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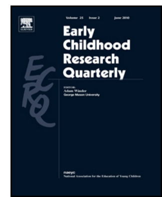

Participant characteristics and process variables predict attrition from a home-based early intervention program

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ABSTRACT

Although advocates of home visits claim that they improve access to preventive interventions for socially disadvantaged families, home visiting programs often report high dropout rates. This study investigated factors predicting attrition in a sample of 434 low-income, first-time mothers in a German program modeled on the Nurse–Family Partnership program. Both participant characteristics and process variables associated with attrition were examined. The results indicated that 38.5% of the mothers left the program before completing 75% of the enrollment time; 62% of those left for addressable reasons (e.g., losing interest in program participation). Arguably, these participants might be retained through program modifications. Almost half of the dropouts left the program before completing 25% of the enrollment time. Program dropouts were younger and did not experience pregnancy-related risks. With regard to process variables, a high frequency of unsuccessful visit attempts and low maternal engagement during the home visits increased the risk for attrition. Self-referral, a high percentage of time spent on parenting issues as well as a high percentage of grandmother participation during visits contributed to participant retention. Among mothers with a high number of risk factors for child abuse and neglect, partner (husband or boyfriend) participation during visits positively influenced the retention rate. Since process variables explained a larger amount of variance in attrition compared to participant characteristics, it is reasonable to focus on the intervention processes when trying to reduce attrition.

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1. Introduction

Home visits are advocated as a promising way to improve access to preventive intervention for underserved, socially disadvantaged families (Snell-Johns, Mendez, & Smith, 2004). However, home visiting programs often report high dropout rates. From 20% to 80% of the families enrolled in home visiting programs leave before services are scheduled to end—an average attrition rate of approximately 50% (Gomby, 2005). Guterman's (2001) systematic review reveals that 8% to 51% of the families leave the programs within the first twelve months. While no study, to date, has determined the exact amount of home visiting necessary to create change, dropping out is likely to dilute program effects. Several non-experimental program investigations show larger program effects with increased levels of program participation (Korfmacher, Kitzman, & Olds, 1998; Lyons-Ruth & Melnick, 2004; Raikes et al., 2006). It has to be taken into account that evidence from these studies is limited by their correlational design. For example, families staying in the program longer may be endowed with more resources in terms of psychosocial functioning, which may also result in better parenting and child development outcomes. A randomized trial provides further support for an association between length of participation and program effects. When comparing an intervention group visited by nurses only during pregnancy with an intervention group visited by nurses up to the child's second birthday, the latter group shows larger program effects (Olds, Henderson, Chamberlin, & Tatelbaum, 1986; Olds, Henderson, Tatelbaum, & Chamberlin, 1988). However, given the large variation between existing home visiting interventions concerning program duration, more experimental comparisons are needed for an assessment of an optimal length. For example, we do not know whether a program ending with the child's first birthday would have equal effects compared to a program lasting until the child's second birthday. Furthermore, program duration is not the same as the level of participation as frequency of the visits may vary between programs of the same duration. Thus, evidence for proof for optimal program participation is still incomplete.

Despite our limited knowledge concerning the necessary level of participation to create change, several questions arise when high levels of attrition occur: Do these programs really meet the needs

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of the families? Are parts of the programs dispensable for a high proportion of the participants? High attrition rates challenge the designs of the services, calling for a deeper understanding why attrition occurs and how it can be prevented. When investigating attrition, it is important to examine the reasons for attrition and whether it occurs at certain times in the course of treatment. Further, there may be certain subgroups among the participating families which are more likely to drop out. Knowing which groups are at risk for dropping out could help targeting strategies to increase retention. As a third aspect, identifying intervention processes which predict program termination could improve the detection of the early warning signs for attrition and might suggest successful retention strategies.

1.1. Reasons for dropping out and timing

Families drop out for very different reasons. Some of these reasons might be addressed by changing the program model—others are beyond the control of the program. For example, moving often leads to program exit because single programs are seldom available all over the country. Thus, not every termination of participation prior to the scheduled time indicates a program failure. Identifying participants' reasons for leaving the program helps to determine the extent to which attrition is 'naturally' occurring (non-addressable reasons) or might be changed by modifications of the program model (addressable reasons). The few studies providing details on the reasons for dropping out suggest that 66–80% of dropouts leave the programs for addressable reasons, i.e., refusing further participation or having been excluded due to poor attendance (Korfmacher, O'Brien, Hiatt, & Olds, 1999; O'Brien et al., 2012; Roggman, Cook, Peterson, & Raikes, 2008). Taking the reasons into account is also relevant when analyzing predictors for attrition because characteristics of those leaving the program for addressable reasons may differ substantially from the characteristics of those leaving for non-addressable reasons.

The point of time when participants leave the program is also important for assessing attrition. Assuming that a higher level of participation results in larger program effects, early attrition has more serious consequences for the overall program effectiveness compared to attrition occurring at the end of the treatment. In addition, the question arises whether there are sensitive periods in which participants are more likely to leave the program. Past studies offer differing results in respect to this question and call for further research. For example, in an analysis of engagement in a Health Families America (HFA) home visiting program, Ammerman et al. (2006) report a high rate of early attrition with 31.8% of families dropping out in the first month of program participation. In contrast, investigations from Early Head Start (EHS) home visiting programs show a stable attrition rate of about 12% for all 6-month enrollment duration periods (Roggman et al., 2008). Further, O'Brien et al. (2012) indicate that attrition is highest in the first year of the child's life in the Nurse–Family Partnership (NFP), a program lasting from pregnancy to the child's second birthday. As another aspect, the timing of attrition is also relevant when analyzing factors related to it because characteristics of early dropouts may differ from those of late dropouts.

1.2. Participant characteristics

Several studies have explored factors related to attrition in home-based interventions at the participant level. Differences between the programs concerning the target group, the duration of the intervention, the way attrition is defined, as well as how participant characteristics are measured make it difficult to compare the results of the studies. Still, certain characteristics have been found to be commonly associated with attrition, although some findings have been mixed.

With regard to socio-demographic characteristics, associations between maternal age and attrition are reported across several home visiting programs with younger mothers being more likely to drop out (Daro, McCurdy, Falconnier, & Stojanovic, 2003; McGuigan, Katzev, & Pratt, 2003; Wagner, Spiker, Hernandez, Song, & Gerlach-Downie, 2001). There is some evidence that family status plays a role in program participation. For example, families who dropped out are more likely to be headed by a single mother in EHS programs (Roggman et al., 2008), and being married is positively related to program completion in the North Carolina Maternal Outreach Worker program (Navaie-Waliser et al., 2000). Ethnicity or minority status is also related to attrition in several studies, but the direction of the effects varies from study to study. For example, Wagner et al. (2001) and Ammerman et al. (2006) found that Caucasian participants were less likely to drop out. In contrast, Daro et al. (2003) reported that African-Americans and Hispanics are more likely to remain in the program than Caucasians. Higher socioeconomic status, as indicated by the level of education or annual income, is also positively related to retention in some studies (Daro et al., 2003; Hicks, Larson, Nelson, Olds, & Johnston, 2008; Wagner et al., 2001).

In addition to demographic characteristics, family risk factors and maternal psychosocial functioning have been found to contribute to attrition. Conceptual frameworks for parental involvement often draw upon health belief models stressing that the perception of own vulnerabilities and expected intervention benefits as well as the perceived intervention barriers and personal resources are important factors for program attendance (McCurdy & Daro, 2001; Spoth & Redmond, 2000). In terms of an increased need for intervention, Roggman et al. (2008) report a lower attrition among families with specific challenges related to their children's health in EHS. Also, parents of low-birth-weight infants are more likely to remain in the Hawaii Healthy Start program (Duggan et al., 2000), although results of McGuigan et al. (2003) do not confirm this finding.

Regarding the association between psychosocial family risk factors and attrition, the current research offers at least two differing interpretations. On the one hand, Ammerman et al. (2006) report a lower attrition among participants with high family stress levels as measured on the Kempe Family Stress Inventory (Orkow, 1985), concluding that a greater need in terms of family adversities contributes to engagement in home visiting programs. Some other studies indicate similar findings with less social support, more depressive symptoms, and lower mastery scores contributing to program participation (Ammerman et al., 2006; Girvin, DePanfilis, & Daining, 2007; Hicks et al., 2008; Navaie-Waliser et al., 2000). On the other hand, Roggman et al. (2008) report shorter program participation with increased risk levels as measured on an index including teenage motherhood, single motherhood, low education, welfare recipient, and unemployment. The index was specifically developed and applied in the EHS research context. The above-mentioned study findings regarding socio-demographic characteristics underscore this tendency. Drawing on the cumulative risk hypothesis (e.g., Appleyard, Egeland, van Dulmen, & Sroufe, 2005), it can be argued that these families lack resources for program participation as the multiple stressors and needs make it difficult for them to keep regular appointments.

1.3. Process variables

Although exploring participant characteristics may identify groups at risk for dropping out, examining the intervention processes provides practitioners and program designers with critical information about the components actively contributing to

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