# Reports of Abusive Experiences During Childhood and Adult Health Ratings

## Personal Control as a Pathway?

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**Objectives:** This study examines the relationship between reports of childhood abuse and self-rated health in adulthood, and the potential of personal control to serve as a mediator. **Method:** Regression models were estimated using data from the National Survey of Midlife Development in the United States (MIDUS). **Results:** Reported emotional abuse was associated with lower personal control. In addition, women who reported emotional abuse by mother or both parents were more likely than women who were not abused to report lower self-rated health. The relationship between emotional abuse by both parents and self-rated health was mediated by personal control. **Discussion:** The findings suggest that there are long-term health consequences of early childhood abuse. The effects of childhood abusive experiences, however, operate differently for men and women and are dependent on the outcome examined. Childhood abuse compromises personal control that, in turn, leads to lower health ratings.

*Keywords:* child abuse; health ratings

*The events that people experience* help shape the life course; however, some people are more likely to be exposed to many negative and potentially traumatic events. Exposure to negative events is not random or based on chance alone; rather, social structures and processes predispose some people to face such events with increased

frequency. The negative effects of these experiences may accumulate over time exposing the individual to greater risk. Life course researchers have found that adverse experiences, such as parental loss or living in a violent household, are not without consequence and may have a relatively enduring effect on health throughout adulthood (Felitti, 2002; Felitti et al., 1998; Grimstad & Schei, 1999; White & Widom, 2003; Williamson, Thompson, Anda, Dietz, & Felitti, 2002).

Although much of the extant research has focused on the effects of childhood sexual abuse (Classen et al., 2002; Grimstad & Schei, 1999), research reveals that physical and emotional abuse occur far more frequently in American households (Administration on Children, Youth, and Families [ACF], 2002). The consequences of child abuse are widespread. Adults who were physically or emotionally abused as children are more likely to report experiencing physical health problems (Felitti et al., 1998; Kendall-Tackett & Marshall, 1999; Shaw & Krause, 2002; Springer, Sheridan, Kuo, & Carnes, 2003), engage in negative health-related behaviors (Caetano, Field, & Nelson, 2003; Dietz et al., 1999; Horwitz, Widom, McLaughlin, & White, 2001), and have impaired psychosocial resource development (Kendall-Tackett, 2002; Kessler & Magee, 1994; Shaw & Krause, 2002). These adverse consequences are often magnified when individuals are exposed to more than one abusive experience or frequent abuse (Dong, Anda, Dube, Giles, & Felitti, 2003; Dube, Anda, Felitti, Edwards, & Croft, 2002; Felitti e al., 1998; White & Widom, 2003).

When examining the enduring consequences of child abuse, two separate issues must be addressed. First, it is necessary to allow for the passage of time since the event to capture the effects of child abuse that are not immediate. Second, because the effects of child abuse may not manifest uniformly, it is necessary to examine potential mechanisms utilized by individuals to counter the negative consequences. The current study takes both of these issues into consideration and examines the long-term health consequences of child abuse and the role of personal control as one possible mediator of these effects.

*Child Abuse and Cumulative Disadvantage*

Cumulative disadvantage theory provides a framework for understanding the ways that early adverse experiences negatively affect

health throughout the life course. It also provides an explanation for the heterogeneity that may be found among adults reporting childhood abuse. Because childhood is of particular import for the development of factors that help differentiate life course trajectories (O'Rand, 1996; Shaw & Krause, 2002), adverse experiences and disadvantage occurring during this time may erode psychosocial resources. Individuals who encounter adverse experiences early in life may be set on a trajectory of disadvantage that ultimately results in negative health outcomes (Ferraro & Kelley-Moore, 2003; Wickrama, Conger, Wallace, & Elder, 2003).

More generally, cumulative disadvantage theory explains the differences among people that occur over time (Dannefer, 2003). It has been used to explain cohort differences in a variety of socioeconomic indicators (Ross & Wu, 1996; Schieman, 2001), and its applicability to health outcomes has also been established (Ferraro & Kelley-Moore, 2003; Wadsworth, 1997). There is widespread recognition among medical sociologists and epidemiologists that the resources, opportunities, and experiences—positive and negative—that accumulate throughout the life course are important determinants of health (Wadsworth, 1997).

The exposure to and effects of risk accumulate over one's life often leading to additional negative outcomes (Ferraro & Kelley-Moore, 2003; O'Rand, 1996; Ross & Wu, 1996; Wadsworth, 1997). The effects of child abuse may be unique because the experience of violence often occurs within the context of the family, and there is nowhere that the individual can go to feel safe from another attack (Williams, 2003). Because experiences of abuse may occur in close succession, it is likely that the physical and psychological effects of child abuse will accumulate and worsen over time, leading to poor health (Felitti, 2002; Felitti et al., 1998). The effects of multiple abuse experiences during childhood have negative health consequences beyond what would be expected for single exposure (Dong et al., 2003; Felitti et al., 1998; Kendall-Tackett, 2002; Saunders, 2003; Thompson, Arias, Basile, & Desai, 2002).

Although some have argued for the permanency of early risk factors and their virtually unalterable role in affecting life trajectories (Wadsworth, 1997), others suggested that there may be factors or events that can "break the cycle" (Dannefer, 2003; Ferraro & Kelley-Moore, 2003). Ferraro and Kelley-Moore (2003) posited that

individuals may utilize countervailing mechanisms: events that either change or reduce the effect of early disadvantage. The notion that countervailing mechanisms may reduce the effects of early disadvantage is important to the current study because it could explain differential responses to adversity. Variations in the health effects of abuse may be the result of the enactment of different compensatory mechanisms by individuals who are abused. Therefore, the relationship between early disadvantage and adult health may be more dynamic than was originally assumed.

*Child Abuse and Adult Health*

It is likely that the health and well-being of individuals abused during childhood will be affected throughout the life course (Felitti, 2002; Kendall-Tackett, 2002), although not uniformly. A major focus of the child abuse literature has been the health outcomes of child abuse during childhood and adolescence (e.g., Mason, Zimmerman, & Evans, 1998); however, a variety of long-term effects have also been documented. Early abuse experiences have been associated with increased reports of physical illness (Felitti, 2002; Goodwin & Stein, 2004; Kendall-Tackett & Marshall, 1999; Shaw & Krause, 2002; Springer et al., 2003), poorer health perceptions (Spertus, Yehuda, Wong, Halligan, & Seremetis, 2003; Thompson et al., 2002; Walker et al., 1999), engagement in negative health behaviors (Dietz et al., 1999; Walker et al., 1999), and potentially, premature mortality (Felitti et al., 1998; White & Widom, 2003).

Child abuse may affect adult health indirectly through the adoption of negative health-related behaviors such as smoking (Felitti, 2002; Kendall-Tackett, 2002), heavy drinking (Caetano et al., 2003; Horwitz et al., 2001; Thompson et al., 2002), and adult obesity (Felitti, 2002; Kendall-Tackett, 2002; Williamson et al., 2002). This is extremely important given that many of the leading causes of morbidity and mortality in the United States are linked to behavioral causes (Felitti et al., 1998). This may help explain the relationship between early abusive experiences and adult health.

Although physical and emotional abuse may independently affect individuals across the life course, many scholars argued that such experiences tend to co-occur and individuals rarely experience only one form of abuse (Dong et al., 2003; Felitti et al., 1998; Saunders, 2003). In

comparison to individual exposures, the cumulative effect of child maltreatment is associated with more physical symptoms, physical and mental disability, diagnosed conditions, and health-risk behaviors (Dube et al., 2001; Felitti, 2002; Kendall-Tackett, 2002; Walker et al., 1999).

### CHILD ABUSE, PERSONAL CONTROL, AND HEALTH

Although for some, childhood is a relatively happy time characterized by nurturing interactions that foster the development of the emerging self, individuals with abuse histories may have very different experiences. During childhood and early adolescence, individuals are faced with the often daunting task of developing psychosocial resources (e.g., general feeling of control over one's environment and personal life outcomes). Child abuse during this precarious developmental state may alter the normal development of psychosocial resources such as personal control. Children who experience abuse may also experience general feelings of helplessness, resulting in lowered personal control (Kendall-Tackett, 2002; Kessler & Magee, 1994; Shaw & Krause, 2002). Low levels of perceived control may be reinforced during adulthood through subsequent negative experiences (Shaw & Krause, 2002).

This diminished sense of personal control resulting, in part, from early life disruptions in the developmental process, may continue to exert a deleterious effect throughout the life course—potentially making individuals more vulnerable to later adversity given the decreased personal control. Feelings of helplessness and low personal control may result in lower self-rated health, poorer physical functioning, more illnesses, and increased premature mortality (Ross & Mirowsky, 2003). Research suggests a curvilinear relationship between age and personal control (Gecas, 1989; Ross & Mirowsky, 2003; Schieman, 2001); thus, survivors of child abuse may continue to experience disadvantage well into later life. When age-related declines in personal control occur, respondents who were previously abused may experience the effects more acutely because of lower initial personal control—placing older respondents who were abused at an increased risk of negative health outcomes.

### Limitations

The existing literature has added substantially to the understanding of child abuse and its effects on health. There are, however, five major

shortcomings that should be recognized. First, many of the extant studies—especially those in the social and behavioral sciences—pay limited attention to health outcomes. The health measures that are included are often incomplete or arbitrary (e.g., Thompson et al., 2002). A related problem is that most studies on childhood emotional and physical abuse look primarily at mental health outcomes (e.g., Brewin, Andrews, & Gotlib, 1993; Horwitz et al., 2001; Kessler & Magee, 1994) and health behaviors (e.g., Caetano et al., 2003; Dube et al., 2002). Although important, these are not the only ways in which child abuse can affect health.

Second, the use of specialized samples, such as medical clinic patients (Thompson, Kaslow, Lane, & Kingree, 2000), limits generalizability. One problem associated with the use of specialized samples is potential overrepresentation of individuals in a particular socioeconomic status (SES). Such a bias could (a) result in a sample of individuals with low SES who have had limited access to coping resources and (b) potentially complicate study findings because differences in reporting child abuse exist across SESs (Kessler & Magee, 1994). Similarly, studies conducted using court documents may be problematic because many families with upper SES are never processed through the court systems (White & Widom, 2003).

Third, the continued emphasis on the effects of abuse for women only is problematic in that it overlooks the reality that men experience abuse as well (Banyard & Williams, 1996; Classen et al., 2002; Dietz et al., 1999; Spertus et al., 2003; Walker et al., 1999; Williams, 2003). The ACF (2002) found that, in 2000, reported emotional and physical abuse was equally distributed across genders. Although research on child abuse demonstrates the representation of men as victims (ACF, 2002; Dube et al., 2002), women remain the main focus of empirical studies. There is, however, a growing recognition of the need to conduct gender comparisons in abuse studies (Crouch, Milner, & Thomsen, 2001).

A fourth major shortcoming of the extant studies is the failure to differentiate between the gender of the abusive parent and whether the abuse was predicated by one or both parents (e.g., Banyard & Williams, 1996; Horwitz et al., 2001; Shaw & Krause, 2002; Thompson et al., 2002). Gender of the parent who is abusive may be consequential for the duration and/or severity of the abuse

(ACF, 2002; Straus, Hamby, Finkelhor, Moore, & Runyan, 1998). The mental health effects of child abuse may be reduced if one parent is competent (Kessler & Magee, 1994), suggesting that the parents who are not abusive may serve as a counterbalance to the negative effects of abuse.

Fifth, existing studies often examine one category of abuse at a time (e.g., Banyard & Williams, 1996; Caetano et al., 2003; Shaw & Krause, 2002). Research has demonstrated that the occurrence of isolated child abuse experiences is rare (Dong et al., 2003; Felitti et al., 1998; Saunders, 2003) and that when adversities begin to accumulate, the risk of negative consequences increases (Dube et al., 2001; Felitti, 2002; Kendall-Tackett, 2002; Walker et al., 1999).

The current study was able to avoid these limitations by examining a comprehensive health measure, using a nonclinical and nationally representative sample (including men and women), and by separating parental gender. In addition, the inclusion of physical and emotional abuse in the models provides information on the relative salience of different types of abuse in predicting health ratings. Although declines in psychosocial resources of individuals who are abused have been suggested as a potentially important mechanism in the relationship between child abuse and adult health, this has remained largely in the realm of speculation. We are unaware of any nationally representative study that empirically tests the mediating role of personal control on adult health.

*Research Questions*

Cumulative disadvantage theory was used in this project to better understand the relationship between adverse childhood experiences and adult health. The following research questions are addressed: Is the personal control of respondents who are abused lower than respondents who are not abused? Are respondents who are abused more likely to report poor health than respondents who are not abused? Are there differential health effects of abuse based on the identity of the abuser (e.g., mother vs. father)? Is personal control a countervailing mechanism that mediates the effects of abuse? The analysis examines differences in the effects of abuse and countervailing mechanisms utilized by males and females.

*Methods*

*SAMPLE*

Data for the current study are from the National Survey of Midlife Development in the United States (MIDUS; Brim et al., 1996). The MIDUS is a nationally representative sample of persons who are non-institutionalized and English speaking in the United States drawn from a random-digit-dial sample of working telephone banks. The original administration of the MIDUS, via telephone interviews, was followed up with a mailed questionnaire. Of the people originally contacted by the MIDUS, 70% participated in the telephone interview. Of these respondents, 86.8% completed the mailed questionnaire that followed the initial interview resulting in an overall response rate of 60.8% of the original sample pool (.700 x .868). Both portions of the survey were completed in 1995. A total of 4,242 people completed the initial telephone interview and the questionnaire component of the survey. The majority of the variables used in this analysis are drawn from the mailed component of the survey; however, several questions regarding health and health behaviors were asked only in the telephone interview.

*MEASURES*

Self-rated health was utilized in the current study as the primary health outcome because it provides valid and reliable information about an individual's health status and is a dynamic measure that is continually reevaluated based on changes in physical health (Ferraro & Kelley-Moore, 2001). Self-rated health was assessed in the MIDUS with the following question: Using a scale from 0 to 10 where 0 means *the worst possible health* and 10 means *the best possible health* how would you rate your health these days? Table 1 presents descriptive statistics on all variables used in the analysis for the total sample and by gender; mean differences between the two groups are provided.

The MIDUS includes a series of items about childhood emotional and physical maltreatment drawn from the Conflict Tactic Scale (CTS; Straus, 1979).[1] The following statement preceded the items measuring childhood maltreatment: "Below are three lists of things

Table 1

*Means and Standard Deviations of Variables Used in Analysis: Midlife Development in the U.S. (MIDUS)*

| | Total (N = 4,242)[a] | Male (n = 2,155) | Female (n = 2,087) |
|---|---|---|---|
| Self-rated health | 7.36 (1.65) | 7.38 (1.56) | 7.35 (1.73) |
| (0 = *worst*, 10 = *best*) | | | |
| Abuse | | | |
| Emotional—Mother | .11[b] | .07 | .15***[c] |
| Emotional—Father | .15 | .17 | .13*** |
| Emotional—Both | .10 | .10 | .09 |
| Emotional—Other | .23 | .26 | .19*** |
| Emotional—Sibling(s) | .35 | .34 | .35 |
| Physical—Mother | .08 | .06 | .11*** |
| Physical—Father | .08 | .10 | .06*** |
| Physical—Both | .08 | .09 | .11** |
| Physical—Other | .15 | .19 | .10*** |
| Physical—Sibling(s) | .27 | .27 | .27 |
| Psychosocial resources | | | |
| Personal control (α = .84) | 66.44 (11.84) | 67.61 (11.15) | 65.24 (12.40)*** |
| Health and health behaviors | | | |
| Hypertension or | .19 | .19 | .18 |
| high blood pressure (1 = yes) | | | |
| Diabetes (1 = yes) | .05 | .06 | .05 |
| Cancer (1 = yes) | .07 | .06 | .08 *** |
| Heart trouble (1 = yes) | .13 | .14 | .12* |
| Disability (α = .93) | 4.48 (6.32) | 3.66 (5.80) | 5.31 (6.70)*** |
| Obesity (body mass index ≥ 30) | .21 | .20 | .23 |
| Past smoker | .30 | .33 | .27*** |
| Current smoker | .24 | .24 | .23 |
| Background and status characteristics | | | |
| Early financial deprivation | 3.89 (1.30) | 3.88 (1.28) | 3.90 (1.33) |
| (7 = *worse than other families*) | | | |
| Education (1 = *less than high school graduate*, 4 = *college graduate*) | 2.83 (.98) | 2.92 (1.00) | 2.74 (.96)*** |
| Personal income | 17.99 (9.42) | 21.21 (8.54) | 14.67 (9.14)*** |
| (1 < US $0, 31 = *$1,000,000 plus*) | | | |
| Black (1 = Black) | .06 | .05 | .08** |
| Age (25 to 74 years) | 46.37 (13.37) | 46.08 (13.28) | 46.67 (13.46) |
| Female (1 = female) | .49 | — | — |

a. *N* of cases given for the total sample. The *n* for individual items varies because of missing data.

b. Standard deviations not shown for binary variables.

c. Significance values represent mean differences between men and women using chi-square (binary) and *t* tests (continuous).

*p < .05. **p < .01. *** p < .001.

that happen to some children. After each list please indicate how often your parents, siblings, or anyone else did things like this to you." The questions are retrospective and fallible; however, their availability on a national sample merits examination.[2]

The first list included six items on emotional or verbal abuse, such as being insulted, sworn at, threatened with violence, or ignored. The physical abuse items were split into two separate lists, the first comprised moderate forms of physical abuse such as being pushed, grabbed, shoved, slapped, or having something thrown at you. The second list included five items that constituted more severe forms of physical abuse including being beaten up, choked, burned, or scalded. Respondents were able to respond to the list separately for mother, father, brother, sister, and general other. The responses to the abuse items are as follows: 1 (*never*), 2 (*rarely*), 3 (*sometimes*), and 4 (*often*).

Because one of the main goals in this analysis was to distinguish between the effects of abuse predicated by one or both parents, separate dichotomous measures were created to indicate whether the respondent reported emotional or physical maltreatment by mother only, father only, or both parents—the reference group for all categories are those respondents that reported no abuse. Using an approach similar to previous studies, thresholds were employed to delineate abuse experiences (e.g., Dube et al., 2001; Springer et al., 2003; Walker et al., 1999). For emotional maltreatment to be considered abuse, the respondent must have reported that the experience happened sometimes or often. Similarly, physical maltreatment was considered to be abuse in the current study when the respondent indicated the frequency of the experience to be either sometimes or often for moderate and/or severe physical maltreatment.[3] Binary variables were created to account for respondents that reported having experienced emotional or physical maltreatment by a sibling or another person; the same thresholds were applied to the nonparental abuse items.

The personal control measure utilized in the current study is an index of 12 items that addressed the extent to which respondents believed that they controlled their life. Examples of items used in the personal control scale include "in general I feel I am in charge of the situations in which I live" and "what happens to me in the future depends on me."[4] Included are seven of the eight items utilized in a personal control scale by Shaw and Krause (2002) plus an additional five items. Responses for the individual items ranged from

1 (*strongly disagree*) to 7 (*strongly agree*). The scale was coded so that higher values indicate greater personal control. The scale manifests fairly high reliability (alpha = .84).

A series of health measures were included as covariates to ensure that their role in determining self-rated health in the sample was controlled. These health measures include high blood pressure or hypertension, diabetes or high blood sugar, cancer, heart trouble, and disability. The items on hypertension and diabetes addressed 12-month prevalence or treatment. The item wording was as follows: In the past 12 months have you experienced or been treated for high blood pressure or hypertension (the same question was asked for diabetes). Affirmative answers indicate that the condition had been experienced or treated within the past year. The items relating to cancer and heart trouble were included in the telephone survey and addressed lifetime incidence; the specific questions utilized in the current project were "have you ever had cancer?" and "have you ever had heart trouble?" This item was binary coded, and affirmative responses indicated that the respondent had been diagnosed with the condition at some point in her or his lifetime. Functional disability—a strong predictor of health ratings—was used as an additional health variable. The disability scale was created by summing the responses to nine items regarding the amount that one's health limited the activities of daily life (i.e., lifting or carrying groceries, walking several blocks, or vigorous activity; alpha = .93).

Two variables related to health behaviors were included in the analysis. *Obesity* was defined as a body mass index (BMI) greater than or equal to 30 (BMI = $kg/m^2$). Items regarding smoking were drawn from the telephone interview and included in the analysis. Binary variables were created to indicate whether respondents were nonsmokers, past smokers, or current smokers.

The MIDUS also included a number of demographic variables used in the current study. Because early financial deprivation is related to experiences of abuse, the measure regarding family-of-origin financial status was used as a control variable. The specific item is "when you were growing up, was your family better off or worse off financially than the average family was at that time?" Responses were coded 1 through 7, with higher values indicating that, by comparison, the family was a lot worse off; this variable was referred to as *early financial deprivation*. Education is a categorical variable with higher values indicating more education (1 = *less than high school*, 4 = *college*

*graduate*). Personal income was assessed in 31 categories and ranged from *less than US$0* to *$1,000,000 or more*. Race (1 = Black) and gender (1 = female) were included as binary variables. The age range of the sample is 25 to 74 years.

*ANALYSIS PLAN*

First, ordinary least squares (OLS) regression analysis was used to examine the relationship between childhood abuse and personal control. Next, the relationship between childhood abuse and self-rated health was examined, using OLS regression, by entering the variables in blocks. The first model estimated the direct relationship between child abuse and self-rated health. The second model added in health and health behaviors and demographic factors. And, the third model included personal control to examine its role in attenuating these relationships.[5] Subsample analyses were performed to examine whether the relationships between child abuse and health ratings differed for men and women. As shown in Table 1, reports of the types of abuse vary by gender—because of the early emergence of gender differences; all subsequent analyses examined these differences. Although models for the total sample are estimated, their findings were not unique and were not included here. All analyses were conducted using Stata 8.0 (StataCorp, 2003) and estimated robust standard errors.

Although many previous studies assessed simply whether the respondent experienced abuse by parents, the results presented here reflect analyses using abuse items that are parent specific (to disaggregate parental gender) and type specific (physical vs. emotional abuse). A correlation matrix of all study variables is presented in the appendix. Because the parental abuse variables were created to be mutually exclusive (within abuse type), the association between the parental abuse measures is negligible. When parental abuse is compared across types of abuse, emotional and physical abuse by the same perpetrator(s) are highly correlated.

*Results*

Given the importance of personal control as a possible intervening mechanism in the current analysis, models were first estimated

assessing the direct relationship between child abuse and personal control beliefs in adulthood. An additional model was estimated controlling for all study covariates. Results from the analysis of the direct relationship between child abuse and personal control, presented in Table 2 Model I, indicate that emotional abuse is predictive of lower personal control. Specifically, men emotionally abused by both parents were significantly more likely to report decreased personal control relative to their nonabused counterparts ($b = -4.06$, $p < .001$). The same relationship existed for women ($b = -4.51$, $p < .001$). For women, however, physical abuse by other was also predictive of lowered personal control ($b = -5.61$, $p < .001$).

When the other covariates were included in the second model, the same pattern of significance was manifest, but with one key distinction. For men, when controlling for health and health behaviors as well as demographic variables, emotional abuse by mother became a significant predictor of lower personal control ($b = -3.39$, $p < .05$). Significant gender differences emerged only in the relationship between physical abuse by other and personal control in both Model I ($p < .05$) and Model II ($p < .01$).

The zero-order correlations (see the appendix) between the different forms of child abuse and self-rated health show a pattern of negative, yet modest, associations. The results presented in Table 3 reveal that experiencing child abuse results in lower self-rated health in middle adulthood. Model I, examining the direct relationship between child abuse and self-rated health, once again, shows significant gender differences. For men, emotional abuse by father ($b = -.265$, $p < .05$) or both parents ($b = -.303$, $p < .05$) was predictive of lower self-rated health, compared to their nonabused counterparts. For women, emotional abuse by mother ($b = -.506$, $p < .01$), emotional abuse by both ($b = -.372$, p $< .05$), and physical abuse by other ($b = -.653$, $p < .001$) predicted lower self-rated health.

Model II reveals that for men, the relationship between child abuse and self-rated health is attenuated by the addition of the health and health behaviors and demographic variables. These variables are not sufficient to mediate the relationships for women—emotional abuse by mother or both parents and physical abuse by other remain significant. In the final model (Model III), the inverse relationships between emotional abuse by both and physical abuse by other become nonsignificant with the addition of personal control. Emotional abuse by

Table 2
*Ordinary Least Squares Regression Analysis for Personal Control: Midlife Development in the United States (MIDUS)*

| | Men (n = 1,614) | | Women (n = 1,545) | |
| --- | --- | --- | --- | --- |
| | *Model I* | *Model II* | *Model I* | *Model II* |
| Reported abuse experiences | | | | |
| Emotional abuse—Mother | −2.89[a] | −3.39* | −1.76 | −1.35 |
| | 1.59[b] | 1.64 | 1.10 | 1.13 |
| Emotional abuse—Father | −.610 | .039 | −.149 | −.74 |
| | .876 | .868 | 1.13 | 1.23 |
| Emotional abuse—Both | −4.06*** | −2.98** | −4.51** | −5.88*** |
| | 1.08 | 1.04 | 1.44 | 1.48 |
| Emotional abuse—Other | −.857 | −.733 | .382 | .487 |
| | .784 | .784 | .917 | .954 |
| Emotional abuse—Sibling(s) | 1.22 | .747 | .159 | −.631 |
| | .748 | .764 | .788 | .791 |
| Physical abuse—Mother | −.145 | −.054 | −1.58 | −.910 |
| | 1.37 | 1.50 | 1.15 | 1.22 |
| Physical abuse—Father | −1.70 | −1.30 | −.396 | 1.40 |
| | 1.00 | 1.01 | 1.49 | 1.48 |
| Physical abuse—Both | −.598 | .332 | −.288 | 1.19 |
| | 1.13 | 1.06 | 1.72 | 1.78 |
| Physical abuse—Other | −1.22[d] | −1.14[c] | −5.61[d]*** | −4.52[c]*** |
| | .818 | .828 | 1.20 | 1.25 |
| Physical abuse—Sibling(s) | −.450 | .421 | .564 | .699 |
| | .765 | .752 | .843 | .852 |
| Health and health behaviors | | | | |
| Hypertension | | −.514 | | −2.23* |
| | | .833 | | .984 |
| Diabetes | | −2.15 | | 2.02 |
| | | 1.31 | | 1.90 |
| Cancer | | .026 | | −1.07 |
| | | 1.26 | | 1.08 |
| Heart trouble | | .979 | | −.792 |
| | | .862 | | 1.12 |
| Disability | | −.460*** | | −.368*** |
| | | .066 | | .066 |
| Obesity | | .573 | | −1.08 |
| | | .720 | | .869 |
| Past smoker | | −.376 | | .718 |
| | | .685 | | .770 |
| Current smoker | | −.659 | | .822 |
| | | .762 | | .846 |
| Demographics | | | | |
| Early financial deprivation | | −.722** | | −.268 |
| | | .243 | | .257 |

(*continued*)

Table 2 (continued)

| | Men (n = 1,614) | | Women (n = 1,545) | |
| --- | --- | --- | --- | --- |
| | Model I | Model II | Model I | Model II |
| Education | | .966** | | 1.01* |
| | | .323 | | .409 |
| Personal income | | .089* | | .112** |
| | | .035 | | .036 |
| Black | | 4.18***[c] | | –.058[c] |
| | | 1.30 | | 1.55 |
| Age | | .060 | | .007 |
| | | .026 | | .027 |
| Constant | 69.02 | 65.56 | 66.71 | 65.44 |
| $R^2$ | .029 | .122 | .044 | .143 |

a. Unstandardized coefficient.
b. Robust standard error.
c. $t$ test indicates that slopes for men and women are significantly different in the parallel models ($p < .05$).
d. $t$ test indicates that slopes for men and women are significantly different in the parallel models ($p < .01$).
*$p < .05$. **$p < .01$. ***$p < .001$.

mother remains a significant predictor of lower health ratings for women, even after controlling for all covariates and personal control.

In Model I, the relationship between physical abuse by other was significantly different for men and women ($p < .05$). Model II shows significant gender differences in emotional abuse by mother and by both parents ($p < .05$). Finally, the relationship between emotional abuse by mother and self-rated health remains significantly different for men and women in Model III.

## Discussion

There has been speculation in the child abuse literature about the role of child abuse in affecting psychosocial resource development (Kessler & Magee, 1994; Shaw & Krause, 2002). The current study is among the first to specifically examine the role of child abuse in predicting personal control beliefs in adulthood. Because of the proposed role of personal control in affecting health (Ross & Mirowsky, 2003), understanding this relationship may be critical to understanding the health effects of child abuse. Because the reports of child

Table 3

*Ordinary Least Squares Regression Analysis for Self-Rated Health: Midlife Development in the United States (MIDUS)*

| | Men | | | Women | | |
|---|---|---|---|---|---|---|
| | *Model I* (N = 1,689) | *Model II* (N = 1,493) | *Model III* (N = 1,449) | *Model I* (N = 1,604) | *Model II* (N = 1,380) | *Model III* (N = 1,318) |
| **Abuse Measures** | | | | | | |
| Emotional—Mother | -.060[a] | .082[c] | .175[d] | -.506** | -.438*** | -.436[d]** |
| | .196[b] | .168 | .155 | .168 | .150 | .154 |
| Emotional—Father | -.265* | -.058 | -.069 | -.032 | -.105 | -.072 |
| | .124 | .109 | .106 | .136 | .135 | .132 |
| Emotional—Both | -.303* | -.018[c] | .036 | -.372* | -.453[c]*** | -.297 |
| | .152 | .129 | .124 | .187 | .169 | .165 |
| Emotional—Other | -.010 | .043 | .071 | -.071 | .005 | -.077 |
| | .110 | .094 | .092 | .127 | .120 | .117 |
| Emotional—Sibling(s) | .074 | -.017 | -.060 | .045 | .012 | .051 |
| | .102 | .089 | .090 | .110 | .101 | .101 |
| Physical—Mother | -.047 | -.181 | -.170 | -.035 | .211 | .251 |
| | .193 | .188 | .175 | .176 | .170 | .171 |
| Physical—Father | -.017 | .016 | .074 | -.328 | -.057 | -.087 |
| | .129 | .118 | .117 | .188 | .163 | .163 |
| Physical—Both | -.087 | .114 | .134 | .162 | .180 | .118 |
| | .165 | .142 | .137 | .221 | .210 | .209 |
| Physical—Other | -.201[c] | -.176 | -.144 | -.653[c]*** | -.341* | -.198 |
| | .116 | .103 | .100 | .177 | .169 | .166 |
| Physical—Sibling(s) | -.121 | -.037 | -.020 | -.118 | -.134 | -.152 |
| | .106 | .092 | .092 | .123 | .112 | .111 |

*(continued)*

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Table 3 (continued)

|  | Men | | | Women | | |
|---|---|---|---|---|---|---|
|  | Model I (N = 1,689) | Model II (N = 1,493) | Model III (N = 1,449) | Model I (N = 1,604) | Model II (N = 1,380) | Model III (N = 1,318) |
| Health and health behaviors | | | | | | |
| Hypertension |  | -.276** | -.290** |  | -.522*** | -.486*** |
|  |  | .099 | .098 |  | .124 | .124 |
| Diabetes |  | -.659*** | -.555** |  | -.205 | -.247 |
|  |  | .187 | .179 |  | .182 | .181 |
| Cancer |  | -.300 | -.306* |  | -.330* | -.299* |
|  |  | .160 | .154 |  | .150 | .145 |
| Heart Trouble |  | -.700*** | -.707*** |  | -.577*** | -.506*** |
|  |  | .129 | .132 |  | .144 | .142 |
| Disability |  | -.111*** | -.098*** |  | -.103*** | -.096*** |
|  |  | .009 | .010 |  | .010 | .009 |
| Obesity |  | -.169 | -.207* |  | -.377*** | -.322** |
|  |  | .092 | .091 |  | .105 | .104 |
| Past smoker |  | -.157 | -.156 |  | -.050 | -.074 |
|  |  | .084 | .082 |  | .090 | .089 |
| Current smoker |  | -.437*** | -.437*** |  | -.294** | -.320** |
|  |  | .097 | .095 |  | .110 | .108 |

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| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| Demographics | | | | | | |
| Early financial deprivation | | -.101*** | -.073* | | -.038 | -.028 |
| | | .029 | .030 | | .034 | .034 |
| Education | | -.078 | -.110** | | -.113* | -.129** |
| | | .040 | .040 | | .047 | .047 |
| Personal income | | .007 | .005 | | .005 | .001 |
| | | .004 | .004 | | .004 | .004 |
| Black | | .555** | .440* | | .380* | .439* |
| | | .184 | .192 | | .187 | .186 |
| Age | | .022*** | .020*** | | .019*** | .020*** |
| | | .003 | .003 | | .003 | .003 |
| Personal Control | | .029*** | .029*** | | | .028*** |
| | | .003 | .003 | | | .004 |
| Constant | 7.53 | 7.67 | 5.74 | 7.61 | 7.88 | 5.96 |
| $R^2$ | .015 | .294 | .334 | .042 | .285 | .322 |

a. Unstandardized coefficient.
b. Robust standard error.
c. $t$ test indicates that slopes for men and women are significantly different in parallel models ($p < .05$).
d. $t$ test indicates that slopes for men and women are significantly different in parallel models ($p < .01$).
*$p < .05$. **$p < .01$. ***$p < .001$.

abuse are retrospective, we do not have sufficient evidence to support causality in the relationship. In addition, personal control is by no means assumed to be the only psychosocial resource that may mediate the negative role of child abuse; it is, however, a plausible pathway. The relationships found between personal control and emotional abuse by both parents and personal control and physical abuse by other are in the expected direction and support the assertion that early-life adverse experiences may disrupt the development of psychosocial resources and lead to lower personal control in adulthood.

Consistent with other studies, child abuse in the current analysis is significant in predicting lower perceptions of health (Spertus et al., 2003; Thompson et al., 2002; Walker et al., 1999). Given the vast amount of literature on the consequences of child abuse, it is no surprise that it is significant in predicting self-rated health in middle adulthood. What was somewhat surprising was that the parental physical abuse measures were not significant. When the abuse items were originally separated, it was anticipated that childhood physical abuse would be more consequential to physical health in adulthood. Results, however, reveal that as it relates to health ratings, emotional abuse is a more salient experience in the current sample. This supports the assertion that emotional abuse is central to understanding the role of child abuse in affecting health during the life course (Spertus et al., 2003; Thompson et al., 2002).

Gender was examined in the current study on two dimensions. First, the gender of the abusive parent was examined, and, second, the analysis was conducted separately for men and women. It appears that, in both respects, gender matters. In the personal control analysis, parental gender was important. Specifically, emotional abuse by both parents is predictive of lower personal control suggesting that cumulative abuse experiences (being abused by more than one parent) are more consequential in the development of personal control. The relationship between parental gender and health ratings seems to operate differently and is also influenced by the respondent's gender. For example, reporting emotional abuse by mother is the most stable predictor of poorer health ratings for women, thus suggesting an overwhelmingly negative effect of abuse for women when the abuse occurred in a gender-congruent relationship. Conversely, for male respondents child abuse was not a strong predictor of health ratings (when covariates were added to models). It is

important, however, to remember the relationship that emerged early on between child abuse and personal control and to recognize that the experience of child abuse for men may be less direct.

The ability of personal control to attenuate the relationship between child abuse and self-rated health suggests that certain abuse experiences may operate indirectly through diminished psychosocial resources to affect health. It is somewhat interesting that it is for women that personal control operates as a compensatory mechanism. Ross and Mirowsky (2003) asserted that personal control would be more salient for men because of women's greater dependence on social support and the role of marriage in decreasing women's sense of control. Given this assertion, one would expect personal control to be less salient for women. Such is not the case here, possibly because personal control develops differently in abused populations. Because women who are abused may be less likely to develop and maintain supportive relationships, personal control might become more salient as a compensatory mechanism.

There are a number of reasons why the relationships between parental abuse and self-rated health were not as consistent as had been expected. First, Felitti et al. (1998) posited that the increased premature mortality associated with early-life adverse experiences removes the individuals who are most disadvantaged from the available sample pool. Likewise, if the extant studies are correct in their findings, many respondents who are abused may be too sick or disabled to participate in research studies. Second, individuals may engage in a life review process by which they try to make sense of the distant past to move beyond it (Shaw & Krause, 2002). This seems less plausible, however, than the first alternative because supplementary analysis of older and younger respondents (not shown) demonstrated significant relationships between child abuse and adult health in respondents older than age 50 years.

The current study has a few limitations that arise primarily from the instrument used. First, because of the assessment of self-rated health using the Cantrell ladder scale, it is not plausible to look at the role of child abuse in affecting respondents' attributions of good versus poor health (because values are not assigned to the middle scores in the scale). Second, unlike the original CTS (Straus, 1979), the MIDUS condenses the possible forms of maltreatment into a list and asks respondents to report on the frequency with which they experienced

the event for a series of target individuals. This approach has the potential to result in underestimation because respondents may be reluctant to respond affirmatively to the whole list if one or more of the included statements are untrue. Therefore, they may be more likely to fail to report an abuse experience, resulting in their incorrect classification into a nonabused category. If this is the case, then presumed comparisons between respondents who are abused and nonabused would be compromised. If such a bias occurs, it would tend to be an undercount of the true prevalence of abuse in the sample. Finally, the vagueness of the abuse item regarding the "other person" makes it difficult to interpret findings. Because the other person could conceivably range from a playground bully to a live-in relative, the true role of this experience in predicting health outcomes is difficult to ascertain.

These limitations are rather minor, however, and do not detract from the contributions of the current study. The primary contribution is the examination of the role of parental gender, the inclusion of which is a major advancement to the literature examining the consequences of child abuse. The current study is among the first to disaggregate parental gender and examine the differential effects of abuse based on the gender of the parent who was abusive. Although the findings were unanticipated, they provide insight into the role of child abuse in affecting later-life health outcomes and control beliefs. The empirical recognition of differences because of parental gender may serve as the impetus for future research to more fully explore the role of child abuse in predicting health outcomes. These findings may have unique policy implications as well. Although Kessler and Magee (1994) suggested the potential benefit to mental health of having a parent who is nonabusive, the current study demonstrates that, particularly for women, gender congruence in the abusive relationship is more salient than whether one parent was not abusive. Thus, assuming that individuals abused by one parent are less affected may be a naïve approach. It is important to know which parent committed the abusive acts.

Another contribution of the current study is the focus on self-rated health—a dynamic measure of health that is influenced by morbidity and preclinical problems. As a result, self-rated health offers a more holistic assessment of health than does examining individual diseases as an outcome. In addition, because much of the research on the health effects of child abuse has linked it primarily to the higher

likelihood of engagement in negative health-related behaviors, self-rated health is unique in that it is not dependent on a particular health behavior (e.g., smoking).

Finally, the current research shows that individuals who were abused experience disadvantage later in life based, in part, on their manifestation of lower personal control; and this, in turn, results in poorer self-rated health. Thus, the significance of child abuse in predicting health consequences during the life course demonstrates that individuals do not simply "get over" abusive experiences—they imprint a person for life, touching crucial psychosocial resources.

Given the complexity of abuse and the wide range of possible outcomes, research should continue to examine different health outcomes, including morbidities and disability, to determine the role that child abuse plays in disease incidence in adulthood. This is especially important to uncover the long-term effects of child abuse for men and the role of physical abuse in affecting adult health. Longitudinal studies should be carried out that include measures of childhood maltreatment and health-related items to more fully explicate the role of child abuse in predicting health consequences in later life.

Although inconsistencies exist in the extant research, the current study shows that child abuse affects adult health. Because the consequences of child abuse are not fully understood it is difficult, if not impossible, to assume a direct and fully causal relationship between childhood abuse and adult health outcomes—especially in the absence of a complete understanding of the physiological effects of child abuse. It is plausible, however, that individuals abused as children are more sensitive to subsequent stressors and respond with an increased reactivity. When this increased vulnerability is coupled with decreases in potentially buffering psychosocial resources, the results can be damaging. Therefore, future research should examine other possible countervailing mechanisms, such as social support, to determine the additional pathways through which child abuse affects health.

## NOTES

1. The Conflict Tactic Scale (CTS) (Straus, 1979) was originally developed to assess intrafamilial conflict and resolution tactics among intimate partners and was later adapted to be

applicable to different relationship types within the family. Of the items included in the MIDUS (Brim et al., 1996), all but one came directly from the CTS; the only behavior that was not in the original CTS is *being choked*. A difference exists, however, in the way the questions are organized. The CTS asked about each behavior and the frequency of that behavior; the target person was specified depending on what aspect of intrafamily conflict was being assessed. The fact that the MIDUS lumps all of the negative behaviors together and asks respondents to report the frequency with which they experienced the behavior for a target person is different. Another difference is that the MIDUS has substantially fewer response categories than the CTS. This has the potential to result in an underestimate if respondents prefer less extreme response options.

2. Although the use of court documents or other verifying sources is often viewed in abuse research as a methodological improvement over retrospective self-reports (Halverson, 1988), the current study utilized the latter for a number of reasons. First, a sample drawn from court records represents only cases that have been reported and have made it to court. Depending solely on this source would dramatically underestimate the prevalence of child abuse. Second, retrospective reports have been shown to be quite reliable, especially when the events in question are significant or traumatic (Brewin, Andrews, & Gotlib, 1993; Hardt & Rutter, 2004). Although the details of distal events may begin to fade over time, the ability to recall whether a significant event occurred appears to be relatively stable (Hardt & Rutter, 2004). Less accurate are reports of the dates when an event occurred. The maltreatment items available in the MIDUS focused only on objective behaviors—whether or not an event occurred—the prevalence reported is similar to other samples yet may be more modest given that the MIDUS is nationally representative (e.g., Springer et al., 2003; Walker et al., 1999). Moreover, the items do not ask global questions about *abuse*—a judgment about a particular experience that will likely be influenced by social attitudes and societal changes. Rather, the items probe being "hit, choked, or burned"—very specific acts. Finally, the provision of a list, like that used in the MIDUS, may help individuals recall painful or suppressed memories (Brewin et al., 1993), and this may reduce the potential underreporting bias associated with retrospective reports (Hardt & Rutter, 2004).

3. A number of abuse variables were created and tested in preliminary models including variables that reflected abuse by type (e.g., physical abuse) and abuse by relationship type (e.g., abuse by mother). Given that one of the main goals of this analysis was to disaggregate parental gender, variables that separated abuse by mother, father, and so on were chosen. Abuse types were then separated to simultaneously examine the effects of more than one abuse type without masking their independent effects. This is important because the failure to assess different adverse experiences in a comprehensive manner increases the difficulty of "discerning interactions, cumulative effects, and complex pathways" (Saunders, 2003, p. 363). Consistent with previous research (Dube et al., 2001; Dube, Anda, Felitti, Edwards, & Croft, 2002; Springer et al., 2003; Walker et al., 1999), the current study used thresholds to categorize respondents who were abused versus respondents who were nonabused. Those respondents reporting relatively frequent abuse were treated as abused and those reporting no abuse or infrequent abuse were considered not abused. The imposition of thresholds made the means of abuse found in this sample more closely approximate national estimates.

4. Consistent with the suggestion of Ross and Mirowsky (2003), the 12-item personal control scale attempts to balance positive and negative items. Of the included items, five are positively worded and seven are negatively worded. This reduces the potential response bias caused by having an overrepresentation of items worded in a particular way.

5. Preliminary analysis revealed that entering the variables in more narrowly defined blocks (e.g., health, health behaviors) had little marginal utility. In the majority of those analyses, no difference was found between the second model (with only child abuse and health) and the model with all variables except personal control. Thus, presentation of models has been simplified for clarity.

*Appendix*
*Zero-Order Correlation Among All Variables*
*Included in Analysis: Midlife Development in the United States*

| *Variables* | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Self Rated Health | | | | | | | | | | | | | | | | | | | | | | | | |
| 2. Emotional—Mother | –.06 | | | | | | | | | | | | | | | | | | | | | | | |
| 3. Emotional—Father | –.03 | –.14 | | | | | | | | | | | | | | | | | | | | | | |
| 4. Emotional—Both | –.07 | –.13 | –.16 | | | | | | | | | | | | | | | | | | | | | |
| 5. Emotional—Other | –.08 | .06 | .06 | .17 | | | | | | | | | | | | | | | | | | | | |
| 6. Emotional—Sibling(s) | –.06 | .07 | .09 | .22 | .34 | | | | | | | | | | | | | | | | | | | |
| 7. Physical—Mother | –.06 | .52 | –.11 | .04 | .07 | .09 | | | | | | | | | | | | | | | | | | |
| 8. Physical—Father | –.04 | –.10 | .50 | .01 | .05 | .07 | –.11 | | | | | | | | | | | | | | | | | |
| 9. Physical—Both | –.04 | –.06 | –.02 | .54 | .16 | .16 | –.10 | –.11 | | | | | | | | | | | | | | | | |
| 10. Physical—Other | –.10 | .03 | .03 | .15 | .56 | .23 | .06 | .05 | .20 | | | | | | | | | | | | | | | |

(*continued*)

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| Variables | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11. Physical—Sibling(s) | -.07 | .05 | .05 | .20 | .27 | .61 | .10 | .06 | .23 | .30 | | | | | | | | | | | | | | |
| 12. Personal Control | .33 | -.06 | -.00 | -.13 | -.07 | -.04 | -.08 | -.02 | -.07 | -.10 | -.04 | | | | | | | | | | | | | |
| 13. Hypertension | -.19 | .01 | -.01 | -.03 | -.03 | -.09 | .02 | .02 | -.01 | -.01 | -.07 | -.10 | | | | | | | | | | | | |
| 14. Diabetes | -.15 | .03 | .03 | -.01 | -.01 | .00 | .02 | .02 | -.02 | -.00 | .01 | -.06 | .19 | | | | | | | | | | | |
| 15. Cancer | -.08 | .00 | -.02 | .02 | -.03 | -.05 | .02 | -.01 | .03 | .02 | -.03 | -.05 | .06 | .01 | | | | | | | | | | |
| 16. Heart trouble | -.22 | .02 | .01 | .01 | .01 | -.03 | .02 | .03 | .04 | .02 | .00 | -.06 | .19 | .09 | .08 | | | | | | | | | |
| 17. Disability | -.46 | .05 | .01 | .04 | .02 | -.00 | .07 | .03 | .02 | .04 | .01 | -.28 | .24 | .17 | .10 | .23 | | | | | | | | |
| 18. Obesity | -.18 | .02 | .00 | .01 | .03 | -.02 | .02 | .03 | .02 | .01 | -.01 | -.08 | .20 | .13 | -.02 | .04 | .23 | | | | | | | |
| 19. Past smoker | -.01 | .01 | -.00 | -.00 | -.01 | -.01 | .03 | .02 | .01 | .02 | -.00 | .00 | .05 | .05 | .06 | .11 | .32 | .03 | | | | | | |
| 20. Current smoker | -.12 | .02 | .05 | .07 | .08 | .06 | .01 | .05 | .08 | .07 | .05 | -.05 | -.03 | -.03 | -.02 | -.03 | .08 | -.05 | -.36 | | | | | |
| 21. Early financial deprivation | -.09 | -.01 | .10 | .08 | .06 | .05 | -.01 | .09 | .10 | .07 | .08 | -.10 | .05 | .05 | .02 | .01 | .08 | .06 | .02 | .05 | | | | |
| 22. Education | .08 | -.02 | -.03 | -.05 | -.01 | -.03 | -.05 | -.04 | -.09 | -.05 | -.06 | .17 | -.07 | -.05 | .01 | -.06 | -.20 | -.10 | -.01 | -.21 | -.19 | | | |
| 23. Income | .12 | -.05 | .04 | .00 | .05 | .03 | -.07 | .06 | -.02 | .04 | .02 | .17 | -.12 | -.04 | -.08 | -.15 | -.26 | -.03 | -.06 | -.01 | -.07 | .27 | | |
| 24. Black | .03 | .00 | .01 | .03 | .03 | .02 | .01 | .01 | .00 | -.01 | -.01 | .01 | .06 | .02 | -.05 | -.03 | .06 | .08 | -.05 | -.01 | -.06 | -.02 | -.0 | |
| 25. Age | -.01 | -.03 | -.07 | -.08 | -.13 | -.19 | -.01 | .02 | -.03 | -.06 | -.15 | -.05 | .30 | .13 | .19 | .20 | .25 | .07 | .23 | -.09 | .12 | -.10 | -.28 | -.04 |
| 26. Female | -.02 | .14 | -.07 | -.01 | -.10 | .02 | .11 | .08 | -.05 | -.15 | -.00 | -.10 | -.01 | -.02 | .05 | -.04 | .12 | .01 | -.09 | .01 | .00 | -.07 | -.31 | .03 |

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