Early developmental and psychosocial risks and longitudinal behavioral adjustment outcomes for preschool-age girls adopted from China

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ABSTRACT

The central goal of this longitudinal study was to examine behavioral adjustment outcomes in a sample of preschool-age adopted Chinese girls. Research examining the effects of institutional deprivation on post-adoption behavioral outcomes for internationally adopted children has been constrained by the frequent unavailability of data on the institutional experiences of adopted children. Using child-level measures of the residual effects of pre-adoption deprivation or adversity, the present study of 452 preschool-age girls adopted from China tested the hypothesis that these measures will better predict behavioral adjustment (as measured on the CBCL/1½–5) than age at adoption (AAA), used conventionally as a proxy measure of the magnitude of deprivation effects. Along with AAA ($M = 13.1$ months, $SD = 5.1$), our measures were used to predict behavioral adjustment at two time points ($M_{age} = 2.7$ years at Time 1 and 4.8 years at Time 2). There was strong stability in behavioral adjustment across time, and the regression results showed that delays in social skills, refusal/avoidance behaviors, and crying/clinging behaviors at the time of adoption, rather than AAA, predicted behavioral adjustment outcomes.

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The past two decades have seen renewed interest in research on the impact of institutional deprivation. Following the collapse of Romania's communist government in 1989, the disturbing levels of deprivation among children raised in state-run institutions in Romania evoked unparalleled humanitarian responses and led to the adoption of many of these children by families in North America and other industrialized countries (Gunnar, Morison, Chisholm, & Schuder, 2001). Taking advantage of this "natural experiment", developmental scientists have revisited a variety of issues within the larger "early experience" question. To what extent are these consequences alterable as a function of positive post-adoption caretaking environments? What child- and context-level factors are associated with stability or change in developmental trajectories?

Research on adopted Romanian children in Canada and the United Kingdom (Beckett et al., 2006; Benoit, Jocelyn, Moddemann, & Embree, 1996; Fisher, Ames, Chisholm, & Savoie, 1997; Kreppner et al., 2007; Marcovitch et al., 1997; Morison, Ames, & Chisholm, 1995; Rutter, O'Connor, & ERA, 2004; Rutter & the English and Romanian Adoptees, ERA Study Team, 1998) shows remarkable convergence of findings on some of these fundamental questions. For example, studies have consistently found marked heterogeneity in long-term outcomes.

Even in the face of significant catch-up for the majority of children, the effects of early deprivation persist for some children.

With the cessation of adoptions from Romania, adoptions from China (as well as Russia) offer remarkable opportunities not only to explore questions emerging from the Romanian adoption research, but to expand the broader research agenda on early deprivation and later development. While the Child Welfare Institutes (CWIs) from which most Chinese children are adopted may be superior to communist-era Romanian institutional environments, they have been similarly characterized by large child-caregiver ratios and overcrowded living conditions.

As of 2009, nearly 75,000 Chinese children had been adopted by American parents (United States Department of State, 2010). The size of this population alone makes it an important target group for developmental inquiry. Equally important, by virtue of the continuous and sizeable adoption of thousands of Chinese children each year, China adoptions make it possible for researchers to design and fine-tune studies over time to address emerging and recurring questions on the broader subject of adoption as a form of intervention for institutional deprivation.

The study reported in this paper is part of a program of inquiry employing large-scale longitudinal survey methodology to explore child- and family-level correlates and predictors of behavioral outcomes for children adopted from China. Central to this research is the search, beyond the conventional use of age at adoption as a predictor, for measures of adoption-point child behavioral and developmental attributes indicative of possible residual effects of

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pre-adoption adversity. Pre-adoption adversity is conceptualized to include vulnerabilities associated not only with the deleterious psychosocial effects of institutional care but also child-level constitutional factors that may have been present at the time of institutionalization. Regardless of specific etiology, pre-adoption adversity can manifest itself in observable behavioral and developmental attributes that may, in turn, influence short-term and long-term post-adoption outcomes.

In much of the extant research on international adoptions, age at adoption has been used as a proxy for the length of time spent in institutions and to a lesser degree, a proxy measure for pre-adoption adversity (see Beckett et al., 2007; Marcovitch et al., 1997; Weitzman & Avni-Singer, 2005). Implicit in this use of age at adoption is the assumption of a linear relationship between duration of institutionalization and magnitude of deprivation such that the longer children have been institutionalized, the greater their presumed risk of developmental damage and, hence, the more limited their prospects for favorable later outcomes. Notwithstanding its intuitive appeal and dominance in empirical research, there are some fundamental problems with the use of this variable, especially when employed as the sole or primary predictor of outcomes. First, children who enter institutional care with pre-existing constitutional problems are more likely to present poorer outcomes regardless of duration of exposure to institutional care. Second, it is possible for children adopted at the same age to have been exposed to different degrees of deprivation, even within the same care environment. Third, even assuming comparable developmental status at the time of institutionalization, it is possible for children adopted at an older age (e.g., 18 months) from relatively better care settings to present a lesser degree of deprivation than children adopted at a younger age (e.g., 12 months) from conditions of severe neglect. Thus, the magnitude of deprivation effects cannot be reliably inferred from age at adoption.

Reviewing studies of Romanian children adopted into Canada, Pomerleau and associates (2005) underscored findings by Castle et al. (1999) that while children adopted at younger ages generally arrive in better conditions and make better progress in the first months following adoption, the relationship between age at adoption and later development appears to hold mostly for children from poor-quality pre-adoption contexts. Pomerleau et al. (2005) cautioned, therefore, that "when considering age at time of adoption as a predictive variable of development, it appears essential to take the pre-adoption living conditions into account" (p. 446). The fact that it is impossible in most studies to collect evidence on pre-adoption conditions does not diminish the admonition for caution in the use of age at adoption as an independent variable. To the contrary, it underscores the imperative to explore more proximal variables that are likely to better index the residual effects of institutionalization and other forms of pre-adoption adversity.

Three classes of such variables include anthropometric measures, normative developmental measures, and parental reports of physical, behavioral and psychosocial conditions noticeable at the time of the adoption. The first two (anthropometric and normative developmental measures) have an established tradition in research on post-institutional internationally adopted children and are being used increasingly in China adoption research to gauge the degree of developmental delay at the time of adoption. For example, two recent Canadian studies (Cohen, Lojkasek, Zadeh, Pugliese, & Kiefer, 2008; Pomerleau et al., 2005) have used height-to-age ratio, weight-to-height ratio, and head circumference to predict changes in mental and motor development, as measured on the Bayley Scales of Infant Development (Bayley, 1993). Two recent U.S. studies (Wilson & Weaver, 2009; Wilson, Weaver, Cradock, & Kuebli, 2008), both conducted on a much smaller sample of 23 children (54% adopted from China), have employed not only the Bayley Scales but also parental ratings on the Ages and Stages Questionnaire (Bricker, Squires, & Mounts, 1995) to measure and monitor the extent of

developmental delays from the time of adoption to 6 and 19 months post-adoption.

The data from all of these studies, and from studies examining the general health and developmental status of children adopted from China (e.g., Miller & Hendrie, 2000), suggest consistently that mild to severe developmental delays are quite common at the time of adoption. For example, in their sample of 192 clinic-referred children adopted from China, Miller and Hendrie reported that 55% were delayed in gross motor skills and 49% were delayed in fine motor skills on the Peabody Developmental Motor Scales. They also reported that 43% were delayed in language, 32% in cognitive and 28% in social–emotional development, as measured on the University of Michigan Early Intervention Developmental Profile (Schafer & Moersch, 1981). Wilson et al. (2008) reported that 60–70% of their sample had mild to significant delays in cognitive and motor development as measured on the Bayley Scales, while Nelson (2001), also using the Bayley Scales, found mild to severe delay rates of 59% and 89% in cognitive and motor development, respectively. These studies share the common attribute of employing relatively small samples of adopted children, ranging from 23 (Wilson & Weaver, 2009; Wilson et al., 2008) through 70 (Cohen et al., 2008) to 123 (Pomerleau et al., 2005). Miller and Hendrie (2000) studied 192 clinic-referred children but their analyses did not include predictions of developmental outcomes from measures of delays around the point of adoption.

Clearly developmental status at the time of adoption is an important measure of the potential residual effects of pre-adoption adversity. However, documenting them in large-scale survey research programs poses a major challenge. Unless heavily funded, researcher-administered measures of delay are unrealistic and because there are no standard instruments that are employed commonly in the assessment of delay in newly adopted children, even in international adoption clinics set up expressly and specifically to provide services to adoptive families (Weitzman, 2003), obtaining comparable standardized scores from evaluation records is not a viable option either. The solution we have adopted in our line of inquiry is to derive measures of developmental delay from parents' reporting of results from post-adoption medical evaluations, typically conducted within one week of arrival in the adoptive country. Further discussion of this approach is presented in the Methods section.

Of the three types of measures under discussion, the one receiving the least amount of attention in existing research pertains to adoption-point parent-identified signs and symptoms of physical, behavioral, and psychosocial problems. There is a clear need for more focused empirical work in this area, and a trend in that direction is discernible in the literature. In several studies, single-item measures of initial rejecting behaviors as well as pre-adoption abuse and/or neglect have been used to augment age at adoption as an independent variable and have been found to be predictive of behavioral outcomes (Groza & Ryan, 2002; Tan & Marfo, 2006; Verhulst, Althaus, & Versluis-den Bieman, 1992). More recently, the ERA Study Team has reported two studies on Romanian children adopted into the United Kingdom in which the presence or absence of meaningful vocalization at the time of adoption predicted outcomes in cognition, language, and specific indicators of impairment or psychopathology once children adopted before age 6 months were excluded from the analyses (Croft et al., 2007; Kreppner et al., 2007). Age at adoption was not associated with these different outcomes. Croft et al. (2007) characterized the presence of minimal language, even in the form of basic imitation of sounds, as "a rough index of the degree of institutional deprivation" that likely reflects the level of language and cognitive reserve that had "survived the effects of institutional deprivation" (p. 41).

In the present study, we utilized two parent-report measures to capture multiple dimensions of the potential residual effects of pre-adoption adversity on physical and psychosocial characteristics. The first, labeled Signs and Symptoms, consists of readily observable