

# Predictors of Engagement in a Parenting Intervention Designed to Prevent Child Maltreatment

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**Objective:** The objectives of this analysis were to: 1) assess the impact of socio-demographic factors on parents' perception of the benefits of attending a parenting program designed to prevent child maltreatment vs. the costs in terms of time and difficulty to attend, 2) determine if perceived costs and benefits affected the association between socio-demographic factors and participation in a parenting program, and 3) assess whether race/ethnicity moderated the relationship between socio-demographic factors, perceived costs and benefits, and program participation.

**Methods:** We assessed perceived costs and benefits of the intervention from parents providing self-reports, including satisfaction/ usefulness of the program (benefits), and time/difficulty associated with the program (costs). We defined attendance at both the mid-point and then the number of classes attended throughout the remainder of the intervention. To investigate the direct and indirect effects (through perceived costs and benefits) of parental socio-demographic factors (education, age, gender, number of children, household income) on program attendance, we analyzed the data with structural equation modeling (SEM). To assess the potential moderating effect of race/ethnicity, separate models were tested for Caucasian and African-American parents.

**Results:** Perceived benefits positively impacted attendance for both Caucasian (n=227) and African-American (n=141) parents, whereas perceived costs negatively influenced attendance only for Caucasian parents. Parent education and age directly impacted attendance for Caucasian parents, but no socio-demographic factor directly impacted attendance for African-American parents. The indirect impact of socio-demographic characteristics on attendance through perceived costs and perceived benefits differed by race/ethnicity.

**Conclusion:** Results suggest that Caucasian parents participate in a parenting program designed to prevent child maltreatment differently based upon their perceived benefits and costs of the program, and based on benefits only for African-American parents. Parental perception of costs and/or benefits of a program may threaten the effectiveness of interventions to prevent child maltreatment for certain racial/ethnic groups, as it keeps them from fully engaging in empirically validated programs. Different methods may be required to retain participation in violence-prevention programs depending upon race/ethnicity. [West J Emerg Med. 2010; 11(3):235-241.]

## INTRODUCTION

Behaviorally-oriented parenting programs have consistently shown positive effects in preventing youth problem behaviors and violence, and reducing child

maltreatment.<sup>1-3</sup> However, limited parental participation often threatens the internal and external validity of potentially useful programs and their widespread implementation.<sup>4,5</sup> Participation, or "engagement," has been defined in the

literature in a number of ways including: stated intent to enroll, actual enrollment, attendance, participation, attrition, graduation, and quality of participation in sessions.<sup>6-11</sup> Given the importance of engagement to the validity of program outcomes, several theories and empirical studies provide evidence that parental perception of benefits and costs of behavioral interventions are important determinants of engagement.<sup>9-17</sup>

There is additional evidence, although mixed, that socio-demographic factors impact engagement in behavioral interventions. For example, caregivers with higher levels of education have been found to be more likely to enroll and attend according to some studies<sup>5,7,9,18</sup> but not others.<sup>10,11,19,20</sup> Higher household income, which is correlated with education, has been found to directly predict engagement in several studies<sup>11,21-23</sup> but not others.<sup>5,7</sup> Married or cohabiting caregivers have also been reported to be more engaged than their single counterparts in some studies<sup>9,11,19,24</sup> but not others.<sup>8,20</sup> The same is true of older caregivers, but again in some studies<sup>20</sup> but not others.<sup>8,10,11</sup> The challenges of attending parenting programs may also vary by race/ethnicity.<sup>19,22,23</sup> Studies suggest that engagement tends to be higher among European Americans (or Caucasian) and Hispanics than among African Americans, Asians, and Native Americans.<sup>8,20,22-24</sup>

Despite the number of studies that have explored these factors, few have simultaneously explored the direct and indirect effects of socio-demographic factors on engagement in prevention programs through perceived benefits and costs,<sup>5,7,18</sup> and even fewer have focused on racial/ethnic differences in these pathways;<sup>22,23</sup> or specifically for interventions that are designed to prevent violence, such as child maltreatment.<sup>11</sup>

In groundbreaking work, Spoth et al.<sup>18</sup> expanded the Health Belief Model<sup>14</sup> defined by perceived severity, susceptibility, program benefits, and barriers to participation, to include the indirect effects of several socio-demographic variables. They found that perceived program benefits and program barriers showed the strongest influence on parents' intent to enroll in a parenting skills program. Although the initial model did not include direct effects of socio-demographic variables on inclination to enroll, they reported that parent education significantly influenced perception of program benefits and that household income and number of children significantly influenced perception of program costs. In a follow-up study, Spoth et al.<sup>7</sup> used the same model to prospectively predict actual program attendance. They found that only educational attainment remained a significant predictor (i.e., increased education predicted higher program attendance), with perceived benefits and perceived barriers dropping out of the model, particularly when inclination to enroll was included.

In later work, Spoth et al.<sup>5</sup> extended their first model to assess the direct effects of socio-demographic variables on enrollment in a prevention intervention, and the indirect

effects of these variables through perceived benefits and costs. They found that only parent education directly and significantly impacted enrollment. As with their 1995 model, the authors' extended model also showed that perceived program benefits and program barriers significantly influenced parents' inclination to enroll in the program, which in turn significantly impacted actual enrollment. As before, education significantly influenced perception of program benefits and number of children in the home significantly influenced perception of program costs. However, this model did not show a significant effect of income on perception of barriers/costs.

Although Spoth's research has had a major influence on our understanding of engagement in family-focused prevention interventions, geographic and cultural characteristics of these studies were limited to rural, Midwestern, primarily Caucasian families, and it is not clear whether the findings can be generalized to interventions designed to prevent child maltreatment. Only Coatsworth et al.<sup>22-23</sup> have simultaneously explored the impact of race/ethnicity and parental perception of intervention barriers or costs (but not benefits), on engagement (but not for violence-prevention programs). They found that barriers significantly predicted attendance in a family-focused prevention program for African-American, but not Hispanic, families; and that income, education, and household size significantly predicted attendance for Hispanic, but not for African-American, families. However, they did not explore the direct affect of perceived benefits on attendance, nor did they explore whether these associations differed by race or ethnicity.

This exploratory analysis builds upon the research of Spoth et al.<sup>5,7,16,18,25</sup> and Coatsworth et al.<sup>22-23</sup> by examining the extent to which perception of benefits and costs, and socio-demographic factors predicts ongoing attendance in a program designed to promote parenting effectiveness and prevent child maltreatment. We advance the current research in this field by exploring the indirect impact of socio-demographic factors on engagement, through their impact on perceived benefits and costs. We also explore whether or not any effects are moderated by race/ethnicity by testing separate models for Caucasian and African-American parents. The hypotheses we test are that engagement in a child maltreatment prevention program, as measured by total number of intervention sessions attended, is positively influenced by perception of high program benefits and negatively influenced by perception of high program costs, that socio-demographic factors directly and indirectly impact engagement, and that these associations may vary as a function of race/ethnicity.

## METHODS

### Description of Program

This exploratory study is part of a larger research project intended to assess the impact of intrinsic and extrinsic incentives and motivated action plans on engagement in

a prevention intervention designed to promote parenting effectiveness and reduce child maltreatment. The program, Parenting Our Children to Excellence–PACE, is a structured group parenting program on parenting and child outcomes, with particular emphasis on the process of engagement and its relationship to those outcomes. The program includes eight sessions designed for parents of preschoolers ages 3–6 years, delivered at the daycare centers the children attend. To decrease barriers to engagement, the program is delivered at these daycare centers, at a time that is most convenient for the participating parents (i.e., following school dismissal, in the evenings); dinner is served to parents and children; childcare is provided; and parents are reimbursed for transportation costs.

Daycare centers ( $N = 52$ ) throughout Indianapolis, Indiana, were recruited with the help of Child Care Answers, a childcare provider licensing and training agency. To participate in the program, centers had to serve: 1) a minimum of 35 families with children between the ages of 3 and 6 at the time of recruitment, and 2) an economically and racially/ethnically diverse population. Parents themselves were not required to meet specific socio-demographic requirements and were not recruited to obtain predetermined percentages of parents from specific racial/ethnic or economic groups. Daycare center directors reported that approximately 2 out of 3 families at the participating centers qualified for federal or state financial assistance [mean ( $M$ ) = 65%, standard deviation ( $SD$ ) = 33%]. Parents were recruited by displaying poster advertisements at each center, sending registration forms to eligible parents, and staffing a registration table for two days during which parents were informed about the program and evaluation study. All study protocols for participant recruitment, intervention delivery, and data collection were approved by Purdue University's Institutional Review Board.

### Participants

The 610 parents enrolled in the PACE program consisted of 566 mothers or mother figures and 44 fathers or father figures – each with one target child between the ages of 3 and 6 at time of recruitment. Parents ranged in age from 17 to 63 ( $M = 31.05$ ,  $SD = 7.12$ ). Forty-nine percent described their ethnicity as African American, 46% as European American, and 5% as Other. Forty-seven percent were married or lived with an adult partner; 53% were single. Parents had an average of 12.64 years of education ( $SD = 2.68$ ), with 13% of parents not completing high school. Mean yearly household income was \$26,572 ( $SD = \$11,109$ ). Statistics provided by daycare center directors indicated that approximately 1 in 2 families qualified for subsidized childcare ( $M = 0.51$ ,  $SD = 0.35$ ).

### Measures

Data on socio-demographic variables were collected from parents prior to session 1 of the 8-session intervention. Five variables were included in the model: 1) parent education,

2) family size, 3), household income, 4) parent age, and 5) gender. Education was coded as (1) never attended school or kindergarten only, or (2) completed Grades 1 through 8, (3) Grades 9 through 11, (4) Grade 12 or GED, (5) College 1 year to 3 years, (6) College 4 years or more, or (7) Graduate work. Household income was coded in ranges as follows: (1) Less than \$5,000, (2) \$5,000 to \$7,499, (3) \$7,500 to \$9,999, (4) \$10,000 to \$12,499, (5) \$12,500 to \$14,999, (6) \$15,000 to \$19,999, (7) \$20,000 to \$24,999, (8) \$25,000 to \$29,999, (9) \$30,000 to \$34,999, (10) \$35,000 to \$34,999, (11) \$40,000 to \$49,999, and (12) \$50,000 or more.

We collected data on parental perception of the program's benefits and costs during session 4 of the intervention. Parental perception of the program's costs (in terms of barriers) to engagement was constructed as the mean of two 5-point items adapted from Yates.<sup>26-27</sup> One question asked about the time spent on the program, with a response format ranging from (1) "a lot less than I expected" to (5) "a lot more than I expected." The other question asked about difficulty of being in the program, with responses ranging from (1) "very easy" to (5) "very difficult." Parental perception of the program's benefits was similarly adapted from Yates<sup>26-27</sup> and constructed as the mean of two 5-point items. One question asked about the parent's satisfaction with what had been learned in the program, with a response format ranging from (1) "very dissatisfied" to (5) "very satisfied." The other question asked about usefulness of the program, with responses ranging from (1) "not at all useful" to (5) "very useful." Although there were no generic valid and reliable scales for measuring parental perceptions of the benefits and costs of program participation available in the literature, the Yates<sup>26-27</sup> questions were similarly applied to participation in prevention programs. Further, these questions mirror questions used to measure cost/benefit perceptions by Spoth et al.<sup>5</sup> For example, to measure perceived benefits of participation in a substance-use prevention program, Spoth et al.<sup>5</sup> used the average of four items on a 4-point scale ranging from "not at all beneficial" to "very beneficial" on, for example, improving family communication or preventing substance-use problems (alpha reliability of 0.84). For perceived costs, the authors used the average of five items on a 4-point scale that included time and difficulty as two of the measures (alpha reliability of 0.58).

The main variable of interest, engagement, was defined as a continuous variable by the number of intervention sessions attended, ranging from 1–8 sessions. In this analysis, we included only those participants who provided data on socio-demographic factors and parental perceptions of the program's benefits and costs. Thus, this study explores the impact of perceptions on *continued* engagement in a child maltreatment prevention program, given that all parents in this sample minimally participated in one of the eight sessions, rather than engagement as defined by other studies as either stated intent to enroll, actual enrollment, attrition, graduation, or

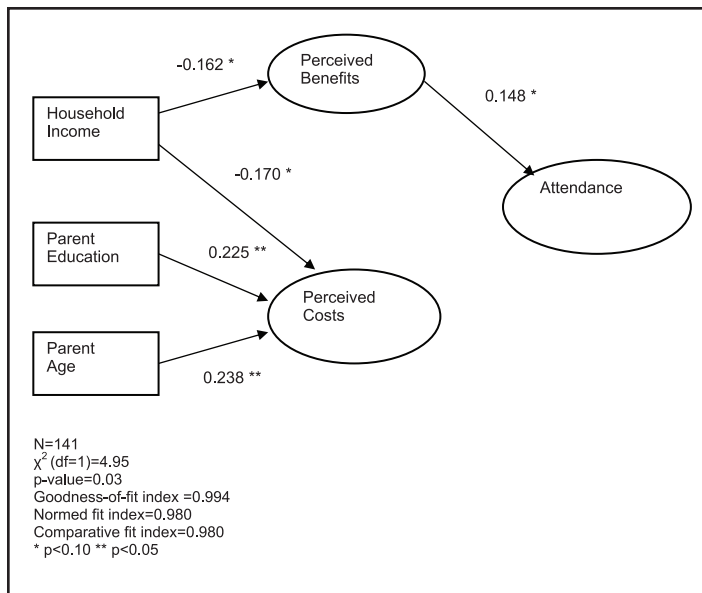


Figure 1. Results of model fitting for Caucasian parents

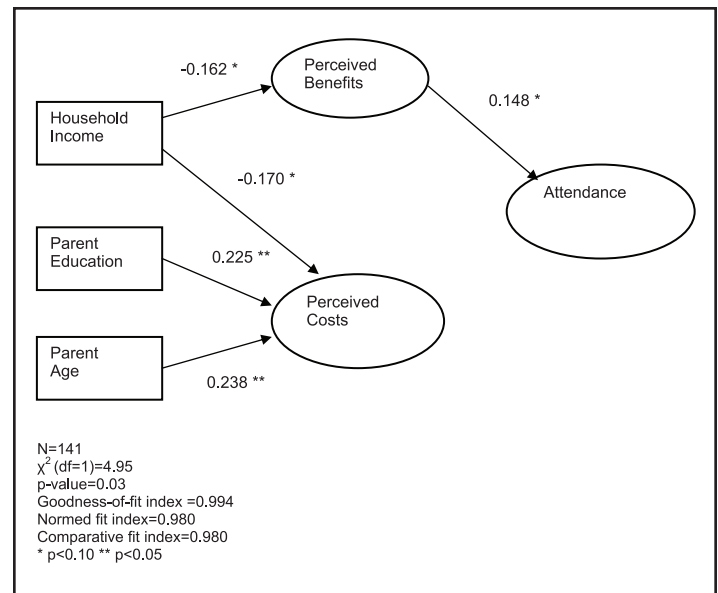


Figure 2. Results of model fitting for African-American parents

quality of participation.<sup>6-11</sup> Using attendance as the primary variable of engagement is consistent with other studies in the literature.<sup>28-29</sup>

**Statistical Analysis**

To investigate the direct and indirect effects (through perceived benefits and perceived costs) of socio-demographic variables on program engagement, we analyzed the data with structural equation modeling (SEM) using the EQS 6.1 for Windows.<sup>30-31</sup> Overall model fit was determined through two absolute fit indices – the chi-square ( $\chi^2$ ) statistic and the Goodness-of-Fit Index (GFI); and two incremental fit indices – the comparative fit index (CFI) and the normed fit index (NFI). The root mean square approximation (RMSEA) was not used as a fit index in this analysis because it can be misleading when the degrees of freedom are small and sample size is not large, as was the case for our study.<sup>32</sup>

The significance of moderation by race/ethnicity was assessed by testing the hypothesis that interaction terms between the race/ethnicity (Caucasian or African-American) dummy variable and each predictor variable for program attendance are jointly different from zero. Results indicated that the regression models for the two models were marginally significantly different ( $F(10, 346) = 1.62, p<0.10$ ). Therefore, subsequent regressions were estimated separately for Caucasian and African-American parents to test the hypothesis that perception of costs and benefits, and socio-demographic factors may affect attendance differently for the two groups. Because preliminary analyses indicated that the daycare center in which the program was held did not significantly affect parental or child outcomes (i.e., less than 1% of the variance in the predictor and outcome variables was accounted for by center, ICC = .79%), adjusting for nesting of families within daycare centers was not necessary in this exploratory study.

**RESULTS**

Of the 459 parents attending session 4 for which data on parental perception of benefits and costs were available, 91 participants were excluded because of missing socio-demographic data collected at baseline. Analyses (i.e., t-tests) comparing the 610 parents who attended the first session to the 459 parents who attended session 4 did not indicate significant differences on socio-demographic variables. For the remaining sample (n=368), mean age was 31.9 years and mean family size was 3.9. Thirty-eight percent described their race/ethnicity as African-American (N=141) and 62% as Caucasian (N=227). About 28% of parents had a household annual income below \$20,000, 32% between \$20,000 and \$50,000, and 40% above \$50,000. A little less than 90% of the parents had completed high school and 36% had completed college.

The final models, including significant predictors only, are illustrated in Figures 1 and 2. Results of the fit indices showed acceptable fit to the data for both models<sup>33-34</sup> and all significant path coefficients were similar in scale to values reported by others.<sup>5,7</sup>

Figure 1 models the impact of socio-demographic variables and perceived benefits and costs on engagement in the PACE program for Caucasian parents. The effects of both perceived benefits and perceived costs on attendance were statistically significant in the hypothesized directions. Education and parental age were also shown to directly impact attendance. Among all the socio-demographic variables, only household income was found to directly impact perceived benefits, and indirectly impact attendance through its impact on perceived benefits.

Figure 2 models the impact of socio-demographic variables and perceived benefits and costs on engagement in the PACE program for African-American parents. In

this model, only perceived benefits significantly impacted attendance. None of the socio-demographic variables significantly impacted attendance directly. However, parent education and age significantly impacted perceived costs; and household income significantly impacted perceived benefits and costs. As with Caucasian parents, household income was found to indirectly impact attendance through its impact on perceived benefits for African-American parents. The indirect impact of the socio-demographic factors on attendance through perceived costs was not established in this model.

## DISCUSSION

The significant, yet different, direct and indirect relationships between perceived benefits and costs and socio-demographic variables on attendance at one or more intervention sessions (ongoing engagement) for Caucasian and African-American parents suggest that the theories for parental participation in prevention programs may be empirically validated. For example, the Theory of Planned Behavior (TPB) suggests that human behavior is guided by behavioral beliefs (one's intention to act in a certain way), normative beliefs (one's perception that doing so is likely to be socially beneficial) and control beliefs (one's beliefs about the presence of factors that may help or hinder the situation).<sup>12-13</sup> From the TPB, therefore, enrollment and engagement in a parenting program designed to prevent child maltreatment may reflect parents' stated intent to enroll and parents' perceptions that they or their children stand to benefit from the program. The TPB model also suggests that engagement is determined by parents' perceived costs of the program, as determined by obstacles or barriers that may make it difficult for them to attend sessions regularly.

The Health Belief Model (HBM) provides another general framework for understanding the widespread failure of people to participate in prevention programs.<sup>14</sup> Variables in the HBM model that have been used to explain engagement in prevention programming include perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, and self-efficacy. For example, perceived barriers factor prominently among the reasons parents give to explain why they are not interested in attending interventions that involve parenting groups.<sup>9,16,17</sup> Low perception of the benefits of parenting programs, in terms of relevance and effectiveness, may also act as an obstacle to engagement or attendance in group meetings.<sup>10,17</sup>

Empirical validation of these theories suggests, therefore, that behavioral interventions designed to prevent child maltreatment might be improved with more careful consideration of ethnic/racial differences. Specifically, child maltreatment intervention information provided to parents may need to be culturally adapted to address parents' perceptions of benefits and costs. In addition, actual implementation strategies may need to be adapted to

address the differing perceptions of benefits and costs, such as adapting the incentive structure for ethnically/racially diverse families, taking group leader and participant ethnic/racial match into consideration, or taking additional strategies to explain the potential benefit of engagement in behavioral interventions.

## LIMITATIONS

This exploratory analysis provides interesting yet potentially contradictory results of the impact of parental perceptions of a program's benefits and costs on engagement in a child maltreatment intervention for ethnically/racially diverse groups. However, a number of practical limitations of these data prevent the generalizability of these results. First, because data collection on parental perceptions occurred midway through the intervention, our results are limited to understanding predictors of ongoing engagement (attendance equal to one or more of the eight sessions) in the program only. Second, the current study only investigated effects for African-American and Caucasian parents, limiting the findings to these two race/ethnicities alone. However, investigating African-American parents in this analysis is the first of its kind and a natural extension of work done previously in this field.<sup>5,7,25</sup> The definitions of perceived benefits and costs, although similar to others,<sup>5,26-27</sup> may further limit the generalizability of these results.

## CONCLUSION

Despite the preliminary nature of these data and their limitations, our results provide important implications for the area of behaviorally-oriented, family-focused prevention interventions designed to prevent child maltreatment, as parental perception of a program's benefits and costs and socio-demographic variables were shown to affect engagement differently for Caucasian and African-American participants. This study highlights the need for future research on the indirect pathways to engagement in child maltreatment interventions, else factors that impact participation for specific racial groups will be lost. Qualitative assessment of parental perceptions of a program's benefits and costs could provide direction to program developers to improve translation of evidence-based interventions to racially diverse audiences. Future research should also seek to replicate these findings with a larger sample consisting of a broader range of racial and ethnic groups, with additional measurement of parental perceptions measured at baseline to assess other components of program engagement.

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