Influential Factors in Career Orientation and Career Aspiration of Early Adolescent Girls

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Abstract:

Two models of the career development of early adolescent girls were investigated. For each model, endogenous variables were adolescents' gender role attitudes and the mother–daughter relationship (psychological separation and attachment); exogenous variables were adolescents' grade point averages, agentic characteristics, and a latent variable, maternal characteristics. Career orientation (Model 1) and career aspirations (Model 2) were the final outcome variables. A sample of 276 girls drawn from 7th and 8th graders in the rural area of a southeastern state and their mothers participated. In both models, adolescents' agentic characteristics and maternal variables contributed significantly to adolescents' gender role attitudes. In addition, in Model 2, adolescents' agentic characteristics and the mother–daughter relationship contributed to the girls' career aspirations.

Keywords: girls | sex role attitudes | mother–daughter relationship | grade point averages | agentic | maternal characteristics | career orientation | aspirations | female 7th–8th graders

Article:

Since the years of World War II, women have entered the workforce in steadily increasing numbers, both before and after marriage, with and without children (Betz & Fitzgerald, 1987). By 1990, approximately 57 million adult women (16 years and older) were in the paid labor force in the United States, and it is projected that women will compose 47% of the labor force by 2005 (U.S. Department of Labor, 1992). For many women today, working outside the home is almost inevitable. As Hyde (1985) discovered, the working woman today is not a deviation from the norm. Rather, she is the norm.

It thus appears that there is no longer much question whether women will participate in the labor force. More relevant questions today are what types of careers women consider and what factors influence their choices, particularly in light of evidence that most women continue to be employed in low-paying, traditionally female careers and jobs, such as social work, teaching, nursing, sales, technical work, and administrative support positions (Post-Kammer & Smith,

1985; U.S. Department of Labor, 1983). Perhaps even more important questions are those aimed at female adolescents who are in the initial stages of their career development. Information about what careers they consider, how they make choices regarding possible career options, and what factors influence their choices could be useful to researchers and practitioners who want to assist these young women in expanding their options.

To address these questions, several researchers have proposed models to explain the variables influencing women's career development and their unique career paths (e.g., Astin, 1984; Gottfredson, 1981; Hackett & Betz, 1981). Whereas other researchers have presented models that have emphasized either individual or societal factors, Fassinger (1990) proposed a comprehensive, multidimensional model that included both influences on women's career development. Building on Fassinger's (1990) work, O'Brien and Fassinger (1993) addressed earlier measurement problems in a model that included individual variables (i.e., academic ability, agentic characteristics, gender role attitudes) previously found to be predictive of career orientation and career choice in college women. For a sample of high school girls, O'Brien and Fassinger also included an additional relational variable, the mother–daughter relationship, operationalized as perceived attachment to the mother and psychological separation from her. They included this relational variable as a response to calls to investigate familial influence, particularly within the mother–daughter relationship, on women's career-development processes (Betz & Fitzgerald, 1987; Fassinger, 1990). O'Brien and Fassinger's findings supported Fassinger's (1990) previous work but also indicated that the heretofore untested variables associated with the mother–daughter relationship were critical to understanding the daughter's career decisions. Specifically, they found that late adolescent girls who demonstrated moderate degrees of independence from and attachment to their mothers tended to value career pursuits (O'Brien & Fassinger, 1993).

Despite the new information that O'Brien and Fassinger's (1993) work provided, their study had several limitations. For example, even though the researchers noted the importance of exploring the role of mothers in the career choices of young women, the model they tested did not address any maternal variables (e.g., employment status, educational status, gender role attitudes) previously identified (e.g., Betz & Fitzgerald, 1987; Etaugh, 1974; Smith & Self, 1980) as significant in the career development of women and adolescents. Second, the sample comprised seniors in an all-female private liberal arts school and thus was a select group. As O'Brien and Fassinger noted, their results might have limited generalizability to girls who have fewer educational and economic opportunities. For example, girls in a relatively poor, rural area not only have restricted opportunities but often receive less career guidance and less encouragement to take academic courses (Lee & Ekstrom, 1987). Third, O'Brien and Fassinger studied high school girls rather than girls in early adolescence, the period when identity development, including career identity, is beginning. Young girls are particularly liable to limit career options during the beginning stages of adolescence and, in fact, already may have eliminated many possibilities (Gottfredson, 1981). Thus, knowledge concerning the factors and attitudes that

influence the career aspirations and career orientation of girls during this earlier stage might be critical to influencing their career development.

Early adolescence has also been identified as a critical turning point in the relationship between mothers and daughters (Brown & Gilligan, 1992). It is during this early phase of adolescent development that daughters begin the transition from childhood dependence on their mothers to the developmental tasks of psychological separation (i.e., identifying their own values, goals, and attitudes). The developmental goal is a balance of daughters' independence from (i.e., psychological separation from) and connection with (i.e., attachment to) their mothers, a balance that promotes progress toward identity achievement for the adolescent. Theoretically, achievement of developmental tasks, including career development, throughout adolescence is facilitated by the psychological security of healthy levels of attachment between adolescents and attachment figures, particularly parents (e.g., Blustein, Prezioso, & Schultheiss, 1995; Young, Friesen, & Borycki, 1994).

The purpose of this study was to expand O'Brien and Fassinger's (1993) model in three ways: (a) by including selected maternal variables that seem to influence the career aspiration and career orientation of early adolescent girls, (b) by studying girls living in a rural setting, and (c) by focusing on early adolescent girls. Because it has been determined that most current adolescent girls will be active in the paid workforce during their adult years, the question of interest was whether specific factors pertinent to older female adolescents' career development (i.e., ability, agentic characteristics, gender role attitudes, attachment and psychological separation in the mother–daughter relationship, and maternal characteristics) are also influential at the beginning of the career-development process. On the basis of relevant literature to date, particularly O'Brien and Fassinger's work, we created two models. We included in both models all independent variables identified to date as relevant to the career development of young female adolescents. These variables—school performance, agentic characteristics, gender role attitudes, mother–daughter relationship (psychological separation and attachment), and maternal characteristics (educational status, employment status, gender role attitudes, and agentic characteristics)—were related to career orientation of early adolescent girls in Model 1 (depicted in Figure 1). In Model 2 (see Figure 3), the same independent variables were related to the young girls' career aspirations. We chose career orientation and career aspiration as outcome variables because of their relevance to eventual career choice for women (O'Brien & Fassinger, 1993). We investigated separate models for career orientation (traditional vs. untraditional career choice) and career aspiration (desire for advancement or a leadership role in one's chosen career) to differentiate between these two distinct constructs for women's career development (Reid & Stephens, 1985).

FUNC .36 EMOT .54 ATT .58 CONF .94 ATTACH .58

FUNC   EMOT   ATT   CONF   ATTACH

.93   .84   .81   -.36   -.82

Mother-Daughter Relationship (1.0)

Agentic Characteristics (BEMD)

-.04

.99

.10

.03

.13

.15

-.05

.29

GPA

.32

.22

-.06

Maternal Characteristics (1.0)

.63

Gender Role Attitudes (ATWD)

Career Orientation (OCL)

.97

.40   .10   .64   .29

.73

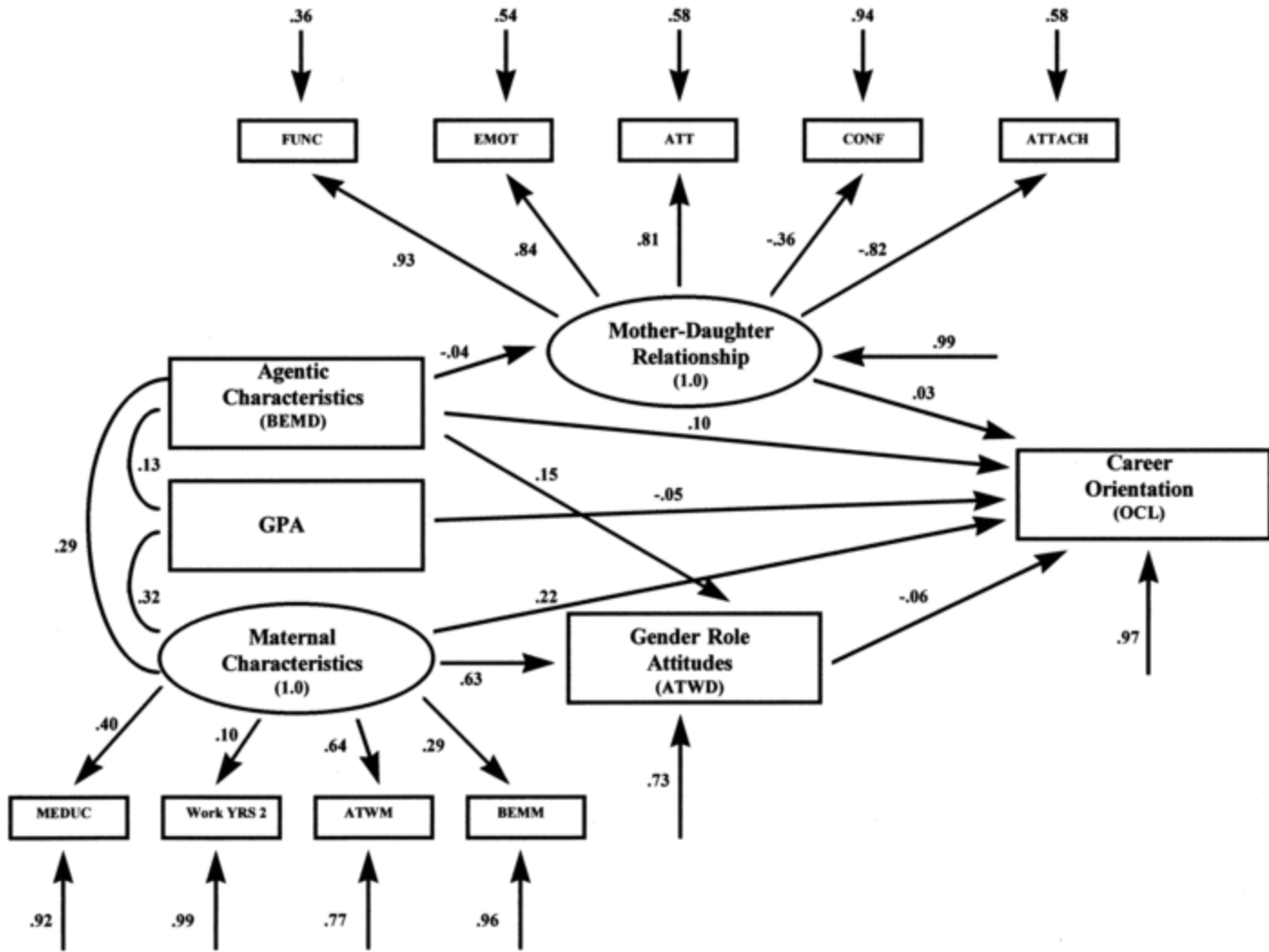MEDUC   Work YRS 2   ATWM   BEMM

.92   .99   .77   .96

Figure 1. Initial structural equation model of Model 1, with career orientation as the final outcome variable. FUNC = Functional Independence subscale of the Psychological Separation Inventory (PSI); EMOT = Emotional Independence PSI subscale; ATT = Attitudinal Independence PSI subscale; CONF =equals; Conflictual Independence PSI subscale; ATTACH = Inventory of Parent and Peer Attachment; BEMD = daughters' scores on the Bem Sex-Role Inventory; GPA = grade point average; OCL =equals; Occupational Check List; ATWD = daughters' scores on the Attitudes Toward Women Scale for Adolescents; MEDUC = mothers' education; Work YRS 2 = mothers' paid work experience since daughters' birth; ATWM = mothers' scores on the Attitudes Toward Women Scale; BEMM = mothers' scores on the Bem Sex-Role Inventory
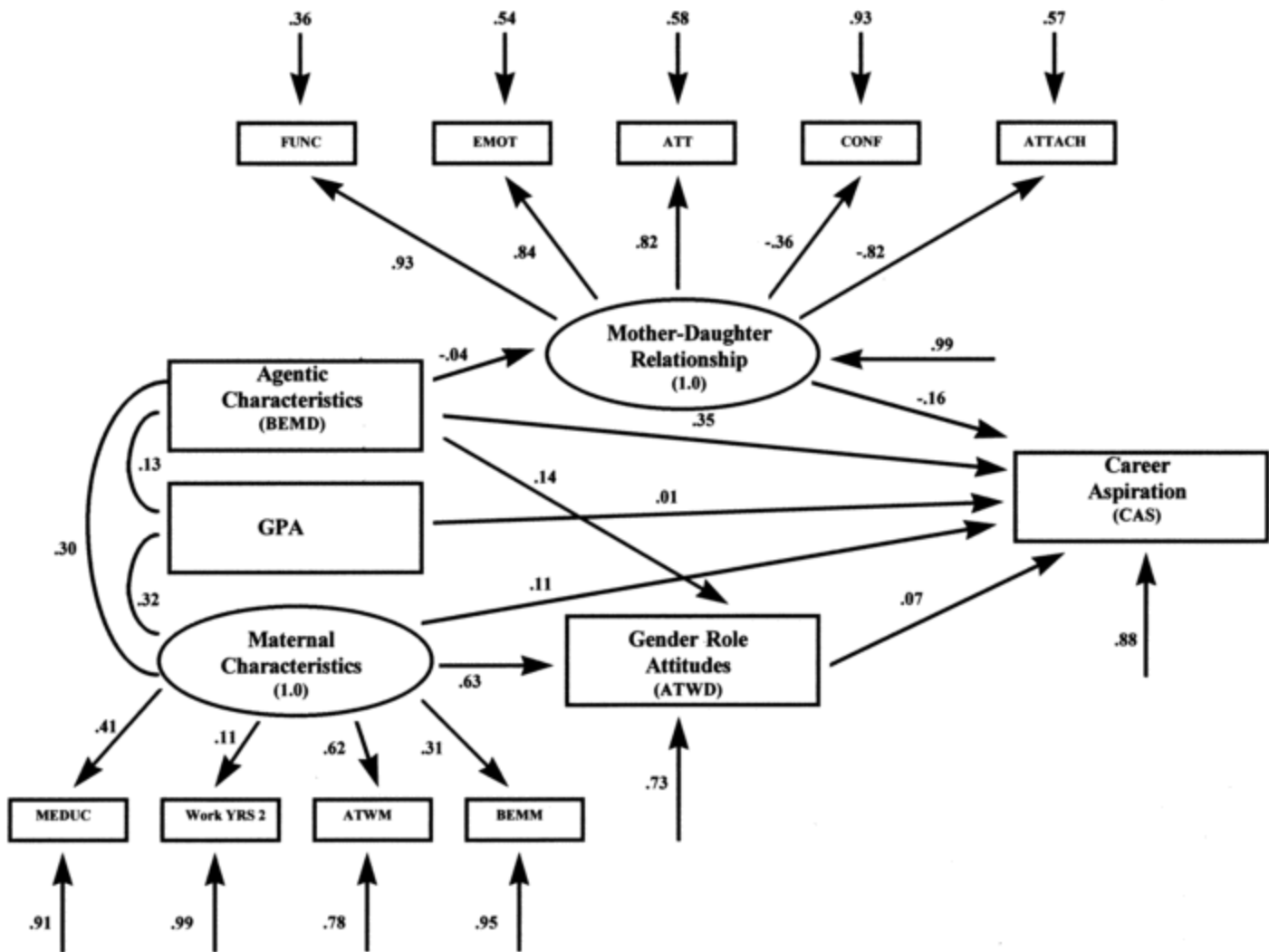
Figure 3. Initial structural equation model of Model 2, with career aspiration as the final outcome variable. FUNC = Functional Independence subscale of the Psychological Separation Inventory (PSI); EMOT = Emotional Independence PSI subscale; ATT = Attitudinal Independence PSI subscale; CONF =equals; Conflictual Independence PSI subscale; ATTACH = Inventory of Parent and Peer Attachment; BEMD = daughters' scores on the Bem Sex-Role Inventory; GPA = grade point average; CAS = Career Aspiration Scale; ATWD = daughters' scores on the Attitudes Toward Women Scale for Adolescents; MEDUC = mothers' education; Work YRS 2 = mothers' paid work experience since daughters' birth; ATWM = mothers' scores on the Attitudes Toward Women Scale; BEMM = mothers' scores on the Bem Sex-Role Inventory

Method

Participants

Research participants were 276 seventh- (n = 147, 53.3%) and eighth-grade (n = 129, 46.7%) female students in a rural North Carolina school system and their mothers, all of whom volunteered to participate and completed all the procedures.

Daughters ranged in age from 12 to 15 years (M = 13, SD = 0.74); their mothers' ages ranged from 28 to 56 years (M = 37.84, SD = 5.07). Participants were predominantly Caucasian (White; daughters, 96.0%; mothers, 95.3%); there was minimal racial diversity among the remaining participants (daughters: African American [2.9%], Native American [0.7%], Hispanic [0.4%]; mothers: African American [2.5%], Native American [1.4%], Asian American [0.4%], Hispanic [0.4%]). Governmental data indicated that the racial representation of the participants was consistent with the population of the county.

All maternal participants reported some years of paid employment as adults (range = 0.5–38 years, M = 16.67, SD = 6.91). Most of the mothers (n = 265, 96.1%) reported having been employed to some degree since the birth of the adolescent daughter (range = 0.0–15 years, M = 9.62, SD = 4.28). Most of the mothers (70.5%) also reported being employed full time currently; another 5% reported being employed part time currently. Governmental data indicated that the employment patterns of these mothers were representative of adult women in that geographical area.

Approximately one half of the mothers (n = 125, 45.3%) reported having a high school education or less; 15.2% indicated that they had not completed high school or earned a general education diploma. Of the remaining 151 mothers (54.7%) who reported some training after high school, 38.8% (n = 107) reported education below the bachelor's degree, and 3.3% (n = 9) indicated current enrollment in a training program. Only 28 (10.1%) of the mothers reported any training at the bachelor's, master's, doctoral, or professional degree level. The mean number of years of school completed was 12.64 (SD = 1.96, range =equals; 6.0–21.0). Again, the educational levels of the mothers in this study compared favorably with those of the general workforce of the county.

Variables

Attachment

We measured mother–daughter attachment on the basis of responses on the Mother subscale of the Inventory of Parent and Peer Attachment (IPPA; Armsden & Greenberg, 1987, 1992), a self-report instrument designed to assess the perceived quality of close relationships between adolescents and their parents and friends. This measure is based on theoretical assumptions of attachment theory (Bowlby, 1969/1982), particularly on the theory that parental attachment models are significant to the development and psychological well-being of adolescents (Lopez & Gover, 1993). When the IPPA was originally developed, participants were adolescents aged 16–20 (Armsden & Greenberg, 1987); however, the revised version has been used successfully with participants as young as 12 years of age (Armsden & Greenberg, 1992).

The revised version is a 75-item (25 items each for Mother, Father, and Peer subscales) instrument, with the following factors for each subscale: Trust (10 items), Communication (9 items), and Alienation (6 items). The three subscales have reported internal reliabilities (Cronbach's alpha; see Cronbach, 1970) of .87 for mother attachment, .89 for father attachment, and .92 for peer attachment (Armsden & Greenberg, 1992). In terms of validity, Armsden and Greenberg (1987) found that attachment scores on the IPPA were significantly related to several family measures and predictive of self-esteem, life satisfaction, depression–anxiety, and resentment–alienation.

The IPPA uses a 5-point Likert format with responses ranging from 1 (*almost never or never true*) to 5 (*almost always oralways true*). Total item scores represent psychological security with higher scores indicating greater attachment.

Following the design of O'Brien and Fassinger's (1993) work, our study used only the 25 items for the Mother subscale. Internal reliability (Cronbach's alpha) for this sample was .93. By using Fry's Readability Graph (Fry, 1977), we calculated the reading level of the IPPA to be fourth grade and thus appropriate for this sample.

Psychological separation

The Psychological Separation Inventory (PSI; Hoffman, 1984) is a self-report, 138-item inventory designed to measure four components of the adolescent–parent relationship, with a total of 69 items relating to each parent. The Functional Independence subscale (13 items) assesses the adolescent's ability to manage personal affairs. Freedom from excessive need for parental approval, closeness, and emotional support is measured by the Emotional Independence subscale (17 items); freedom from excessive anger, guilt, resentment, and mistrust for each parent is assessed by the Conflictual Independence subscale (25 items). The Attitudinal Independence subscale (14 items) assesses the extent to which the adolescent demonstrates attitudes and values that are different from those of the parents. Participants indicate on a 5-point rating scale (1 = *not at all true of me*, 5 = *very true of me*) how accurately each item describes their relationship with their mothers or fathers. Higher scores indicate greater psychological separation.

Hoffman (1984) reported internal reliability estimates ranging from .84 to .92 and test–retest reliability coefficients ranging from .49 to .96. In terms of validity, Hoffman reported significant relationships between the PSI and measures of personal, academic, and relationship adjustment. In addition, Lapsley, Rice, and Fitzgerald (1990) and Rice (1992) observed predicted changes in scale scores of college students over a 4-year span.

The PSI was originally constructed for use with college students no longer living at home with parents. Following O'Brien's (1993a) lead, we constructed an adapted version of the PSI for the middle school students in this study. For example, we presented the item "I generally consult with my mother when I make plans for an out of town weekend" as "I generally check with my

mother when I make plans with my friends." We deleted two items not appropriate for adolescents who live with family (e.g., "I wish that my mother lived nearer so I could visit her more frequently"). Although changes were minimal, a panel of experts (two counselor educators, two school counselors, and one eighth-grade girl) who examined the modified PSI established face validity. In addition, we calculated internal reliability coefficients (Cronbach's alpha) for this sample for each subscale: .90 for Attitudinal Independence, .90 for Conflictual Independence, .90 for Emotional Independence, .90 for Functional Independence, and .90 for overall scores.

Agentic characteristics

We used masculine items on the short form of the Bem Sex-Role Inventory (BSRI; Bem, 1981) to measure agentic characteristics. Masculine items (e.g., "assertive," "dominant," "independent") are associated with an instrumental, agentic orientation, indicating an emphasis on task completion, problem solving, and concern for self as an individual. Participants are asked to indicate on a 7-point Likert scale (1 = *never or almost never true,* 7 = *always or almost always true*) how well each of the characteristics is self-descriptive.

On the basis of factor analyses of the items on the original BSRI, Bem (1981) selected items for the Masculine (and Feminine) scales for the short BSRI to maximize internal consistency of the scales and the orthogonality between the scales. For undergraduate women responding to the Masculine scale, the internal consistency estimates were .84 (1973 sample) and .86 (1978 sample), and 4-week test–retest correlations were .91 (Bem, 1981). Scores correlated minimally with responses on the Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1960): .14 for female responses to Masculine items, −.08 for male responses to Masculine items. In addition, a series of studies (e.g., Bem, 1975; Bem, Martyna, & Watson, 1976) provided evidence that participants behaved in a manner consistent with cultural definitions of masculinity or femininity, whereas androgynous participants demonstrated high levels of behavior in both domains. Internal reliability (Cronbach's alpha) for maternal participants in our study was .87; for adolescent participants, it was .79.

Gender role attitudes

The Attitudes Toward Women Scale for Adolescents (AWSA; Galambos, Petersen, Richards, & Gitelson, 1985), based on the short form of the Attitudes Toward Women Scale (Spence, Helmreich, & Stapp, 1973), is a global measure of adolescents' attitudes about the rights and roles of women in educational, vocational, and intellectual domains (e.g., "It is more important for boys than girls to do well in school"), as well as their attitudes about dating and etiquete (e.g., "On a date, the boy should be expected to pay all expenses"). Participants indicate agreement or disagreement with 12 items by using a 4-point scale (1 = *strongly agree,* 4 = *stronglydisagree*). Higher scores indicate less traditional attitudes.

Internal consistency estimates for four samples of students in Grades 6–12 averaged .78 for boys and .72 for girls. Alpha coefficients for girls in Grades 7 and 8 were .70 and .62, respectively. In terms of test–retest reliability, females' attitudes were more stable during a 2-year interval (Grades 6–8) than during a 1-year interval (Grades 6–7 and 7–8). Galambos et al. (1985) reported supporting data for construct validity, including differences in traditional attitudes between girls and boys and between adolescents in rural versus suburban communities, as well as correlations between traditional attitudes and measures of sex role orientation, self-image, and self-esteem.

We calculated an internal consistency (Cronbach's alpha) coefficient of .70 for adolescent participants in this study and a reliability coefficient of .73 for maternal participants.

School performance

The measure of school performance was the overall grade point average (GPA) from the previous school year for each adolescent participant. The school counselor at each participating school provided each participant's overall GPA, which was obtained from each individual's official, cumulative school record and was calculated on a 4-point scale, on which 4.0 was equivalent to an A and 1.0 was equivalent to a D.

Career orientation

The Occupational Check List (OCL; Brooks, Holahan, & Galligan, 1985) is a measure of interest in traditional versus nontraditional occupations for women. The self-report instrument includes lists of 25 occupations considered traditional (70% or more employees are women), 25 considered nontraditional (30% or fewer employees are women), and 25 considered neutral (30%–70% of employees are women). Participants are instructed to indicate whether they might choose or would not choose each occupation based solely on interest in the occupation rather than ability to perform any of the occupations and adequate resources to obtain any training necessary. For items selected ("might choose"), a value of 1 is assigned to traditional occupations, a value of 2 to neutral occupations, and a value of 3 to nontraditional occupations. A mean score for might-choose items is calculated, with higher mean scores indicating greater career orientation toward nontraditional occupations.

Brooks et al. (1985) reported 2-week test–retest reliability coefficients for separate samples of middle and high school students as .85 and .86, respectively. In addition, adolescents in the two samples indicated recognition and knowledge of 97% of the occupational titles. On the basis of discussion with L. Brooks (personal communication, July 6, 1994), we updated 13 occupational titles to comply with current census data regarding women's employment (e.g., we replaced *grain buyer* with *animal caretaker*; see U.S. Department of Labor, 1991). A panel of experts (two counselor educators, two school counselors, one eighth-grade girl) examined the occupational titles to establish face validity.

Career aspiration

The Career Aspiration Scale (CAS; O'Brien, 1993a) was developed to assess the value a person attributes to having a career, specifically emphasizing the degree to which that person aspires to achieve leadership or advanced positions within a chosen field. On a 5-point Likert scale ranging from 1 (*not at all true of me*) to 5 (*very true of me*), participants indicate how accurately each of 10 items applies to them. Higher scores indicate greater commitment to achieving in a person's career and thus to greater aspiration.

O'Brien and Fassinger (1993) established reliability with an internal consistency coefficient of .76 for a sample of 408 high school girls. In a test of instrument validity, scores on the CAS correlated positively with measures of academic ability, career salience, number of semesters of completed math and science courses, and career self-efficacy (O'Brien, 1993b); they correlated negatively with scores on measures of negative affectivity and traditional occupational choice (O'Brien, 1993b). We calculated an internal consistency coefficient of .67 for adolescent participants in our study.

Demographic questionnaires

Mothers who participated in this study completed a demographic questionnaire that requested the mother's age, ethnicity, educational history and status, and employment history and status. We used two items on the demographic questionnaire to determine the adult woman's relationship (i.e., mother, stepmother, grandmother) to the female adolescent and how long the adult had been in this relationship with the adolescent. Adolescent participants also completed a brief demographic questionnaire that requested age, grade, and ethnicity.

Procedure

Our study involved participants from among the approximately 1, 100 seventh- and eighth-grade female students in a rural North Carolina school system and the participants' mothers. We delivered packets to school counselors in the six middle schools in the school system. We asked counselors to distribute the packets to all seventh- and eighth-grade classroom teachers, with standardized instructions that the packets be sent home to the mothers via all seventh- and eighth-grade girls. Included in each packet was the following: a letter of explanation, a consent statement for the mothers' and their daughters' participation, a demographic questionnaire, an AWSA, the Masculine subscale of the short BSRI, and a stamped, preaddressed return envelope. We gave mothers a specified date (approximately 1 week after receipt) for returning their completed forms. In an effort to increase the return rate, we entered code numbers for all returned, completed maternal packets in a raffle for $50. The total number of returned surveys was 352, which represented a 31.68% return rate. We received responses from each of the six middle schools. The number of usable surveys returned was 276, yielding a final return rate of 25%. We deemed 76 surveys unusable for several reasons (e.g., no permission form for adolescent's participation, survey respondent did not meet operational definition of mother,

omitted responses, female adolescent absent on day of administration and make-up administration). In an attempt to ensure as much homogeneity in the definition of *mother*as possible, we did not include in this study female adults who identified themselves as having any role other than that of mother (e.g., stepmother, grandmother, other) and who reported being in the mothering role for the female adolescent less than 12 years.

Leslie Martin Rainey met with adolescent participants (whose mothers consented to their participation; see above) in groups at a time and location that each school counselor had designated. These participants completed a number-coded booklet that included a demographic questionnaire, the OCL, the CAS, the AWSA, the Masculine subscale of the short BSRI, the PSI maternal items, and the Mother subscale of the IPPA (in that order). The order of instruments in the adolescent survey was intentional so that measures of the outcome variables, career orientation and career aspiration, would not be contaminated by the measures of endogenous and exogenous variables. To facilitate standardized administration, the administrator had a list of acceptable definitions and explanations for terms that might not be understood by all participants.

Results

Descriptive Statistics

We used descriptive statistics, including means, standard deviations, and frequency distributions, to describe the responses of the adolescent and maternal participants in this study (see Table 1). Generally, the adolescent girls in this study reported high levels of attachment to their mothers. These results are comparable to those reported by O'Brien and Fassinger (1993) for late adolescent girls (i.e., high school seniors, $M = 89.73$, $SD = 20.45$). Results also indicated a moderate, healthy degree of psychological separation from their mothers for this group of early adolescent girls. Although there are no previous reports of the use of the PSI with early adolescents, these scores appear consistent with those reported by Hoffman (1984) for women of college age.

Table 1
Descriptive Statistics for Maternal and Adolescent Responses

Measure & variable	Maternal responses		Adolescent responses	
	M	SD	M	SD
Short BSRI	4.99	0.98	5.17	0.92
AWSA	3.16	0.36	3.32	0.38
Level of education	12.60	2.00		
Years of employment since birth of child	9.60	4.30		
IPPA			93.40	19.93
Trust			39.67	8.95
Communication			32.45	7.93
Alienation			21.28	5.68
PSI			23.71	12.22
Functional			33.18	13.80
Emotional			21.93	12.31
Attitudinal			58.03	18.34
Conflictual				
School performance (GPA)			3.29	0.61
OCL			1.88	0.24
CAS			36.19	6.33

BSRI = Bem Sex-Role Inventory; AWSA = Attitudes Toward Women Scale for Adolescents; IPPA = Inventory of Parent and Peer Attachment; PSI = Psychological Separation Inventory; GPA = grade point average; OCL = Occupational Check List; CAS = Career Aspiration Scale.

Descriptive Statistics for Maternal and Adolescent Responses

Both mothers and daughters demonstrated moderately strong agentic (instrumental) characteristics on the short BSRI, with daughters reporting slightly stronger agentic characteristics than did mothers. O'Brien and Fassinger (1993) reported similar results ($M =$ 5.02, $SD = 0.78$) for their sample of female high school seniors. Both mothers and daughters also reported moderately strong nontraditional attitudes toward women's rights and roles in society on the AWSA; daughters' attitudes were slightly more nontraditional than were mothers' attitudes. The mean score for adolescents in this study is comparable to scores reported by Galambos et al. (1985) for seventh-grade ($M = 3.31$, $SD = 0.33$) and eighth-grade ($M= 3.40$, $SD = 0.32$) girls.

As a group, these adolescents appeared to have high-average academic skills, and they selected slightly traditional career possibilities. The OCL scores were consistent with those findings reported by others (e.g., Brooks et al., 1985; Dunnell & Bakken, 1991) for middle school and high school girls. The adolescents in this study appeared to exhibit moderately high aspirations for advancement in chosen careers (as measured by the CAS). The CAS has not been used previously with early adolescents; however, scores for this early adolescent female sample are comparable to scores reported for girls in late adolescence (i.e., high school seniors, see O'Brien, 1993a, 1993b; O'Brien & Fassinger, 1993).

Structural Equation Models

A low correlation coefficient (.19) between the two outcome variables (i.e., career orientation and career aspiration) supported the need for separate models.

Model 1

We used a structural equation model (Figure 1)to test Model 1 according to the covariance analysis of linear structural equations (CALIS) procedure in the SAS statistical package (Hatcher, 1994). In Model 1, career orientation, as measured by the OCL (Brooks et al., 1985), was the final outcome variable. Daughters' gender role attitudes (ATWD), as measured by the AWSA (Galambos et al., 1985), was an endogenous variable. The other endogenous variable, mother–daughter relationship, was a latent variable constructed from the Mother subscale of the IPPA (ATTACH) and the four subscales of the PSI (labeled for the purposes of this study as FUNC, EMOT, ATT, and CONF). Daughter's GPA and score on the short BSRI (BEMD) were exogenous variables. The final exogenous variable of maternal characteristics was a latent variable constructed from mother's education (MEDUC), mother's paid work experience since the birth of this daughter (Work YRS 2), mother's gender role attitudes (ATWM), and mother's score on the short BSRI (BEMM). We used the covariance matrix for the simultaneous solution of the model using a maximum-likelihood-estimate technique. This model reached convergence without modifications. Results are detailed in Figure 1.

There are multiple ways of examining overall fit for the model. One method is examination of the chi-square statistic. In the initial testing of Model 1, the chi-square value was significant, suggesting a poor fit of this data to the model, χ^2 (57, $N = 276$) = 359.51 , $p < .0001$. However, because large sample sizes tend to distort the chi-square statistic, researchers (e.g., Fassinger, 1987; Hatcher, 1994; O'Brien & Fassinger, 1993) have suggested interpreting the chi-square statistic with caution and recommend supplementing this particular test with other goodness-of-fit tests. Thus, we also examined other indexes to assess overall fit of the model. The goodness-of-fit index (GFI) indicated that the data might fit the model (GFI = .84), whereas other indexes suggested only moderate fit of the model (e.g., Bentler & Bonett's, 1980, normed-fit index [NFI] = .73, Bentler & Bonett's non-normed-fit index [NNFI] = .67, and Bentler's, 1989, comparative fit index [CFI] = .76).

Next, we modified the model in an attempt to enhance the goodness of fit. Hatcher (1994) made several recommendations regarding modifications of models with small sample sizes (i.e., $N < 800$), as in this study. First, he suggested that few modifications be made. Second, "because it is generally more desirable to drop nonsignificant paths than to add new paths" (Hatcher, 1994, p. 204), he advised that a first step be to remove any nonsignificant paths and then reestimate the model before making any modifications. In examining path coefficients, we identified three nonsignificant coefficients (CONF, Work YRS 2, GPA). We constrained these three paths to zero and reanalyzed the model.

When we retested Model 1 (see Figure 2), the chi-square value was significantly lower, χ^2 (29, $N = 276$) = 69.9802 , $p < .005$, when compared with the chi-square value of the initial testing. The value of the chi-square statistic in the modified model indicated that this model was a much better fit with the data from this particular sample. The GFI (.95) indicated that the data were a strong fit for the modified model. Other indexes also suggested a much stronger fit of the constrained model (NFI = .93, NNFI = .93, and CFI =equals; .96).
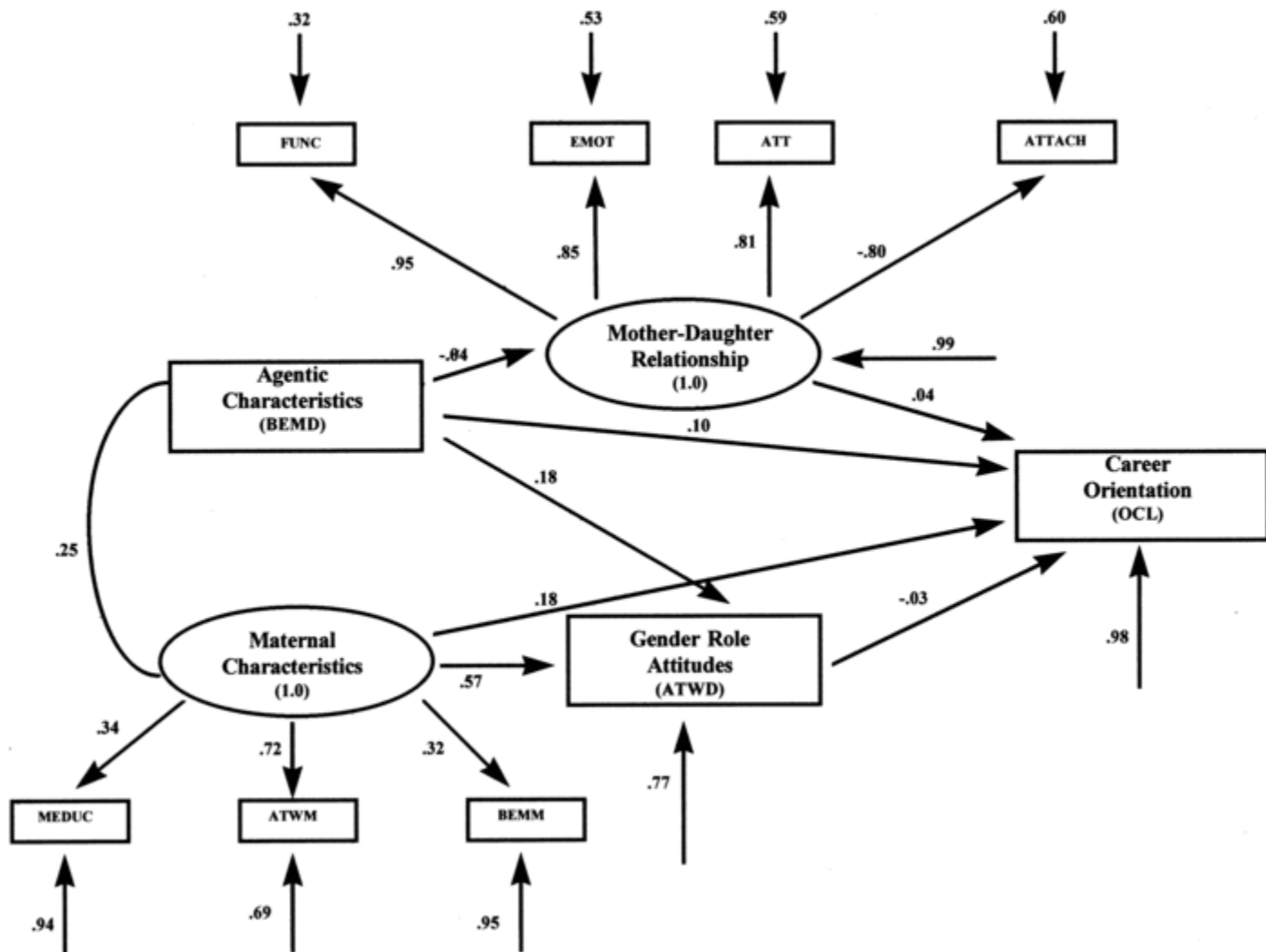
Figure 2. Modified structural equation model of Model 1, with career orientation as the final outcome variable. FUNC = Functional Independence subscale of the Psychological Separation Inventory (PSI); EMOT = Emotional Independence PSI subscale; ATT = Attitudinal Independence PSI subscale; ATTACH =equals; Inventory of Parent and Peer Attachment; BEMD = daughters' scores on the Bem Sex-Role Inventory; OCL = Occupational Check List; ATWD = daughters' scores on the Attitudes Toward Women Scale for Adolescents; MEDUC = mothers' education; ATWM = mothers' scores on the Attitudes Toward Women Scale; BEMM = mothers' scores on the Bem Sex-Role Inventory

Finally, we examined the initial and modified models to determine the variability in the endogenous and final outcome variables accounted for (R^2). Neither testing of the model accounted for any of the variance in the endogenous latent variable of mother–daughter relationship ($R^2 = .00$) and only minimal variance ($R^2 = .05$) in the final outcome variable of career orientation. The model did account for almost half ($R^2 = .47$, initial; $R^2 = .41$, modified)

of the variance in the adolescents' gender role attitudes. Examination of the path coefficients (detailed in Tables 2 and 3) indicated that two exogenous variables, maternal characteristics (ρ = .63, $p < .001$, initial; ρ = .57, $p < .001$, modified) and daughters' agentic characteristics (ρ = .15, $p < .05$, initial; ρ = .18, $p < .05$, modified), were significant predictors of the daughters' gender role attitudes. As expected, the latent variable of maternal characteristics was the better predictor of the daughter's gender role attitudes. In particular, two factors (i.e., mother's education and maternal gender role attitudes) within the latent variable of maternal characteristics contributed strongly to adolescent gender role attitudes.

Table 2
Path Coefficients for Models 1 and 2

Predictor	Model 1 (OCL)		Model 2 (CAS)	
	β	t	β	t
Predicting M-D relationship				
BEMD	−.04	−0.65	−.04	−0.65
Predicting ATWD				
BEMD	.15	2.19*	.14	2.04*
Maternal characteristics	.63	7.51***	.63	7.50***
Predicting final outcome variable				
BEMD	.10	1.50	.35	6.14***
GPA	−.05	−0.73	.01	0.23
Maternal characteristics	.22	1.53	.11	0.83
M-D relationship	.03	0.51	−.16	−2.92**
ATWD	−.06	−0.51	.07	0.75

Note. OCL = career orientation; CAS = career aspiration; M-D = mother–daughter; BEMD = daughters' scores on the Bem Sex-Role Inventory; ATWD = daughters' scores on the Attitudes Toward Women Scale for Adolescents; GPA = grade point average.
* $p < .05$. ** $p < .01$. *** $p < .001$.

Path Coefficients for Models I and 2

Table 3
Path Coefficients for Modified Models 1 and 2

Predictor	Model 1 (OCL)		Model 2 (CAS)	
	β	t	β	t
Predicting M-D relationship				
BEMD	−.04	−0.70	−.04	−0.70
Predicting ATWD				
BEMD	.18	2.88*	.17	2.70*
Maternal characteristics	.57	6.65***	.58	6.72***
Predicting final outcome variable				
BEMD	.10	1.60	.36	6.33***
Maternal characteristics	.18	1.57	.06	0.57
M-D relationship	.04	0.64	−.16	−2.92**
ATWD	−.03	−0.34	.11	1.28

Note. OCL = career orientation; CAS = career aspiration; M-D = mother–daughter; BEMD = daughters' scores on the Bem Sex-Role Inventory; ATWD = daughters' scores on the Attitudes Toward Women Scale for Adolescents.
* $p < .05$. ** $p < .01$. *** $p < .001$.

Path Coefficients for Modified Models 1 and 2

Thus, it appears that the early adolescent girls' attitudes toward women were influenced by their mothers' educational status, their mothers' attitudes toward women, and their own personality characteristics. No other variables in Model 1 emerged as significant predictors.

Model 2

We also used a structural equation model, as presented in Figure 3 , to test Model 2. The second model was identical to the first except that the final outcome variable was career aspiration, as measured by the CAS (O'Brien, 1993a). This model reached convergence without modifications. Results of this procedure are detailed in Figure 3.

We examined this model for goodness of fit using the same tests used for Model 1. For Model 2, the chi-square value was significant, χ^2 (57, $N = 276$) = 359.38 , $p < .0001$, again suggesting a poor fit of this data to the model. We interpreted the chi-square statistic with caution and supplemented it with other goodness-of-fit tests to assess overall fit of the model, as we had done with Model 1. Although the chi-square statistic indicated a poor fit of the data, examination of the GFI (.85) for this model indicated that the data might fit the model. Other goodness-of-fit indexes (NFI = .74, NNFI = .69, and CFI = .77) suggested only moderate fit of the data to Model 2.

We retested Model 2 by following the same guidelines (Hatcher, 1994) we had used with Model 1. We again identified three nonsignificant coefficients (CONF, Work YRS 2, GPA). After constraining these three paths (see Figure 4), the chi-square value was significantly lower, χ^2 (29, $N = 276$) = 72.14 , $p < .0001$, when compared with the chi-square value of the initial testing. The value of the chi-square statistic in the modified model indicated that this model was a much better fit with the data from this particular sample. The GFI (.95) indicated that the data were a strong fit for the modified model. Other indexes also suggested a much stronger fit of the constrained model (NFI = .93, NNFI = .93, and CFI = .96).
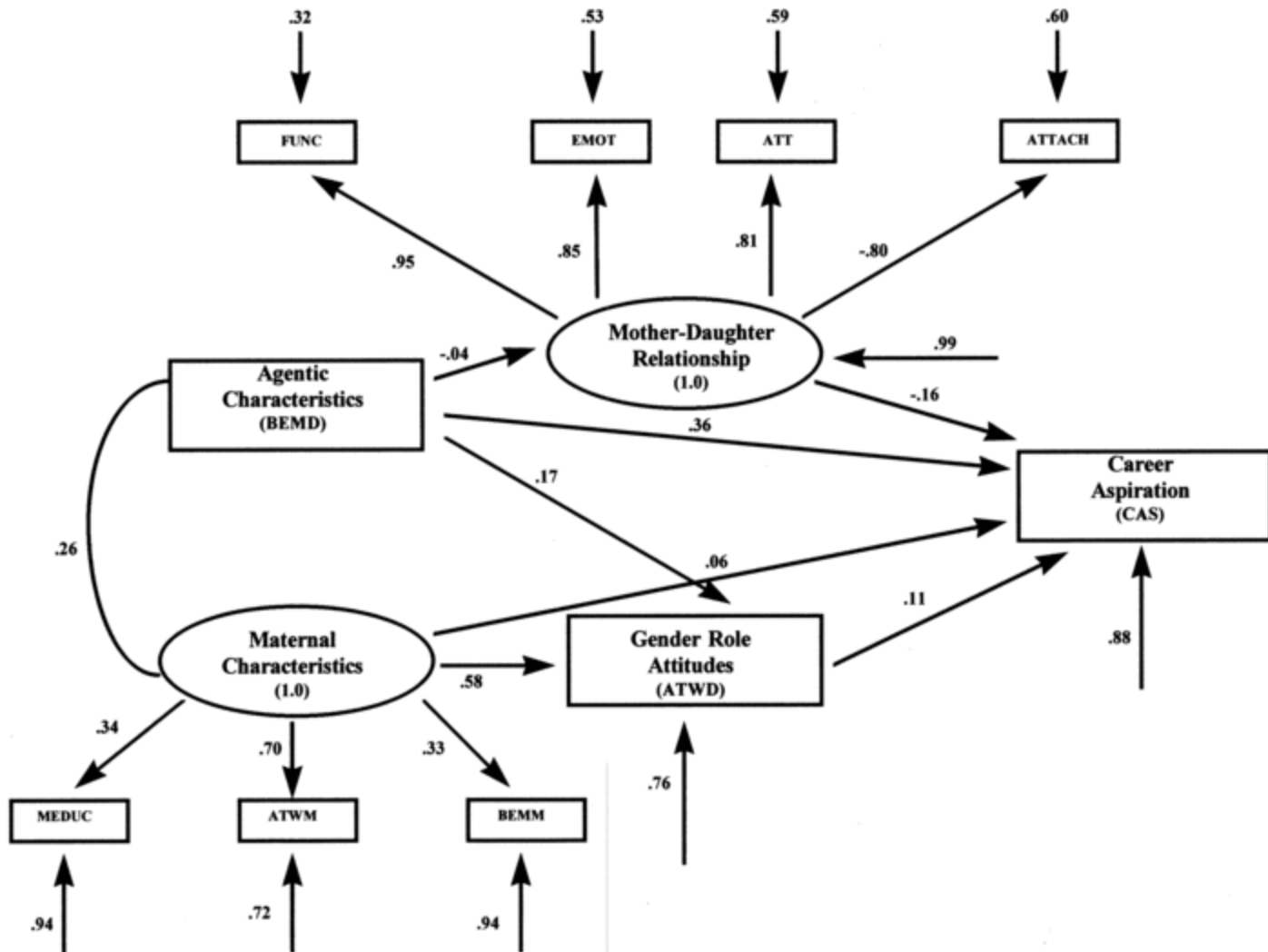
Figure 4. Modified structural equation model of Model 2, with career aspiration as the final outcome variable. FUNC = Functional Independence subscale of the Psychological Separation Inventory (PSI); EMOT = Emotional Independence PSI subscale; ATT = Attitudinal Independence PSI subscale; ATTACH =equals; Inventory of Parent and Peer Attachment; BEMD = daughters' scores on the Bem Sex-Role Inventory; CAS = Career Aspiration Scale; ATWD = daughters' scores on the Attitudes Toward Women Scale for Adolescents; MEDUC = mothers' education; ATWM = mothers' scores on the Attitudes Toward Women Scale; BEMM = mothers' scores on the Bem Sex-Role Inventory

Finally, we examined Model 2 to determine the variability in the endogenous and final outcome variables that was accounted for in the model (R^2). This model did not account for any of the variance in the endogenous latent variable of mother–daughter relationship ($R^2 = .00$). Approximately one fourth of the variance ($R^2 = .23$, initial; $R^2 = .22$, modified) in the final

outcome variable of career aspiration and almost half of the variance ($R^2 = .47$, initial; $R^2 = .42$, modified) in the adolescents' gender role attitudes were accounted for. Examination of the path coefficients (detailed in Tables 2 and 3) indicated that two exogenous variables, maternal characteristics ($\rho = .63$, $p < .001$, initial; $\rho = .58$, $p < .001$, modified) and daughter's agentic characteristics ($\rho = .14$, $p < .05$, initial; $\rho = .17$, $p < .05$, modified), were predictors of the daughter's gender role attitudes. As expected, the latent variable of maternal characteristics was the better predictor of adolescent gender role attitudes. As in Model 1, mothers' educational status and attitudes toward women emerged as the stronger factors within the latent variable of maternal characteristics. In addition, path coefficients indicated that daughters' agentic characteristics ($\rho = .35$, $p < .001$, initial; $\rho = .36$, $p < .001$, modified) and the latent variable of mother–daughter relationship ($\rho = -.16$, $p < .01$, initial; $\rho = -.16$, $p < .01$, modified), were significant predictors of career aspirations. Adolescents' agentic characteristics was the better predictor of these two variables.

Thus, results indicated that for the participants in this study, young adolescent girls who reported instrumental personality traits also demonstrated greater desire to advance within a chosen career field.

Discussion

Although none of the predictor variables in Model 1 (see Figures 1 and 2) contributed significantly to the outcome variable of career orientation, two variables, agentic characteristics (e.g., independence, assertiveness, willingness to take a stand) of the adolescent and characteristics of the mother (e.g., education, employment, agentic characteristics, gender role attitudes), did contribute to the adolescents' gender role attitudes. The latent variable of maternal characteristics was the strongest predictor of daughters' gender role attitudes. Of these characteristics, maternal education and maternal attitudes toward women emerged as the stronger factors. This finding is in line with those of other researchers (e.g.,Baruch, 1972, 1974; Hay & Bakken, 1991; Hertsgaard & Light, 1984; Rollins & White, 1982; Sholomskas & Axelrod, 1986; Smith & Self, 1980;Tallichet & Willits, 1986; Weeks, Wise, & Duncan, 1984; Zuckerman, 1981) who have noted the influence of maternal education and gender role attitudes on adolescent daughters' attitudes toward women. In particular, Rollins and White noted a similarity between 10- to 14-year-old daughters' attitudes toward work, marriage, and family and their mothers' attitudes toward the same roles. Additionally, Hertsgaard and Light indicated that girls in junior high school whose mothers were college educated expressed more liberal gender role attitudes than did those girls whose mothers did not have a college education. Similar results have been noted for high school girls (Tallichet & Willits, 1986) and for college-age women (Zuckerman, 1981). Thus, there is increasing evidence, based on a variety of measures, that mothers strongly influence the development of daughters' attitudes toward women's rights and roles in society.

In Model 2 (see Figures 3 and 4) the same variables (i.e., daughters' agentic characteristics and maternal characteristics) contributed to the adolescents' gender role attitudes as they did in Model 1. Again, maternal characteristics was a stronger predictor of the daughters' gender role attitudes than were other variables in this model.

Additionally in Model 2, two variables (i.e., adolescents' agentic characteristics and mother–daughter relationship) contributed to the outcome variable of career aspiration. Of the two predictive variables, agentic characteristics of the adolescent was the stronger predictor of career aspiration. This finding is consistent with the work of Fassinger (1990) and O'Brien and Fassinger (1993), who suggested that late adolescent girls who demonstrate instrumental (agentic) personality characteristics also anticipate advancement within their chosen career. In addition, the mother–daughter relationship (i.e., psychological separation and attachment) emerged as an influential factor in the career aspirations of girls in early adolescence. This finding supports the premise that the mother–daughter relationship is influential in the career development of early adolescent girls, just as it has been noted to be influential in later stages of adolescent development (Blustein, Walbridge, Friedlander, & Palladino, 1991; O'Brien & Fassinger, 1993).

Results of this study should be viewed within the context of its limitations; generalizability is limited in several ways. First, all of the participants were volunteers from a specific geographical region. Although the sample was representative of the population in terms of ethnicity, employment, and education, unknown factors differentiating respondents from nonrespondents may have influenced the results. For example, a larger percentage of mothers employed full time may neither have found the time to respond or have been motivated by the $50 raffle compared with those employed part time. It should be noted, however, that rural populations are studied infrequently, and therefore this study provides important data regarding a female group for which little information is available. As several researchers have noted (Fassinger, 1990; Gelso & Fassinger, 1992; O'Brien & Fassinger, 1993; Richardson, 1993), research on this and other diverse populations of women (e.g., women who differ by race, disability, sexual orientation, socioeconomic status, and geographical region) is needed to construct models that encompass the wide spectrum of career-related decisions and influences on those decisions. In addition, we included only adult women who identified themselves as mothers and who had been in this role since the infancy of their daughters. Thus, these results may not accurately reflect career development of female adolescents who live with their stepmothers, grandmothers, or other adult female caregivers. Finally, we used self-report measures for each variable except school performance.

Results of this study provide support for only portions of the proposed models of factors that influence career development of early adolescent girls. Additional research is needed to determine what other factors (e.g., family structure, academic self-esteem, ego development, maternal life satisfaction) also influence career development of girls. Also, there may be other aspects of influential factors (i.e., degree of intimacy in the mother–daughter relationship,

maternal expectations for daughter's life and how those expectations are communicated; see Young, 1994) or other ways to measure factors previously found to influence the career development of female adolescents.

An important consideration for future researchers is choosing the appropriate outcome variable related to career development for girls. As others (e.g., Reid & Stephens, 1985) have noted, there is a need to refine and clarify the definitions of career orientation (traditional vs. nontraditional career choice) and career aspirations (desire to advance within one's chosen career field) as they apply to young adolescents' career choices. Results indicate that this sample of middle school girls expressed more interest in traditional careers than in nontraditional careers but also demonstrated strong desire to advance to leadership positions within their chosen careers. These results confirm the need to delineate between career orientation and career aspiration when studying women's career development (Reid & Stephens, 1985). It appears that women can be traditional in career orientation while exhibiting high aspiration just as they can be nontraditional in orientation while exhibiting minimal aspiration. Future researchers may also want to consider the relevance of other outcome variables, such as career interests, prestige, or financial status and expectations. In addition, appropriate outcome variables may vary by age or development. For example, it may be that a lack of knowledge about nontraditional careers may have influenced these young girls to select more traditional careers (i.e., measure of career orientation).

As Gelso and Fassinger (1992) have noted and as the results of this study indicate, longitudinal studies are needed to identify the developmental stages when specific influences are most powerful (i.e., when the mother–daughter relationship is most influential in career development) for which outcome measures. Longitudinal data could also provide needed information regarding congruence of career orientation, career aspiration, and eventual career choice. Results indicate that these girls had a sense of their desire for advancement and beliefs about whether this is or will be important in their lives. One adolescent participant commented that "this is important stuff that we need to be thinking about now and the grownups around us need to know what is important to us." Another girl expressed some confusion about how to respond to statements about advancing to leadership positions, given that she "intend[s] to start at the top of the field."

A critical question, however, is how realistic the girls' career plans are in terms of both career orientation (i.e., choice) and career aspiration (cf.O'Brien & Fassinger, 1993). Interestingly, these rural, young adolescents reported career choices and aspirations quite similar to those reported by the more privileged high school seniors in O'Brien and Fassinger's study. (They also reported similar levels of nontraditional attitudes toward women.) Only longitudinal data, however, would indicate how differences in the two groups' educational and economic opportunities might affect their eventual career choices, career advancement, or both and what moderating effect variables found influential at this early developmental stage (e.g., agentic characteristics of daughter and mother, mother's education and employment, mother–daughter relationships) might continue to have. Such studies may help address a critical issue in the career development literature: "its inattention to the diversity of racial, ethnic, and class populations" (Richardson, 1993, p. 426).

They would also be in line with the current emphasis on viewing career development from an ecological perspective (Collin & Young, 1986; Young, Friesen, & Dillabough, 1991), influenced by the broad sociological and social context (Richardson, 1993). How might our results, for example, be explained by the participants' life experiences in a rural environment? A reviewer of this article suggested that the mothers may have fewer options for pursuing nontraditional careers but because of a tradition of active roles in farm life and small family businesses, they may display ambition and other agentic characteristics, which their daughters may model. Whatever the influences are, the rural context might be particularly critical for these girls. Gottfredson (1981) has suggested that at this age social class is a prime variable that these girls use to evaluate their career options. Additional research, perhaps using narratives (e.g., Young et al., 1994), constructivist methods (Savickas, 1994), or other qualitative approaches (Richardson, 1993), is needed to determine what environmental factors influence the daughter, her mother, and their relationship in terms of career-related processes-and-outcome variables.

Results indicate that counselors should be aware of the influence of mother's education, work experience, personality characteristics, and gender role attitudes on girls in middle school. Programs designed to encourage mothers to share their experiences and attitudes with their own daughters, as well as with other young females, could be helpful. In addition, activities that assist mothers and daughters in negotiating the developmental processes of psychological separation and attachment are indicated. Finally, efforts to support and encourage the development of agentic personality characteristics (e.g., leadership-development programs) may be helpful in promoting the career development of young adolescent girls. Such activities may provide an important basis from which these girls will address their career options and career-related choices.

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