in many respects. Both the scientific literature and the scientists themselves paint a rather fuzzy and poorly defined picture of mental health in which many areas of the science on this issue remain poorly understood. The science still appears to be "out" on certain key issues, mainly the ability to diagnose and treat mental illness in young children. Given that this investigation is oriented to translating the science for popular understanding, the fact that some aspects of the science are not fully developed nor agreed upon by experts presents a major challenge to our work going forward. This therefore requires that we continue to work closely with the scientific community so that communications materials and strategies remain faithful to the scientific evidence and the current state of the field.

We expect the lack of a working concept of mental health and an overwhelming focus on mental illness to have significant policy implications, making prevention-based policies difficult to understand. As we investigate the implications of the existing models used by experts, we will be attentive to what we anticipate to be problems in moving support for such policies over those based on the treatment of highly visible existing disorders. In sum, the way the expert discourse is currently conducted appears to have numerous implications for public understanding and public misunderstanding. This is fertile ground for communications research.

Despite the common tensions that ran through the literature review and the expert interviews, there were a set of core ideas and points of consensus. From a communications perspective, these points represent clear positions and unequivocal messages and lay the groundwork for a "core story" of the science of child mental health. In addition to working with scientists to negotiate some of the tensions in the field, communications efforts must focus on these core points of consensus to begin translating the science of child mental health. The importance of the family *and* the wider context into which children are embedded in preventing and treating child mental illness are clear points of consensus in the literature review and in our interview data. That mental illness in children is a real thing that affects the child's and family's ability to function is also a clear message. Finally, both the literature review and our interviews with experts emphasize the undeniable importance of and need for early interventions to deal with symptoms of child mental illness. These are the messages on which there is unequivocal clarity—areas that communications can and must move forward. As we continue communications research in translating and framing the science of child mental health, we will

conduct empirical framing research to determine effective ways to translate these points of scientific consensus into public messages that promote policy salience.

INTRODUCTION TO THE ISSUE

The number of children diagnosed with mental health problems has increased significantly over the past three decades (Bricker, Schoen Davis, & Squires, 2004). Recent studies have found that as many as 20% of children in the United States show symptoms of a psychiatric disorder (e.g., U.S. DHHS, 1999). Although it is clear that many children suffer from mental health problems, research has documented that only a relatively small proportion of these children actually receive mental health services (Egger & Angold, 2006; U.S. Public Health Service, 2001). Many researchers are alarmed that the number of young children receiving prescriptions for psychopharmacological medications has increased dramatically over a short period of time despite a dearth of evidence regarding the appropriateness or effectiveness of such medications for children under the age five (e.g. Zito et al., 2000). Indeed, while understanding of the presentation, course, and treatment of psychiatric disorders in older children has advanced dramatically over the last thirty years, knowledge about psychiatric conditions in young children remains limited (Egger & Angold, 2006).

Scientists and practitioners define 'mental health' in children aged zero to three as the development of socio-emotional competence and self-regulation as part of a context that includes parents, family, community and culture (e.g. Fitzgerald & Barton, 1999; Zeanah, Stafford, Nagle, & Rice, 2005; Zeanah & Zeanah, 2001). Researchers are careful to point out the distinction between mental *health* and mental *illness*. While mental *health* describes a range of variations in a child's ability to function successfully in his/her world, mental illness refers explicitly to psychiatric diagnoses—in short, to pathology (Bricker, Schoen Davis, & Squires, 2004; Zeanah, Stafford, Nagle, & Rice, 2005). Regardless of how the concept of mental health is *defined*, scientists are quick to fall back on a more implicit understanding in which child mental *health*, practically speaking, is the absence of psychological *disorders and pathology*. Child mental health remains fuzzy and under-conceptualized in the field of child development.

The distinction between mental illness and mental health—the former defined as "measureable" deviations from the norm, and the later an abstract and imprecise research concept, largely dependent on disorder—may help to explain why issues related to mental illness receive more attention and discussion in both the science and public spheres than those related to mental health. While mental illness can be viewed through the existing medical model framework, with reference to diagnoses and treatment; there is no equivalent research framework for examining mental health in young children.

The remainder of this report draws on two sources of data to investigate the scientific discourse of child mental health.[1] The first source of data is a review of the published scientific literature on the topic of child mental health. The second source of expert discourse is drawn from a series

[1] FrameWorks defines discourse as standardized patterns of information used and shared in a community or social group.

of interviews conducted with experts in the area of child mental health. Together, these data sources provide an improved understanding of the barriers to the development of a coherent scientific message on child mental health and inconsistencies that must be clarified before effective communications aimed at the general public can be designed and empirically tested. More specifically, this review focuses on significant themes and tensions in the ways researchers portray issues related to child mental health. The following review represents the breadth and scope of scientific research, while focusing on the overarching motifs, problems, questions and topics of the body of scientific child mental health research.

I. LITERATURE REVIEW

The literature review focuses on a collection of recurring themes and fundamental tensions in the science of child mental health. Specifically, our review of the literature revealed five prominent tensions: (1) individual and environment; (2) immaturity and maturity; (3) risk and protection; (4) transience and permanence; and (5) variation and pathology. These five tensions are described and explored in detail below. In addition to the review of the published scientific literature, our analysis of the scientific discourse relies on data from a series of one on one interviews conducted with leading experts in the field of child mental health.

RESEARCH METHOD

Our goal in conducting the literature review described below was to identify the main themes that undergird the scientific discourse on child mental health. By examining the academic literature, we hoped to gain a comprehensive view of the ways in which experts commonly conceptualize issues and problems related to child mental health. We were interested in examining the patterns in how scientists define mental health in children, and specifically, the terms and concepts scientists employ in discussing child mental health. We undertook this review under the assumption that the academic literature on a particular subject represents the state of the science in that field. In conducting this literature review we aimed to provide part of the story that will allow us to gain deeper insight into how (or whether) the scientific discourse on child mental health relates to the public discourse and lay cultural models of child mental health.

To assemble the materials for the review, search terms such as “child mental health” and “infant mental health” were entered into the Academic Search Premier database, which provides access to over 3,500 peer-reviewed academic publications. This general database allowed us to draw from a wide variety of relevant publications, including those covering the social sciences, education, as well as the medical sciences. Of the articles identified in the database searches, only those articles that made explicit mention of child mental health or similar concepts, such as socio-emotional development or child well-being, were included in analysis. As such, more

medically-oriented articles that discussed specific psychiatric disorders, e.g. ADHD, without actual discussion of child mental health issues are not included in the following review.

Analysis

Analysis of the literature review was conducted using a grounded theory approach to establish the primary and recurring themes in the literature as a whole.[2,3] Therefore, the five core themes that were identified are representative of the all the articles included here in our review and characterize the published materials in the this field. As the analysis was conducted, the themes were revised and refined to reflect the inherent tensions and, in some cases, lack of consensus in the academic literature on this issue area. As mentioned above, this analysis resulted in five core themes reflecting tensions in the scientific discourse.

CORE THEMES

1. Influences of Child Mental Health: Individual and Environmental

Today, the scientific community understands that nature (i.e., individual biological influences) and nurture (i.e., environmental influences) are inextricably intertwined in child development. The child mental health literature reflects this understanding, with the complex relationship between biology and environment appearing as a recurring theme. Specifically, child mental health researchers discuss the interplay between nature and nurture as that between a child's intrinsic, largely biologically-based, characteristics and influences in the external environment.

The question at the core of this dynamic relationship is not whether individual or environmental characteristics are *more* influential in determining a child's mental health outcome, but rather *how* these individual and environmental characteristics combine and interact in producing mental health and illness outcomes. Although this literature overwhelmingly focuses on child mental *illness*, there *is* an implicit model of child mental *health*. This underlying model of mental health is employed primarily to discuss and conceptualize sources or causes of mental illness. The focus on mental illness has lead to a general lack of attention and research on models of mental health. The implicit model of mental health is ecological and contextual; that is, a child mental illness depends on the coalescence of many disparate contextual factors that operate on various levels, from molecular to societal. This contextual model appears to be based on the ecological model of child development developed more than 25 years ago (Bronfenbrenner, 1979). According to this model, the starting point is the individual genetic and neuro-biologically based child at the center of a concentric set of contextual influences. The literature suggests, both explicitly and implicitly, that intrinsic characteristics of the individual child are biologically based. That is, these characteristics are based on genetic make up and other non-genetic variations in neurobiology (Zeanah, & Zeanah, 2001). These biologically-based characteristics of a child's mental health include not only genetic predispositions to particular mental disorders (i.e., depression or schizophrenia), but also more general aspects of functioning, including temperament and personality traits. In the literature, researchers frequently regard difficult temperament as an intrinsic, child-specific influence that may negatively influence a child's

[2] Glaser, Barney G., and Anselm L. Strauss. The discovery of grounded theory; strategies for qualitative research. Chicago: Aldine Pub. Co. 1967.

[3] Strauss, Anselm L., and J. Corbin. Basics of qualitative research: Grounded theory procedures and techniques. Newbury Park, CA: Sage Publications. 1990.

socio-emotional development, manifested in the form disruptive, maladaptive behaviors (Stormont, 2002; Wakschlag & Keenan, 2001).

While influential, child-specific attributes in isolation fail to account for much of the variation in children's mental health outcomes (Zeanah & Zeanah, 2001), researchers emphasize that children are embedded in rich and varied environmental contexts, with the parental context being the most important. While intrinsic characteristics like temperament may have some direct influence on child mental health, it is the interaction between child characteristics and caregiver characteristics that largely predicts child mental health outcomes (Campbell, 2005). Winnicott described the interplay between child and caregiver, noting that "if you set out to describe a baby, you find you are describing a baby and *someone*. A baby cannot exist alone, but is essentially part of a relationship" (Winnicott, 1987, in Fitzgerald & Barton, 1999). The importance of the transactional relationship between child and caregiver is reflected in the fact that it is common to consider the child and caregiver a single unit of analysis in clinical child mental health practice (Gelfand, 2003).

While in the literature, the child-caregiver relationship is given the most attention as an influence on the child's mental health, the child has evocative, transactional relationships with other contextual factors and aspects of the environment (Evangelista & McClellan, 2004). The literature implicates aspects of home life, such as the quality of the marital relationships between a child's parents, and family composition in affecting a child's socio-emotional development (Campbell, 2005). Beyond family climate, the literature associates other contextual factors like socioeconomic status (McLoyd, 1998), the relative safety or danger of a neighborhood (Shaw, Owens, Giovannelli, & Winslow, 2001) and the quality of childcare arrangements (Helburn et al., 1995) with poor child mental health outcomes (see Greenberg et al., 1999 for thorough coverage). However, the literature emphasizes the infant-caregiver relationship by conceptualizing the influence of *other* factors in a child's environment only indirectly *through* their effect on parent's mental health and care giving abilities (Campbell, 2005; Gleason & Doctoroff, 2006; Zeanah & Zeanah, 2001).

Ultimately, the literature conveys a common understanding that child mental health and illness are shaped by complex interactions between the child's individual, biological characteristics, the caregivers' characteristics, the more general family environment, and the broader socio-cultural and environmental context. While there is agreement on these influences, the specifics of the interaction among these factors are less well understood and remain imprecise and under-studied. From a science perspective, there may be numerous reasons for such imprecision, from lack of research funding to legitimate debates over the meaning of existing studies. From a communications perspective, this lack may well represent a critical "hole" in the story of child and family mental health, with the potential to undermine public understanding and engagement.

<u>Implications</u>

The literature expresses general consensus that child mental illness is the product of two groups of influences: individual/genetic factors and contextual/environment considerations. There also appears to be agreement that these influences determine a child's mental health and illness through a *complex interaction*. However, there is debate and a general lack of clarity as to the *extent* or *degree* of the effect of these factors in co-determining specific mental health outcomes.

In short, scientists agree that the relationship between these two factors is *complex*, but are in far less accord when tasked with *unpacking* and *modeling* this complexity. This points to the need for in depth research on how Americans understand individual differences and more specifically on the implicit assumptions they employ to understand the interaction between genes and environments. Framing mental health will require a strategy for how best to communicate the complexities of this interaction to individuals who, because of inherent features of cognition, implicitly seek to simplify and partition such complexity. Put simply, communications will need to simplify the gene-environment interaction for individuals to appreciate and understand the causes of child mental health.

2. Conceptualizing Child Mental Health: Immaturity and Maturity

A dominant argument in the scientific literature is that the public remains fundamentally mistaken and misguided about young children's abilities to influence, and be influenced by, their environment at such an early age. According to Zeanah, Stafford, Nagle, and Rice (2005), most lay people believe that early childhood is a happy time and conclude that this general happiness prevents children from having the mental health problems that we see in adults. Indeed, Zeanah & Zeanah (2001), observe that the term 'infant mental health' may seem like a contradiction in terms—for many, the word 'infant' connotes innocence and hope, while 'mental health' has negative connotations of stigma and mental illness. According the literature, many parents may resist the idea that their child's disruptive behaviors are symptomatic of a mental health disorder because of the assumption that the child is too young to exhibit psychiatric problems (Maniadaki, Sonuga-Barke, & Kakouros, 2005). This conception of children as innocent and immature extends even to children in high-risk environments—juvenile courts generally consider children in the child welfare system under the age of five to be immune to mental health problems, despite the fact that these children are often exposed to multiple potentially harmful influences from birth (Lederman, Osofsky, & Katz, 2007).

It is important to note that the field of child development itself only recently acknowledged the possibility of mental health problems in young children (Luby, 2007). While awareness of the issues surrounding early childhood mental health has increased dramatically over the last two decades among researchers and clinicians in child psychiatry and related fields, some researchers and clinicians still debate whether or not young children can truly be given psychiatric diagnoses (see Egger & Angold, 2006). Cordeiro, Da Silva, and Goldschmidt (2003) note that there is a considerable increase in referrals for mental health problems after children turn three, suggesting that practitioners may still hold reservations about identifying or assessing mental health problems in very young children.

Despite the lack of consensus among researchers and practitioners over *how* to approach mental health issues in young children, scientists argue that recent research clearly demonstrates that young children are *not* immune to mental illness and disorders. Perhaps the most persuasive evidence for children's receptivity to environmental influences and the importance of early experiences for children's mental health is the fundamental nature of the attachment relationship between child and caregiver. Attachment theory holds that a children's early experiences with their caregivers guide and influence children's later relationships and social interactions. The patterns of relationships established in infancy are thought to be stable across the lifespan. While later experiences may add to or modify the model of interaction, the original attachment

relationship serves as the most prominent influence on a person's perceptions, expectations and behaviors in social interactions (Marchand, Schedler, & Wagstaff, 2004). Bricker, Schoen Davis, & Squires (2004) contend that the attachment relationship developed in infancy is fundamental to children's future mental health outcomes.

Despite links between child experiences and adult outcomes, child mental health is a unique phenomenon. Scientific understanding and models of adult mental illness do not apply to or map directly onto children. Researchers take pains to argue that infants and toddlers are *not* "little adults" (Sturner, Albus, Thomas, & Howard, 2007). Scientists maintain that, in order to understand the foundations for mental health and mental illness in young children, developmental "windows" must be considered. Symptoms of mental health must be considered in relation to a child's specific developmental stage. For example, between ages two and three, children undergo an important developmental shift, transitioning from complete dependence on caregivers to an awareness of the ability to manipulate and control aspects of their development; this state represents a particularly vulnerable point in children's socio-emotional development, as insensitive care giving during this period can have serious consequences on children's mental and lead to poor health outcomes later in life (Cordeiro, Da Silva, & Goldschmidt, 2003).

Increasing awareness of the importance of a developmentally appropriate conception of child mental health provides evidence for the idea that while children do suffer mental health problems, these problems present differently from those of adults. Just as the foundations of mental health must be viewed in the context of development, it is also important to recognize that symptoms of mental illness must be viewed through a developmental lens—symptoms of mental disorder can change with development and depend on children's specific cognitive and affective capacities (Stafford, Zeanah, & Scheeringa, 2003).

Implications

The assumption made by the scientific literature—that members of the general public believe all children are "happy" and that mental health and illness are "non-issues" in this population—is an important consideration in communicating with the public about the science of child mental health. Regardless of whether the public actually does hold these preconceptions, they influence the telling of the science story and are therefore important assumptions to resolve in the minds of scientists. Moreover, the communications habits scientists employ to address these assumptions need to be examined to determine whether they resolve these issues or further contribute to them.

In future research, we will have to explore both these assumptions and the proposed theory of mind that they represent (that children can not have mental health or illness) by uncovering the ways that members of the general public *do* conceptualize the minds of young children. The role of environments and early experiences in how people think about young children also needs to be investigated as we move forward into cultural models interviews. It is a well-accepted feature of cognition that individuals make sense of incoming information using general *pre-existing, ready-made* sets of organizational principles and assumptions. The danger that stems from this feature of how people make sense of information is that communications that stop at just making people realize that young children *can* experience mental illness will fall short of the larger goal of communicating the science—individuals will implicitly rely on mental models of *adult* mental illness to think about *child* mental illness. This will have implications for how the

public thinks about issues of intervention, prevention, and treatment and will influence support on specific policies.

3. Determinants of Mental Illness: Risk and Protection

In investigating the determinants of child mental illness—why a child does or does not develop mental illness—the literature relies on the concepts of *risk* and *protective* factors. In the context of child mental health, risk factors are those aspects of a child or her environment that increase the likelihood of *negative* mental health outcomes. Protective factors, on the other hand, are those aspects of either the child or her environment that promote *positive* mental health outcomes. Through a somewhat fuzzy interaction, these risk and protective factors combine to determine a child's vulnerability to developing mental illness.

There is general agreement in the literature that the greater the number of risk factors a child is subject to, the more likely she is to suffer mental health problems (Zeanah, Boris, & Larrieu, 1997); the specifics of this calculus of risk and protection, however, remain unclear. It is unlikely that exposure to a single risk factor significantly compromises a child's future mental health outcomes, while concurrent exposure to multiple risk factors in combination is clearly associated with increased likelihood for mental health problems (e.g., Sameroff, Bartko, Baldwin, Baldwin, & Seifer, 1998). Beyond the cumulative effect of multiple risk factors, researchers are unable to discern the relative weights of specific risk and protective factors or model their interaction. No one can say with certainty, for example, whether the risks of premature birth into low socioeconomic status in a crime-ridden neighborhood would outweigh a secure attachment relationship with a primary caregiver. The risk and protection calculus is further complicated by the fact that risk factors tend to cluster together—that is, exposure to particular risk factors (e.g., single parenthood) increases a child's risk of being exposed to additional risk factors (e.g. poverty) (Ruchkin, Gilliam, & Mayes, 2008).

It is important to note, however, that even a combination of multiple risk factors does not necessarily preclude a child from healthy socio-emotional development. Multiple protective factors can "directly reduce the effects of risk, enhance competence, or immunize an individual against adversity" (Zeanah & Zeanah, 2001). Different protective factors can combine, just like risk factors, to promote mental health and the effects of these protective factors often endure throughout the lifespan, helping to combat various individual and environmental challenges throughout development (Sameroff, 2000). The simple fact that some children demonstrate socio-emotional resilience in the face of multiple serious risk factors highlights the importance of protective factors (Werner, 2000).

Implications

The primary implication of the scientific discussion of the determinants of child mental health is that there appears to be a missing element in connecting determinants and outcomes. In other words, there are two factors—in this case risk and protective—that combine through an *unknown process* and result in either mental health or illness. This "black box" of causation is a communications challenge. Our research and cognitive science research more generally, has shown that individuals are quick to disregard information in which *process* and/or *causation* are under-developed, imprecise or overly complex. While FrameWorks has developed specific

communications tools (causal sequences and simplifying models) to deal with this feature of cognition, at the end of the day our communications must do justice to the science—in this case, they must accurately represent what the scientific community knows about the interaction between risk and protective factors. From our review of the literature, the science of this relationship remains unclear and will make formulating effective and scientifically accurate communications about child mental health difficult.

4. The Effect of Child Mental Illness: Transience and Permanence

While researchers have provided evidence that some children truly are resilient, the literature also assumes a lay misconception that children in general just 'bounce back' from any early adversity. While not the result of careful public opinion research, this assumption in the scientific literature—that they lay public holds a scientifically inaccurate belief in child resilience—is an interesting and important feature of the scientific literature on child mental health. In their discussion of children in the welfare system, Lederman, Osofsky, & Katz (2007) note that there seems to be a public belief that any negative effects young children experience as a result of exposure to high-risk high-stress environments is temporary; it seems that even "juvenile court personnel are not aware that early trauma and other developmental risk factors to which babies and toddlers in the child welfare system are disproportionately exposed can result in long-term harm" (Lederman, Osofsky, & Katz, 2007, p.444). Brauner & Stephens (2006) argue that researchers must actively combat the misconception that children's mental health problems are transient and naturally dissipate over time.

The perceived insignificance and transiency of mental health problems in young children is underscored by the finding that parents may wait up to one year before seeking the guidance of a professional in assessing and treating their children (Cordeiro, Da Silva, & Goldschmidt, 2003). Indeed, several researchers have commented on the fact that many parents do not seem to view children's early mental health problems as worthy of professional attention (Cordeiro, Da Silva, & Goldschmidt, 2003; Maniadaki, Sonuga-Barke, Kakouros, & Karaba, 2006). The problem of identifying which problems are transient and which are likely to be permanent is emphasized by Gelfand (2003), who notes that even child mental health practitioners are often hesitant to identify or diagnose a mental health problem in very young children because they are uncertain about the long-term prognosis of early disruptions in socio-emotional development.

This tension seems to stem from the fact that the available research provides support both for and against the popular perception of the transience of early mental health problems. Campbell (2005) points to the fact that some research suggests that many young children who show evidence of early socio-emotional problems, but who are not referred for mental health evaluation, eventually 'overcome' these problems. Gelfand (2003) notes that, even when parents do report that their children exhibit behaviors indicative of early socio-emotional problems, only a fraction of those children will continue to develop a diagnosable psychiatric condition. On the other hand, several researchers (Han, Catron, Weiss, & Marciel, 2005; Bricker, Schoen Davis, & Squires, 2004; Lederman, Osofsky, and Katz, 2007) take pains to emphasize the fact that early emotional and behavioral problems significantly alter a child's mental health trajectory, putting these children on what Lederman, Osofsky, and Katz (2007) refer to as a 'pathogenic path.' Bricker, Schoen Davis, & Squires (2004) note that early mental health problems may make children less able to build healthy relationships with the peers and adults in their social

environments and may severely impede children's development of fundamental cognitive, linguistic, and regulatory abilities.

By altering a child's developmental trajectory, early socio-emotional problems may only worsen as time passes, resulting in more serious mental health issues in later childhood, adolescence, and even adulthood. (Bricker, Schoen Davis, & Squires, 2004; Han, Catron, Weiss, & Marciel, 2005; Lederman, Osofsky, & Katz, 2007). Importantly, the idea that early indications of mental health problems may become more, rather than less, severe over time directly contradicts the notion that the scientific literature attributes to members of the general public—that children are immature, malleable beings who can 'grow out of' their early mental health problems. Indeed, Stafford, Zeanah, & Scheeringa (2003) observe that, contrary to common belief, the fact that children are undergoing rapid developmental change does not necessarily mean that their socio-emotional

problems are transient; while some symptoms do decrease or disappear over time, some symptoms clearly do endure, while others change over the course of development.

Implications

There appears to be some disagreement and contention in the scientific literature over the long-term effects of early child mental health problems, with some researchers emphasizing resiliency and others strongly on the intractability side of the debate. Should this disciplinary debate find its way into the public sphere, it would likely reinforce the belief that children are resilient. *However, the presence of this belief in the general public remains to be investigated.* We will explore the assumption that we found in the scientific literature—that the public holds resiliency models of child development—as we move forward with our research. However, past FrameWorks research on early child development *does* support the existence of such a cultural model.

Because of the top down nature of cognition—that pre-existing general categories are used to make sense of specific/new information—the lack of clarity in the science on the long-term impact of child mental health problems is likely to reinforce people's belief in the tractability of these problems rather than cause them to question their implicit assumptions about children and resiliency. The implication for communications is, therefore, that the scientific position on the long-term effects of child mental health problems must be clarified. Furthermore, the tensions in this area of the literature must be simplified and unified in a message about the relationship between early mental health problems and long-term effects. Only then can communication efforts begin to shift dominant patterns of thinking away from the transience of early mental illness and create an appreciation for the long-term effect of such problems when experienced in early childhood. If in fact the science *is* clear, and early child mental health problems have deleterious long-term effects, shifting patterns of public thinking to allowing Americans to "think" and use this information is a vital task in our communications efforts.

5. Intervention: Variation and Pathology

Given the potential long-term consequences of early child mental health problems, it is not surprising that the mental health literature is decidedly in favor of early interventions to prevent adverse effects on developmental trajectories. Knitzer (2008) argues for a child mental health model rooted in prevention, with the understanding that early intervention reduces the likelihood

that at-risk children will become 'high cost users' of our nation's social welfare and healthcare systems. Researchers and practitioners appear to agree that delaying the implementation of mental health intervention until a child reaches middle childhood or adolescence renders the strategies less effective and more expensive, as the child's socio-emotional problems have, during the delay in service provision, become more deeply entrenched (Bricker, Schoen Davis, & Squires, 2004). Several researchers mention the work of Ramey & Ramey (1998) as evidence that the earlier an intervention is implemented and the longer it lasts, the greater the returns will be to the participants and to the community at large.

There are some practical concerns, however, that limit the availability of early intervention programs. First, funding for these programs limits capacity—as such, there must be some mechanism for determining which children should receive these mental health services and which children should not. Given the equivocal nature of findings regarding the permanence of early mental health problems, some children who have early problems may not need intervention-based mental health services to overcome their problems. Practitioners argue that it is important to prevent children from unnecessary diagnosis and treatment. In the same vein, researchers have issued warnings against the "psychopathologizing" of childhood, and the inappropriate treatment of transient developmental problems" (McClellan & Speltz, 2003). The issue then extends beyond making more efficient use of funding—parents and practitioners alike are concerned about the potential stigmatizing effect of an erroneous or unnecessary psychiatric diagnosis (Brauner & Stephens, 2006).

The goal then is to discern whether a child's socio-emotional problems are "normative and age-related, a reaction to transitory stress in the face of a developmental challenge" or indicative of a more serious long-term condition (Barbarin, 2007; Campbell, 2005; Zeanah & Zeanah, 2001). This task is far from simple, however, as the developmental changes that characterize early childhood make it difficult to determine problems that represent individual variations in *typical* behaviors, not requiring treatment, and those that constitute real *pathology* and do require treatment (Campbell, 2005) (Bricker, Shoen Davis, & Squires, 2004).

Unfortunately, the science remains unclear on how to make this distinction and determine which children need treatment and which children do not (Brauner & Stephens, 2006). Researchers and practitioners agree that the standard manual for psychiatric diagnosis, the Diagnostic and Statistical Manual (DSM, now in its fourth revision), is *insufficient* for evaluating and assessing the mental health status of children (Sturner, Albus, Thomas, & Howard, 2007). More recently, researchers developed the Diagnostic Classification of Mental Health and Developmental Disorders of Infancy and Early Childhood (commonly referred to as DC:0-3), as a developmentally appropriate alternative to the DSM. Like the DSM, the DC:0-3 is based on *discrete categories* that correspond to specific diagnoses—this categorical approach aids the practitioner in determining an appropriate treatment plan and provides both practitioner and parent with a common vocabulary for discussing a child's mental health problems (Gleason et al., 2007; Stafford, Zeanah, & Scheeringa, 2003).

Researchers are quick to note, however, that because these categorical models are based on discrete diagnoses, they are not necessarily adequate tools for screening children who are at risk for developing clinical mental health problems but do not currently show signs of them

(Barbarin, 2007). Scientists often invoke the notion of mental health as existing on a continuum, rather than in discrete categories, and argue that in order to identify children with sub-threshold mental health problems, a screening tool must reflect the dimensional nature of mental health characteristics (e.g. Barbarin, 2007).

Scientists have not yet solved the issue of diagnostic sensitivity. This likely reflects an underlying conflict between two frequently blurred goals and concepts: promoting mental health and treating mental illness. If promoting mental health is the ultimate goal, then developing tools that are sensitive to variations in mental *health* is important. On the other hand, if treating mental disorder is the ultimate goal, developing tools that are sensitive to discrete *psychopathologies* is important. Given these divergent aims, it may be that the distinct goals of prevention and treatment cannot be served by the same tools. It is also possible, however, that a combination of these aims and approaches tool may produce a tool that adequately serves both purpose—indeed, Jensen & Watanabe (1999) suggest that a combination of dimensional and categorical tools provides the best means for reducing the risk of erroneous diagnosis and providing the most accurate assessment of a child's mental current and future mental health status.

While the discussion of prevention and treatment in the academic literature reflects the underlying tension between conceptions of individual variation and pathology, researchers recognize that this tension characterizes the systems that provide treatment for mental illness. The health care system in the United States is not sensitive to individual variations in mental health and does not recognize how these variations in children may be important for preventing future mental health problems. Instead, the health care system is rooted in a pathological approach to health, focusing on treatment rather than prevention. Researchers note that, in general, only those young children with discrete psychiatric diagnoses receive insurance coverage for mental health services (Knitzer, 2008; Sturner, Albus, Thomas, & Howard, 2007). In fact, Johnson & Knitzer (2005, in Knitzer, 2008) contend that the funding streams required to proactively address the impacts of risk factors on young children's mental health through early prevention and intervention programs simply do not exist.

Implications

The lack of diagnostic tools to separate typical *variation* from *pathology* complicates the task of communicating the science of child mental health. A clear message about intervention—the "what to do" part of the message—is paramount in designing communications for policy makers and the general public. The intervention component of the story provides the "solution" that follows a carefully framed problem. Past FrameWorks research has found that the very existence of "solutions" is an integral component in any message designed to increase support for and awareness of an issue. Without a clear solution, responsibility, roles, and agency remain unclear, unframed and severely limit the ability of a message to move public support. In short, people are left without knowing what they should do. This, in turn, serves to redefine the problem as beyond the purview of public intervention.

DISCUSSION

The first point that becomes evident from this review is that the field of child mental health is

still very young. According to Egger & Angold (2006), our understanding of the issues surrounding the mental health of young children is currently at the same point that our understanding of adolescent mental health was thirty years ago. Just as it took several decades to conduct the rigorous empirical research that provided clear evidence for the fact that the mental health issues relevant to adolescents were not the same as those relevant to adults, it will take time to amass the knowledge necessary to gain a comprehensive understanding of how young children differ from other age populations. While the science of child mental health has come a long way, many areas of the field remain poorly conceptualized, highly contentious and without clear implications in the worlds of policy and practice. As discussed, the intricate interactions of risk and protective factors as they influence children's mental health outcomes are only superficially understood. In addition, while scientists have argued persuasively for the adoption of a developmentally appropriate perspective on issues of child mental health, there is still limited information available to researchers and practitioners regarding the exact nature and application of such a developmentally appropriate perspective. Furthermore, some issues remain contentious among child development and child mental health experts. Specifically, the issue of whether children can or should be diagnosed with psychiatric conditions remains heavily debated. Also, the correct approach for assessing children's mental health status remains in question, as scientists debate the merits of both categorical and dimensional tools.

The second point that emerges from this review is that the academic and public views of child mental health are likely to differ significantly. While scientists have come to acknowledge the fact that even young children have mental health concerns and are susceptible to mental health problems, we suspect as scientists do, that the public has yet to arrive at this conclusion. This is likely due, at least in part, to the fact that most laypeople have conceptions of child development and mental health that prevent them from incorporating, using, understanding the more recent academic of understanding of child mental health. While we have yet to explore how the public thinks about and understands child mental health in detail, past FrameWorks' research on early child development suggests that the public lacks awareness of concepts that are fundamental to the scientific understanding of child development, including the idea that early experiences have significant and sometimes lasting effects on brain development and the idea that even young children have sophisticated capacities for cognition and emotion. In addition, the connection the public appears to draw between mental health and mental disorder presents a significant challenge to moving support for policies that support mental *health* in children in addition to those that treat pathology. The fact that the medical model remains the most visible approach to mental health care in the United States makes the ability to incorporate, process and use scientific knowledge on this issue cognitively difficult.

Even if the lay public can appreciate the existence of child mental health, intervention strategies—what to do about the problem—remain unclear. There are innumerable considerations before any kind of national child mental health policy can be successfully implemented. For example, some argue that child mental health services are most logically incorporated into the primary care system, with pediatric physicians serving as the frontline providers for child mental health care (US Public Health Service, 2001). Others support the integration of child mental health services into the childcare and education systems (Alkon, Ramler, MacLennan, 2003; Zigler & Finn-Stevenson, 2007).

Finally, while there is a model of mental health implicit in the literature, it is rarely explicitly employed to discuss mental health. When it is used, it serves as a means to discuss mental illness, focusing on diagnosing and treating illness with little focus on the promotion of mental health. The focus on mental illness explains the lack of attention to developing, improving and refining models of child mental health.

II. EXPERT INTERVIEWS

RESEARCH METHOD

Subjects
Seven child mental health experts were identified by surveying several prominent specialists in the field of early child development. A FrameWorks researcher conducted one on one interviews with these experts over the phone in December 2008 and January 2009. Interviews lasted approximately 1 hour and were recorded and transcribed with participants' permission.

Interviews
Our primary objective in conducting this series of expert interviews was to supplement the literature review described above. In past FrameWorks research, we have found talking to experts in a particular issue or area of study to be an invaluable addition to a more traditional review of the literature, particularly in revealing the major tenants of the expert discourse—that is the common and standardized themes and currents in how experts talk about and conceptualize the relevant subject.

Two additional objectives directed this set of interviews. First, we aimed to use these interviews to reveal the gaps, or what we call "cognitive holes" that currently exist between how experts understand and explain child mental health and how average Americans think about and conceptualize this topic. In past FrameWorks research, coupling these expert interviews with a series of cultural models interviews with members of the general public, a series of which are currently being planned for child mental health, has enabled us to effectively locate cognitive holes. In other words, during the analysis of and comparison between the data derived from these two methods (expert and lay-cultural models interviews) the cognitive holes become powerfully and readily apparent. These cognitive holes then represent targets to address in our efforts to reframe the issue of child mental health. Because of this goal we designed these expert interviews to elicit the "story" of child mental health from the scientists who were positioned, because of on-going research and academic interests, to give us a general account of what the science has to tell us about this topic. This story will be compared as we move forward from data gathered from the general public.

We also saw this series of interviews as a valuable opportunity to elicit the distilling and clarifying concepts and metaphors that scientists use to relate their findings to various "public" audiences. In our past communications research on early child development, the metaphors and concepts we have been able to "mine" from experts have proven invaluable in translating scientific findings into a digestible and effective story that emphasizes policy implications to both policy makers and the general public.

To accomplish these two goals—identifying cognitive holes and "mining" for metaphors—we guided our informants through a series of prompts and hypothetical scenarios designed to challenge them to explain their research; break down complicated relationships; and simplify concepts, methods and findings. For example, in one exercise, experts were asked to imagine that they were speaking to a room of policy makers and were tasked with explaining what mental health is in young children, and the implications of this concept for "average" Americans. In addition to the preset questions, the researcher probed experts with additional questions that members of the hypothetical audience might ask in response to the initial explanations offered by the informant. In this way, the interviews were semi-structured collaborative discussions with frequent requests for clarification, elaboration and explanation.

Analysis

Analysis of the expert interviews was conducted using a basic grounded theory approach.[4,5] Common themes were pulled from each interview, but the themes comprising the final list presented below are consistent with and representative of *each* scientist's account. This is a hallmark of the grounded theory approach in which data is analyzed to generate categories and themes, which are modified and refined during analysis to accommodate negative cases—resulting in a set of categories and statements that are consonant and account for the *entire* data set. In addition to pulling out the science "story" of child mental health, analysis focused on identifying both overt/explicit and covert/implicit metaphors that the experts used in the interviews. As explained above, these metaphors are invaluable in FrameWorks' communications research and will be subjected to empirical qualitative and quantitative testing as we move forward with our iterative research process.

The results presented below are organized into two sub-sections. The first reports on *core themes* that emerged from expert discussions of child mental health. The second summarizes the *metaphors* that the scientists employed, either explicitly or implicitly in attempts to explain the concept of child mental health and the implications of the scientific findings in this area.

CORE THEMES

[4] Glaser, Barney G., and Anselm L. Strauss. The discovery of grounded theory; strategies for qualitative research. Chicago: Aldine Pub. Co. 1967.

[5] Strauss, Anselm L., and J. Corbin. Basics of qualitative research: Grounded theory procedures and techniques. Newbury Park, CA: Sage Publications. 1990.

1. Child Mental Illness *is* a Real Thing

In our interviews, experts concentrated on the point that child mental illness is a *real* phenomenon—that children really can experience mental illness and that there are variations in the degree to which they experience mental health. To make this point, experts relied on three lines of reasoning. When asked to defend the position that children can really experience poor mental health, experts explained that there are distinct patterns in the symptoms of children experiencing mental illness. Experts explained that this suggests that children with these symptoms are actually experiencing *something*—that when scientists talk about child mental health, they are talking about a discrete and definable phenomenon. Experts explained that symptoms are manifest as patterned deviations from "normal" abilities and behavior. Secondly, experts explained that because these common patterns of symptoms across individuals respond in similar and predictable ways to treatment, symptoms are in fact characteristic of an observable and treatable phenomenon, similar to mental illness in adults. Finally, experts responded to probes about whether or not children really could experience mental illness and health by citing the *outcomes* of mental illness in children. Experts discussed epidemiological research that has shown the "costs to society" derived from child mental illness. In other words, if something causes real outcomes, it in turn must also be real. In summary, the logic used by experts to explain why mental illness does in fact exist in children was that there are patterns of symptoms, these symptoms respond to treatment in similar ways, and that the presence of this phenomenon is apparent in its clear effects on both individuals and society more broadly.

2. Life Long Effects

Scientists emphasized that what happens in childhood affects an individual for their *whole life*. In short, children who experience persistent symptoms of mental illness are impacted in a wide range of areas, from schools to social abilities, to proficiency in dealing with issues and challenges of everyday life. Put another way, child mental illness affects the success of the individual for the rest of their lives.

3. Functioning

Experts employed a concept of *functioning* to explain what child mental illness is and how it manifests. At points during all interviews, experts explained that mental illness could be conceptualized as an *inability for children to function* in developmental culturally standard patterns. Experts used this concept both explicitly, in explaining what child mental health is, and more implicitly in discussing diagnosis and treatment. When used explicitly, the concept of functioning was employed to explain child mental health to audiences who would be reluctant to realize and/or understand the concept and would be resistant to its existence at all. According to experts' hypotheses, even if people are resistant to recognizing certain diagnoses in kids (depression for example), they would be less resistant to thinking about limits in functioning. Child mental illness, therefore, can be conceptualized as something that affects the way kids

function and can or can't do "normal" things. "Treatments" for child mental illness can be similarly conceptualized as ways of helping kids function—rather than as treating an illness.

4. Genes and Environment

In our interviews, experts discussed the causes of mental illness in children by focusing on the interaction between genes and an individual's experiences in an environmental context. Scientists employed this interaction to formulate four different combinations of influences that ranged from least to most predictive of child mental illness. On the least conducive side was the scenario where a child has a predisposition to be resistant to threats to mental health *and* is situated in an environment that supports positive mental health. On the other extreme was the scenario where the child has a predisposition to mental illness and experiences a stressful and unsupportive environment. The other two combinations of these factors lay between these extremes (genetic resiliency and unsupportive environment, and genetic predisposition and supportive environment).

5. The "Family" in Child Mental Health

The experts we spoke to were resolute and unequivocal in making the connection between the mental health of the family, particularly of the child's mother, and that of the child. Experts explained that, if parents' functioning is limited by symptoms of mental illness, they cannot respond to the child's needs. Consequently, when physical and socio-emotional needs are not met, dysfunctional responses in the child, impaired development of functional responses, and an increased likelihood that the child will develop mental illness are likely to precipitate.

6. Child *Mental* and *Physical* Health are Inseparable

The idea that mental and physical health are closely related and intertwined was a dominant theme in our expert interviews. For the experts, mental illness was rooted in the body in the same way as physical health. Physical illness was explained to occur when trauma or disease acts upon some area of the body, which is then manifest as physical symptoms. Mental illness was explained using the same logic and causal sequence—occurring as the result of some physical change in the brain. Because of its roots in the body, mental illness can be understood from the same perspective as physical illness—located in the body and the result of physical changes to that body in much the same way as when someone gets the flu or breaks an arm.

7. Child Mental Health is "Fuzzy"

A dominant feature, both explicitly recognized and implicit in shaping conversations in expert interviews, was a lack of clarity on the science of some key issues in the field of child mental health. Experts explained that diagnosing the symptoms of child mental health remains contentious because adult models cannot simply be "aged down" to fit the symptoms and

experiences of children. Because children are so developmentally different from the adults on whom diagnostic models are based, diagnosing child mental illness is an area where the science remains inconclusive. Further complicating this issue is the fact that there is no one "child" model of mental illness or health because of the vast differences between children at different developmental "windows." "The child" is a moving target. Experts also explained that much of the scientific understanding of adult mental illness is based on self-report data, which for obvious reasons, is less readily available, detailed, and reliable for young children. Another reason for the imprecise nature of the scientific understanding of diagnoses in child mental health is due to the lack of significant case history when dealing with young children. Quite simply, young children have not been alive long enough to have the extended, detailed, and heavily patterned case histories of symptom presentation as do their adult counterparts. Such case histories are influential in diagnosing mental illness in adults. Finally, experts explained that the relative scientific fuzziness of the concept of child mental health and illness is due to the newness of this area of scientific research and clinical practices. In other words, the discipline is relatively under-conceptualized and poorly understood because scientists have only recently begun to focus on mental illness in young children.

8. No Concept of Child Mental *Heath*

Surprisingly absent from our interviews with experts was a working concept of child mental *health*. For each scientist that we spoke with, child mental health was largely defined as *the absence of mental illness*. Implicit in each of our interviews (our questions were broad at the outset to see how experts oriented towards the concept that we introduced as "child mental health"), experts focused on child mental *illness*, with little to no mention of what it means for children to have mental *health*. The implicit assumption made by our informants was, therefore, that child mental health is the absence of the aggregate of child mental illnesses.

IMPLICATIONS

The experts' preoccupation with outlining why child mental health is a "real" phenomenon, coupled with admissions of fuzzy areas in the science, is revealing of how the scientists we spoke to perceive the public response to and understanding of the concept of child mental health. The preoccupation with the point that child mental health *is* a real thing, the frequent comparisons drawn between mental and physical health (perceived by the scientists to be well-accepted and understood phenomenon in the lay public), and the acknowledgement of the fledgling nature of the science of child mental health, speak to assumptions about public thinking that may or may not prove valid. They also expose habits of presentation and assumptions about communications that may or may not serve to advance public understanding. We interpret this seeming defensiveness to be a result of their exposure to the dominant belief discussed in studies of lay theories of the mind, that children do not have the emotional equipment to experience mental health or mental illness. As such, their responses to this dominant belief expose assumptions about communications that will prove invaluable as we work to improve science communications on this topic. We will address and explore this inference in our next round of

research as we enumerate and examine the cultural models that Americans use to understand and think about child mental health.

The results outlined above also point to an important policy implication. The connection that each expert emphasized between *family* well-being and mental health and that of the *child* point to the effectiveness of policies aimed at supporting families as a means of decreasing child mental illness and supporting child mental health. Communication materials that can concretely establish this connection are likely to create and boost public support for family-based policies. We will explore the connections made by the general public between family and child health as we move into our next round of cultural models research. At the same time, the narrow emphasis that experts placed on the family as the context and environment of child mental health and illness is somewhat concerning in light of FrameWorks' past research on other social issues. Without careful framing, the emphasis on the family will devolve into patterns of thinking that are counterproductive to increasing *public* support for policies. We have found over and over again that a narrow focus on the family as the environment of influence cognitively blinds Americans to both the importance of how families are *supported* by the larger social and structural contexts in which they live, and the policies that shape these contexts. In short, when the only environment of influence is the "family," Americans are quick to blame parents and lack of motivation and are unable to see the public structures that support families and family outcomes.

The experts' preoccupation with the relationship between genes and environment to explain how children develop mental illnesses suggests another important direction in our communications research. Communications that are able to provide the public with a means of understanding this admittedly complex interaction may be successful in improving the understanding of child mental illness and health and may be better able to create the perception that this is a real phenomenon grounded in both genetics and the *environments* in which children live. Improving appreciation for the concept of child mental health and its *environmental* influences is likely to create public support for policies that shape and improve the environments in which children have experiences and develop.

Finally, result number eight in the previous section suggests the need for the development of a scientific concept of child mental *health*—one that defines this concept as more than merely the presence or absence of child mental illness. As stated in the literature review section above, there is a model of child mental health implicit in the literature—a classic ecological model of layers of context. However, this model was not evident in our interviews. Using a richer concept of child mental health in communicating the science of child mental health would have a powerful effect in shifting the patterns of thinking about this issue from one rooted in disorder to one grounded in health. This conceptual shift would preference a different set of policies—those based broadly in *prevention* rather than narrowly in *treatment*—and would increase the collective significance of child mental health by widening the scope of those affected from a narrow slice of children with severe and recognizable mental illness, to *all* children who should experience mental health.

CONCLUSIONS

This report presents the dominant themes in the scientific discourse on child mental health. It considers the implications of these themes in communicating and translating the scientific knowledge in this area to the general public and in moving support for policies that the scientific literature suggests.

The report has laid out the following specific communications and policy challenges.

1. First, communication efforts on the science of child mental health must simplify and clarify the interaction between genes and environments that is the ultimate determinant of child mental illness.
2. Second, from an evidenced-based communications approach, FrameWorks must investigate in detail how the public understands child mental, using empirical methods to validate and contest what the expert community perceives as the public's stumbling blocks in realizing the message of the science on this issue. Mainly, our future research with the public needs to address whether or not people actually hold and employ the assumption that children cannot experience mental illness, and explore how they use such an assumption in understanding and processing information. In short, we will need to map the cultural models that the lay public employs in formulating an implicit "theory of mind" for young children. We will also have to focus our research on determining whether or not the public does in fact hold the resiliency of model of children that scientists believe they do. In this later respect, we do have good reason to believe, from FrameWorks' past research on child development, that such a cultural model does exist and is used by Americans in understanding child development more broadly. Our task here will be to confirm that this model of development is indeed applied to thinking about a child's mental health and to assess the effects of the use of this model in understanding or not understanding aspects of the science story.
3. A third task of our on-going evidence based communications research will be to illuminate the causal link by which risk and protective factors interact to determine mental health outcomes. This will involve research with both scientists—to make sure that we are filling this hole in the science with something that does justice to what science does know about this interaction—and with members of the general public to determine the best way to link these factors in encouraging a social and pro-policy perspective on child mental health.
4. The link between child and family health and well-being that emerged from both the literature review and expert interviews also needs to be explored from a communications perspective. How can communications simultaneously emphasize the importance and bi-directionality of this relationship *and* facilitate the realization that children and families are embedded in wider contexts that affect their mental health and well-being? This is a significant but not unfamiliar challenge in FrameWorks' communications research, but one that is of considerable importance in translating the science of child mental health.
5. The frequent comparison between physical and mental health employed by the experts we interviewed to justify the reality of mental illness is an interesting communication direction. FrameWorks' future communications research will have to explore the effect of drawing connections between mental health and that of the physical body to determine

the effects of such a comparison on how people understand child mental health and their receptivity to child and family policies.

6. Discussing child mental *illness* versus child mental *health* appears to have implications for policy receptivity—most obviously in lifting the salience of *treatment* over *preventive services* and policies. However, as FrameWorks moves forward with evidenced-based communications research, we task ourselves with documenting and exploring any differences that may arise when individuals are exposed to illness versus health frames.
7. Finally, we must work in our communications research with scientists to overcome the diagnosis debate and offer a clearer "solutions" message to the public, taking them through the "problem, responsibility, solution" progression that past FrameWorks research has found to be successful in shifting thinking about a social policy issue.

Despite the numerous and significant communications challenges presented above, this report illuminates a set of key points of *consensus* in the science of child mental health. These core messages represent clear points on which communications efforts must focus to begin translating the science of child mental health and designing a core story for the field. The importance of the family *and* the wider context into which children are embedded in preventing and treating child mental illness was clear in both the literature review and interview data. That mental illness in children is a real thing that affects the child's and family's ability to function was also a clear message. Finally, both the literature review and our interviews with experts emphasize the undeniable importance of and need for early interventions to deal with symptoms of child mental illness and to improve child and family functioning. As we work on translating and framing the science of child mental health we will determine, through empirical research, strategies that will move these points of scientific consensus into the public sphere in ways that point to the salience of policy in improving child health, development and well-being.

While the report represents the very beginning of our research on child mental health it nevertheless suggests a need for communications that provide Americans with alternative ways of thinking about child development and child mental health in order to shift public thinking and create cognitive space for Americans to realize the implications of the science of child mental health and see ways that they can be involved in addressing emerging issues. Subsequent phases of research will explore precisely how Americans think about this issue—the cultural models that they use to understand information dealing with child mental health—and *how* they employ these models in making sense of information, in forming opinions and making decisions.

The experts interviewed for this round of research clearly feel that the field of child mental health deserves the attention of both policy makers and the general public and are actively working on ways to clarify the science that points to policy implications. We will continue to work with them towards this goal.

APPENDIX: EMERGENT METAPHORS

Experts employed the following metaphors both explicitly and implicitly in our interviews. The metaphors represent a list of promising strategies to explore as we move forward with our research and begin to explore and test specific ways of clarifying, distilling and simplifying the

science of child mental health with the goal of translating this body of knowledge and allowing the public to use *science* in thinking about *public* and *policy issues*.

1. Mental Health is like Physical Health

The scientists we spoke to utilized the concept of physical health to help explain mental health and the fact that *child* mental health is a "real concept in both children and adults." Experts explained that you can actually "see" mental health in the brain in the same way that you can identify the causes of physical ill health in tangible parts of the body. A person who is experiencing mental illness has different patterns of brain activity than someone who is not experiencing symptoms, which can be seen with brain imaging technologies such as MRI scans. All of our informants used the comparison between physical and mental illness to make mental illness and child mental illness "real." They explained that the symptoms of mental health are rooted in the physical body—not the metaphysical mind—just as like the symptoms of a flu or cancer. Scientists also used this metaphor to explain the variations that exist in severity of symptoms of child mental health. Just as there are variations in the severity of physical ailments that individuals can experience, from a "cancer to a hangnail," there is a wide spectrum of severity of mental health problems. Experts emphasized the variation of the severity of mental illness in championing the importance in finding the figurative "line" that separates those mental illnesses that need treatment (cancer) from those that don't (a hangnail).

2. "Embedded"

Experts relied on a metaphorical process of "embedding" to explain how negative experiences in the environment of a child translate into symptoms of child mental illness. According to this metaphor, when a child has a series of negative experiences (i.e., negative or "toxic" stress experiences) these experiences get planted or embedded in the child—in short they get *built into* the child. Once these experiences are built in and embedded, the child may begin to experience symptoms of mental illness. This is a promising means of metaphorically modeling the dynamic interaction between environments and genetics for both policy makers and members of the general public.

3. "Pile-up" Metaphor

Experts used the metaphor of things piling up to explain the risk of successive negative stress experiences and multiple symptoms of mental illness for children in developing serious mental health problems. Experts used this concept to explain that the real problem, the worst-case scenario, is when children have an *accumulation* of mental health problems. One symptom is not normally a serious concern but when symptoms *pile up* untreated, the child is presented with a very real and pressing constellation of symptoms, which seriously impact his or her ability to function. The metaphor relies on the idea that, when initial symptoms go untreated (like the things on the bottom of the pile), they provide the foundation onto which other symptoms can pile onto. The size of *the pile* rather than the height of any *one individual symptom* is predictive of the most serious problems for children. The use of this metaphor is particularly powerful in

its ability to reveal a clear policy implication—mental health symptoms in children need to be treated early to avoid the accumulation of successive symptoms and disorders, which as an aggregate have devastating results for children.

4. Resiliency as a Skill

Experts employed an interesting metaphor when talking about resiliency and the connection between this attribute and the concept of mental health. They explained that resiliency is something that can be *learned* and has the power to mitigate environmental factors that might otherwise lead to mental illness. In this metaphor, resiliency was compared to a *skill* that children develop through practice and learning, as one informant said, "just like the ability to walk, talk, and read." The attainment of this skill was described as a mediating pathway between the mental health of individual children and their immediate environment. While comparing resiliency to and describing it as a skill is not necessarily new in the scientific discourse, it is promising as a reframing strategy for materials aimed at both policy makers and the general public. The implication that children, through the right experiences, can become more skilled in dealing with both genetic predispositions to mental illness and environments which may trigger or lead to symptoms of mental illness constitutes a potentially powerful translator of a core concept.

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