Contingent Interaction During Work and Play Tasks for Mothers With Multiple Sclerosis and Their Daughters

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Parent–child interactions are instrumental in the development of a child’s language capacity, cognitive functioning, social behavior, and personality (Maccoby & Martin, 1983). According to social learning theorists, parents shape their children’s behavior by modeling preferred behaviors, children shape their parents’ behavior through reciprocal response to these preferred behaviors, and both use reinforcement as the catalyst for socially desirable behaviors (Ainsworth, 1973; Bandura, 1977; Bell, 1981; Maccoby & Martin, 1983; Mash, Terdal, & Anderson, 1981; Parpal & Maccoby, 1985).

Parents effectively transmit social expectations to the extent that they possess the physical, mental, and emotional ability to perform parenting tasks. Because the presence of disability or chronic illness may have a detrimental effect on parental competence or individual characteristics, generalizations from research on relationships between parents without disabilities and their children may be inappropriate for describing parenting in this atypical situation. Some researchers suggest that specific knowledge regarding parents with disabilities is needed (Buck & Hohmann, 1983). The interactional patterns are critical to an understanding of family dynamics because they represent key components of socialization events.

Occupational therapy personnel focus on persons with chronic illness or disability. Treatment without attention to social expectation limits future opportunities to engage in life activities. These psychosocial aspects of rehabilitation are becoming increasingly important. Bing stated that our goal is to help people not only to endure their conditions but also to live life well (Stahl, 1991). As service providers, we must carefully assess our support of a health care system in which the primary goal is to discharge patients as soon as possible with little attention to long-term adaptation to a disability. In today’s rehabilitation programs, patients are more acutely ill than in the past. Rehabilitation programs are also shorter, thus affording less opportunity for patients to acquire lifelong living skills. Bing stated that although occupational therapists endorse a philosophy based on holism, every day therapists become more focused on the mechanistic approach to practice (Stahl, 1991). Treatment goals should focus on lifelong living with a disability and should support a variety of social roles to ensure quality of life. One of these important and highly valued roles is being a parent.

This paper presents research on the parent role for persons with a disability. The study focused on parent–child interaction patterns during specific parenting tasks that occur when a mother has a chronic illness. Multiple sclerosis (MS) was the condition selected for this study because it is a chronic illness usually diagnosed during young adulthood, when parenting is a primary developmental issue. Because MS does not occur during childhood, persons who have MS have experienced relationships with their own parents that provided modeling for
typical parenting behaviors. Additionally, MS results in tangible disabling outcomes that require attention to compensatory techniques to perform daily life activities including parenting. Consequently, parent–child interaction requires understanding. From this knowledge, occupational therapists can better assist persons with multiple sclerosis to be good parents and can assist with family dynamics.

To avoid problems related to the effect of gender on parent–child interaction, the study was limited to mothers. For a more extensive review of women, motherhood, and disability, the reader is referred to Zukas (1991), Dailey (1979), and Fine and Asch (1988).

Parent–Child Reciprocity

Observing parent–child interaction to recognize these mutual influences between members of this dyad is a relatively new approach to understanding the complex parent–child relationship (Walters & Stinett, 1971). With the appearance of the study of these mutual influences, a general distrust emerged for the simplistic, causal explanation of the unidirectional influence of parents on their children during interaction. These two events gave rise to parent–child relationship studies that focused on the reciprocal influences between parent and child (Walters & Walters, 1980). Because parenting is a primary vehicle for socialization, studying parent–child behavior with a contingent interaction model would provide information regarding the quality and mutual influences that each member of this dyad has on the other. Contingent interaction is the mutual shaping of reciprocal behaviors by both persons (Mash et al., 1981).

Several researchers have suggested that certain parental values and behavioral composites are contingent on characteristic behavior patterns in children and vice versa (Ainsworth, 1973; Bell, 1981; Sroufe, 1979). This is referred to as reciprocity and is the result of contingent interaction. The contingent interaction model identifies a sequential process in which behaviors are linked reciprocally. The initial behavior is referred to as the antecedent behavior and the response to this behavior is classified as the consequent behavior (Mash et al., 1981). A typical three-term contingency record for parent–child interaction follows:

<table>
<thead>
<tr>
<th>Parent Antecedent Behavior</th>
<th>Child Consequent Behavior</th>
<th>Parent Antecedent Behavior</th>
<th>Consequent Behavior</th>
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</table>

The outcome from this model is that parent and child shape each other’s behaviors through a series of contingent interactions described as reciprocity.

Parenting and Disability

The parent with a disability must contend with adaptation to the disability itself as well as with parent role expectations. The disability, the emotional response to the disability, or community attitudinal barriers may exacerbate the stress inherent in everyday living and alter the performance of life roles, thus resulting in possible deterioration of parenting functions (Anthony, 1973; Maccoby, 1980). The stress of being a parent with a disability or chronic illness may therefore lead to undesirable parenting behaviors (Cogswell, 1976; Fine & Asch, 1981; Power & Dell Orto, 1980; Romano, 1976).

Persons with a disability or a chronic illness probably share the parenting desires and expectations of adults without disabilities (Flanagan, 1982; Helsinga, Schellen, & Verkuyl, 1974). Yet societal perceptions are influenced by the disability, which is viewed as the predominant characteristic by which the person is identified (Fine & Asch, 1981). Numerous stereotypes concerning parents with physical disabilities and problems with child-rearing practices emerge from these perceptions: (a) parents with a disability use their children as satisfiers of their personal needs; (b) children of parents with disabilities are not given appropriate care because their parents are too immersed in their own self-care and survival; (c) children inherit negative self-images from their parents with disabilities; and (d) physical disability prevents the parent from performing parental duties effectively. These expectations support social stigma and stereotypes attributed to parents with a disability or chronic illness (Buck & Hohmann, 1983; Goffman, 1963). A lack of empirical information to contradict these notions permits reliance on these subjective stereotypes (Buck & Hohmann, 1981; Fine & Asch, 1981). Better understanding of the effect of disability or chronic illness on parenting ability is needed (Fenderson, 1984; Steinhauer, 1985).

Buck and Hohmann (1983) suggested that having a disability is different from having a chronic illness in that a disability results in a relatively stable physical health condition that allows time and energy to be devoted to pursuing personal, social, and vocational goals. Chronic illness, on the other hand, results in an unstable course and prognosis that require more investment of time and interest in life-sustaining activities to the exclusion of other aspects of daily living. Thus chronic illness such as multiple sclerosis may increase individual stress and result in additional concerns regarding the parent–child relationship.

Two major problems exist with current information on parents with a chronic illness. First, limited and poorly controlled research designs have been used to describe parent–child interaction when a parent has a chronic illness. Methodologies that fail to control for bias include (a) case studies that attribute a child’s clinical pathology to disability, (b) retrospective surveys, and (c) poor classification or control of the disability or illness variable. The primary approach has focused on stereotypical expectations about disabilities that lead to self-fulfilling prophecy of research outcomes instead of unbiased description.
These faulty methodologies limit generalizations from the studies already completed. Second, research on parent–child dyads in which parents have no disabilities may not be generalizable to atypical parenting situations.

According to Buck and Hohmann (1983), the majority of research on disability is about either children with disabilities or male adults. These researchers suggested that research would be enhanced if studies focused on (a) parent–child adjustment once the parent has adapted to the chronic illness or disability but before the child has emancipated from the family, (b) the parent–child relationship within the home environment, and (c) mothers with a disability or chronic illness. Consequently, this study was designed to provide more information regarding adult women with chronic illness and their relationships with their daughters.

Multiple Sclerosis

Multiple sclerosis was selected from a wide variety of chronic illnesses because of its frequency of occurrence in the Rocky Mountain region, the presence of suitable numbers of parent–child dyads, and primary access to these potential subjects through community support groups. Multiple sclerosis is a progressive demyelinating disease that destroys the covering of myelin around the nerve fibers; it results in a course of chronic, disabling neurologic signs and symptoms (Dudley, 1978; Marsh, Ellison, & Strite, 1983). Due to the instability of the disease process, it is considered a chronic illness and not a disability (Buck & Hohmann, 1983). The peak age of onset for MS is 30 years, with the overall ratio of 1.5 women to 1.0 men. More than 250,000 persons in the United States are affected by MS (National Multiple Sclerosis Society, 1992).

Changes in intellectual performances and personality have been reported, including psychomotor impairments, memory deterioration, depression, and euphoria (Devins & Seland, 1987). Though much of the observed symptomatology is attributed to neuropsychological changes, there is also a problem with “preparatory depression and anxiety” (Simons, 1984, pp. 2–5). This problem is conjectured to occur in response to the predicted physical and psychological problems that appear with the anticipated frontal lobe damage. Additionally, overt depression increases with progression of the disease, as does an increasing use of denial, the most prevalent reaction to the illness (Baretz & Stephenson, 1981). Rehabilitation approaches for patients with MS have been summarized by Scheinberg and Smith (1987) and the resource guide published by the American Occupational Therapy Association (AOTA, 1991).

One psychosocial factor consistently discussed in the literature is the stress of coping or adapting when a parent has a disability or chronic illness (Buck & Hohmann, 1983; Cogswell, 1976; Wright, 1983). Scientists have viewed MS as an emotionally debilitating illness that imposes severe psychological stressors on both the person and the family (Devins & Seland, 1987; Stuifbergen, 1988). The stresses related to adapting to the unstable, progressive, disabling conditions associated with MS may be overwhelming for affected parents and their children.

Multiple Sclerosis and Parenting

A limited number of studies regarding parents with MS have been reported. In a study of 49 families with a parent who has MS, Power (1985) encouraged early intervention into family dynamics by rehabilitation personnel. Interventions included encouraging the use of denial as a coping mechanism until acknowledgment of the illness was possible, urging appropriate use of information, encouraging outward-directed activities, and demonstrating positive expectations for the person with MS. These interventions facilitate adjustment and willingness of the family members to participate in rehabilitation. The family is seen as a potent force in life adjustment; however, it is also responsible for creating either a good or bad home environment. Because contact with persons without disabilities is associated with positive adjustment and higher self-esteem in MS, the attitude or positive support of each family member is important to adjustment of the person with MS (Maybury & Brewin, 1984).

Children of a parent with MS have been the most frequently studied family members. In a study of home environment as perceived by children who had a parent with MS, Peters and Esses (1985) found that the children felt more conflict and less cohesion and had a decreased interest in political, social, intellectual, and cultural activities. Contrary to expectations, no difference was found between children with an ill parent and children in a control group regarding interest in activities or recreation activities. In another study of 60 children between the ages of 7 and 16 years who had a parent with MS, Arnaud (1959) used Rorschach responses and found that these children displayed affective and defensive reactions more often than control children. Heightened levels of dysphoria, body concern, hostility, constraint in interpersonal relations, dependence longings, and increased incidence of false maturity, especially among girls ages 9 to 16 years, were identified. In a study of body image by Olga (1974), 124 children aged 7 to 11 years with a parent who had MS did not have significantly different body image distortion as measured by person drawings and personality inventories. However, body image distortion was significantly greater for girls if the mother had MS instead of the father. These studies suggest that being reared by a parent who has MS is detrimental for the child. However, all children for these studies were identified from among active patients in medical environments. Persons actively
involved in medical environments that focus on the illness aspects may be different from persons with MS who are identified through community support programs that focus on living with MS.

Long-term Social Effects

The ability of children reared by parents with a disability or chronic illness to transition successfully into adult roles and behaviors is the essence of social concern. In landmark research, Buck and Hohmann (1981, 1982) countered the societal perception that being reared by a parent with a disability is detrimental. Their retrospective study examined the relationship between spinal cord injury in fathers and subsequent adjustment patterns of their children as young adults between the ages of 16 and 31 years. The children with fathers with disabilities were found to be well-adjusted, emotionally stable, and to have age-appropriate sex role identification. Health patterns, body image, recreational interests, interpersonal relationships, and family relations were not adversely affected by the father's disability. Fathers were described by their children as warm, affectionate, and able to create an environment where the child felt wanted, loved, and respected. In fact, as the severity of disability increased, so did the child's emotional sensitivity and persistence in accomplishing tasks and meeting goals and the father's demonstration of love. The researchers reported that physical disability in a parent is not associated with maladjustment in children and that these children did not assume or imitate the sick role. Interpersonal relationships were within normal limits and the parent–child relationship was not adversely affected. In fact, Buck and Hohmann (1983) stated that a child whose parent has disabilities may be more adaptable. Although their research was groundbreaking, they did not study the effect of chronic illness like multiple sclerosis.

Except for one study of mothers with hearing impairments (Mattock & Crist, 1989), research of the parent–child relationship that used direct observation of interaction instead of self-report inventories has not been reported. That study and the present study were components of a larger study on parents with disabilities (Crist, 1988). In most studies, a parent's disability is assumed to directly affect the parent–child relationship and to provide an explanation of negative feelings in children. An alternate perspective may be that these negative feelings are not the result of a dysfunctional parent–child relationship, but of the external, nonfamily environment including other persons' expectations or reactions to children who are reared by parents with MS or of children observing other people's reactions to their parent with MS. Regardless, study of the parent–child relationship, including direct observation of interaction, would provide useful information for this complex problem.

Research Questions and Hypotheses

The question asked in this study was: Are there different interaction patterns among mother–daughter dyads based on the presence or absence of parental chronic illness? The expected direction of outcomes from this study were somewhat arbitrary. Research on parents with a disability or chronic illness has not demonstrated negative outcomes for children reared in this unique situation (Buck & Hohmann, 1983; Maybury & Brewin, 1984). However, other research has contradicted these findings (Arnaud, 1959; Frank, 1978; Olga, 1974).

Although the hypotheses for this research reflect expectations for negative interaction patterns for mothers with MS and their daughters, the intent is not meant to support stereotypical expectations or myths. Even though contemporary social expectations for persons with chronic illness or disability reflect abilities instead of disabilities, mainstreaming instead of isolation, and independent living instead of institutionalization, the stress of the unpredictable MS process and the existing literature make it plausible that mother–daughter relationships might be impaired. Further, because the illness may handicap not only the parent but also all those who participate in the family (Goffman, 1963; Hilbourne, 1973; Livsey, 1972), it is hypothesized that mothers with MS and their daughters will have different mother–daughter interaction patterns than mothers without a disability or chronic illness and their daughters. The following two hypotheses were investigated:

1. Mothers with MS will be more directive, less receptive, and more dissuasive than mothers without disabilities.
2. Daughters whose mothers have MS will be more directive, less receptive, and more dissuasive than daughters of mothers without disabilities.

Receptive behaviors are defined as acceptance or approval of the other person and encouragement to maintain contact. These behaviors tend to support future interaction. Receptive behaviors may be underused because the mother and daughter may avoid each other to avoid the potential influences of maternal illness on their own perceptions, attitudes, and abilities (Goffman, 1963; Hilbourne, 1973).

Directive behaviors are defined as attempts to command, control, or supervise the behaviors of another person. Directive behaviors are derived from the literature on secondary gain and situational role reversal (Helsinga et al., 1974; Romano, 1976; Wright, 1983). As a result, mothers with MS may attempt to get their needs met by being more directive with their daughters (Fine & Asch, 1981). Additionally, their daughters will be more directive in response to assuming the caretaker role of their mothers.

Dissuasive behaviors are defined as discouraging,
This study was correlational because the independent variable, chronic illness, could not be manipulated. Mothers with MS and their daughters were compared with mothers without disabilities and their daughters.

Method

To obtain subject dyads for this study, convenience sampling was used because of methodological restrictions, financial constraints, and limited accessible population. The listing of members with children maintained by local community-support societies of MS was used to identify the experimental group. The comparison group was identified through a local community support group for girls, the Girl Scouts; word-of-mouth was used to identify scout troops. Every mother–daughter dyad participating in these groups was invited to participate in the study.

Ninety-six invitations for the experimental group were issued to mothers with MS. Forty-two did not reply, 2 refused to participate, 1 was unable to complete the procedure, 4 were from different ethnic backgrounds and 16 who did reply were ineligible for a variety of reasons (daughter age, severe cognitive problems, visitation rights only) to participate in the study, thus 31 experimental dyads were left. The high incidence of no response could have been due to disinterest, recognition that the daughter was not the correct age (n = 5 unsolicited replies) or incorrect addresses. In the 8 Girl Scout troops contacted for the control group, 60 names were referred. Twenty-one refused to participate, 2 could not be contacted, 2 more had technological problems with taping during data collection, and 1 identified that she had a chronic illness, thus 34 control dyads were left.

For data analysis, the experimental dyads were 31 mothers with MS and their 8- to 12-year-old daughters. The control dyads were 34 mothers with no physical disability or chronic illness and their daughters in the same age group. The latency age range of the daughters was 4 to 8 years in this group and the range of years since diagnosis varied from 2 to 28 years. All the experimental mothers participated in local community-based MS support groups.

Disability status. Severity of MS was documented by use of the Disability Status Scale (Kurtzke, 1983), which is

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Mothers With MS</th>
<th>Mothers Without MS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother</td>
<td>38.25</td>
<td>37.61</td>
</tr>
<tr>
<td>Daughter</td>
<td>10.92</td>
<td>10.25</td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>77.4%</td>
<td>97.0%</td>
</tr>
<tr>
<td>Widowed</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Divorced</td>
<td>16.1%</td>
<td>2.9%</td>
</tr>
<tr>
<td>Separated</td>
<td>3.2%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Never married</td>
<td>3.2%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Mean number of children</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In family</td>
<td>2.19</td>
<td>2.91</td>
</tr>
<tr>
<td>Boys</td>
<td>6.1</td>
<td>1.27</td>
</tr>
<tr>
<td>Girls</td>
<td>1.58</td>
<td>1.74</td>
</tr>
<tr>
<td>House</td>
<td></td>
<td></td>
</tr>
<tr>
<td>House type</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Owner</td>
<td>3.90</td>
<td>4.68</td>
</tr>
<tr>
<td>Rent</td>
<td>12.9%</td>
<td>5.9%</td>
</tr>
<tr>
<td>Location of home</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Denver</td>
<td>0.0%</td>
<td>2.9%</td>
</tr>
<tr>
<td>Denver suburb</td>
<td>45.2%</td>
<td>35.3%</td>
</tr>
<tr>
<td>Other city</td>
<td>54.8%</td>
<td>61.7%</td>
</tr>
<tr>
<td>Mean hours of employment out of home</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Husband</td>
<td>43.6</td>
<td>46.5</td>
</tr>
<tr>
<td>Wife</td>
<td>30.3</td>
<td>24.6</td>
</tr>
<tr>
<td>Earns major portion of income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>You</td>
<td>22.6%</td>
<td>5.9%</td>
</tr>
<tr>
<td>Spouse</td>
<td>74.2%</td>
<td>85.3%</td>
</tr>
<tr>
<td>Both</td>
<td>3.2%</td>
<td>8.8%</td>
</tr>
<tr>
<td>Religious affiliation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Catholic</td>
<td>39.4%</td>
<td>11.8%</td>
</tr>
<tr>
<td>Protestant</td>
<td>61.5%</td>
<td>67.6%</td>
</tr>
<tr>
<td>Mormon</td>
<td>3.2%</td>
<td>14.7%</td>
</tr>
<tr>
<td>Other</td>
<td>16.1%</td>
<td>5.9%</td>
</tr>
</tbody>
</table>

Table 1: Family Demographic Characteristics of Mothers With and Without Multiple Sclerosis

Note. SD = 3.06, \( SD = 3.99, SD = 1.19, SD = 1.34 \}

Disapproving, or nonaccepting, mother–daughter interaction resulting in limited attention toward others. If mothers experience guilt or negative attitudes about their MS, dissuasive behaviors may predominate that discourage or attempt to limit mother–daughter interaction other than for essential caretaking purposes. These behaviors tend to undermine future interaction.
the most widely used MS-specific scale available. The scale was adapted in this study to focus on functional abilities reported by the mother. Consequently, the rating scale of disability status reported in Table 2 must be interpreted cautiously because a neurologist's assessment was not used. To be included in the study, mothers with MS had to score at least grade 2 on the scale: slight weakness and stiffness or mild gait, sensory, or visual motor disturbance, and no more than Grade 7: restricted to a wheelchair. The range of grades assured that notable impairment was present but not so debilitating that participation in the study required unusual adaptation. All mothers reported that their MS had gotten progressively worse since initial diagnosis. At the time of diagnosis, the mothers with MS reported that disability was 2.0 varying from rating level 0 to level 8. At the time of this study, the mean for the adopted scale was 3.89 with a range between levels 2 and 7. Also reported in Table 2 is the timing of diagnosis in relationship to childbearing for mothers with MS.

Socioeconomic status. To estimate the socioeconomic status for each mother–daughter dyad, an adapted version of the McQuire and White (1955) Measurement of Social Status Scale was used. Because authors warned against calculation methods that ignore the resource contribution of the mother (Acker, 1973; Jeffries & Ransford, 1980), the scale was adapted to recognize the mother’s contribution to socioeconomic status. The adapted formula included (a) average parental occupation level, (b) major source of income, and (c) maternal education level. The total socioeconomic status score was converted to a status index for social class prediction. The resulting classifications were conservative due to the alterations in ratings but reflected the maternal resources only, if the mother was a single parent, or the average of mother and father resources, if the mother was married.

The computed socioeconomic class prediction index indicated that the socioeconomic status class for the experimental group mothers with MS was 3.16 (lower-middle class) and 2.64 for the control group mothers. Higher scores are associated with higher social status. A significant t-test between the two group’s scores \( t(63) = 2.42, p = .013 \) suggests that the mothers without disabilities may have access to more social power, prestige, and privilege than the mothers with MS (Jeffries & Ransford, 1980).

Instruments

Mother-daughter interaction tasks. Two natural, developmentally appropriate mother–daughter situations were simulated. The two tasks were selected to represent different action processes and outcome expectations, with one being centered on play (block building) and the other on work (food preparation). Block building was considered to be potentially playful, process-oriented, less structured, and stereotypically male-oriented; food preparation was considered to be work-like, outcome-oriented, more structured, and stereotypically female-oriented. A standardized protocol for task administration was used for each interaction task. For block building, the mother and daughter were simultaneously given two commercially available kits of interlocking plastic blocks and pieces to make a car and a space vehicle, which were appropriate for ages 6 to 12 years. Each dyad was instructed to build the models together.

For food preparation, the mother and daughter were given all materials needed to bake a pizza. Supplies included ready-made pizza dough, a can of pizza sauce, an 8-oz block of mozzarella cheese, an onion, a green pepper, a can of mushrooms, unsliced pepperoni, and a recipe. Utensils included a cheese grater, a knife, a hand-cranked can opener, a spatula, aluminum foil, and a baking sheet. All materials and supplies were in a grocery sack at the beginning of the activity. Each dyad was instructed to make a pizza together.

Response Class Matrix. This instrument (Mash et al., 1981) uses a time sampling method designed to describe contingent interaction patterns between a parent and child. It was adapted so that every behavior was available for both mother and daughter in case role-reversal, a suggested behavioral outcome when a parent has a disability or chronic illness, occurred (Buck & Hohmann, 1982).

The adapted matrix yielded a frequency count for 11 different, operationally defined response behaviors that were collapsed during statistical analysis into three behavioral composites discussed earlier:

- Directiveness: command + command question
- Receptiveness: question + praise + compliance + verbal interaction + nonverbal interaction
- Dissuasiveness: negative + no response + competing behavior + independent play and work

Table 2

Disability Status of Mothers With Multiple Sclerosis

<table>
<thead>
<tr>
<th>Rating level</th>
<th>Number of Mothers</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 - Minimal disability</td>
<td>7</td>
<td>22.5</td>
</tr>
<tr>
<td>3 - Moderate disability</td>
<td>11</td>
<td>35.5</td>
</tr>
<tr>
<td>4 - Relative severe disability</td>
<td>3</td>
<td>9.7</td>
</tr>
<tr>
<td>5 - Disability precludes work</td>
<td>2</td>
<td>6.5</td>
</tr>
<tr>
<td>6 - Assist with walking</td>
<td>6</td>
<td>19.3</td>
</tr>
<tr>
<td>7 - Restricted to a wheelchair</td>
<td>2</td>
<td>6.5</td>
</tr>
</tbody>
</table>

Time of diagnosis related to child bearing

- Before first child: 3, 9.7%
- During child-bearing years: 9, 29.0%
- After child-bearing years: 19, 61.3%

Note: The higher the number on the level of disability, the more severe the disability.
The three behavioral composites were grouped to reflect the general purpose of the behaviors as well as issues related to parenting in the presence of a chronic illness.

**Mother and Daughter (Validity) Questionnaires** (Eheart, 1976). The adapted Maternal Validity Questionnaire is a paper-and-pencil invention to validate the degree to which videotaped mother–daughter interactions represented usual day-to-day interaction and was adapted for this study. Both self-evaluation and evaluation of the other member of the dyad were included. The form included a checklist as well as open-ended questions concerning actions of the dyad during tasks. Parallel forms were used by both the mother and daughter after finishing both the work and play tasks.

Mothers and daughters reported that the observed interactions were typical or representative of their interactions overall. The majority of ratings, 46 out of 48, indicated that 90% or more of the mothers and daughters from both groups used typical behavior and communication patterns during videotaping.

Concerning day-to-day interactions, 77% of the mothers with MS and their daughters independently reported daily at-home interactions as “very good.” Typical mothers rated daily interactions more frequently as “very good,” but their daughters reported a lower frequency than daughters of mothers with MS, 85% and 65% respectively. Fewer than 3% of all subjects reported “not very good feeling about daily mother–daughter interactions.”

**Procedure**

**Home visits for data collection.** All assessment procedures occurred in the home with only the mother, daughter, and investigator present. Along with other assessments not reported here, the interaction tasks occurred at a dining room or kitchen table during one session that lasted from 1.5 to 2.5 hr. The length of the home visit varied widely due to the physical abilities of the mother and the reading abilities of the daughter. The introduction of the work and play tasks to study mother–daughter interaction were counterbalanced between themselves as well as with the other assessments not included in this report.

The investigator videotaped the mother–daughter interaction during the work and play tasks. Each activity was taped for the first 10 min after task instructions were given. Any adaptive devices or independent living aids used by the mothers with MS were removed during videotaping so as to limit clues to group assignment during rating of the tapes. After completing the two tasks, the mother and daughter completed separate questionnaires to validate observations using the Mother and Daughter Questionnaires discussed above.

**Videotape analysis of two interaction tapes.** Coding of the 11 response classes included a 10-sec time sample of the task followed by a 5-sec time period to independently code mother–daughter–mother interaction. Using this time-sampling method, the first mother behavior observed during the 10-sec interval was considered to be antecedent behavior; the daughter's first behavior was the consequent behavior. This first behavior from the daughter was then considered to be the antecedent behavior for the third behavioral rating, the mother consequent behavior. Thus behavior was coded in a contingent manner. Coders simultaneously observed the videotape as audiotape signals were used to signal observation and coding time periods. Frequency data were recorded independently on matrices for the two interaction tasks, one work and one play, by two coders. Each 10-min time sample for each task yielded 40 sets of mother–daughter–mother interaction sequences for each task; in other words, it yielded 80 samples of mother behaviors and 40 samples of daughter behaviors for each dyad on each task.

The two videotape coders were trained over 38 hours using tasks interaction tapes obtained during pilot data collection procedures and the Response Class Matrix. Training was discontinued when the coders agreed on 80% of their independent ratings across three consecutive new interaction tasks. Mash et al. (1981) reported interobserver reliability between 81% and 87% agreement for the published matrix scale. Cohen's kappa (1960), a conservative procedure to correct data for chance agreement, was used to calculate interobserver agreement at the conclusion of scoring all subject dyad interactions, as it uses both rater's observations when disagreement occurs. For the behavioral composites, kappa was 77%. A kappa of .75 on videotaped tests representative of the natural environment indicates acceptable observer consistency was obtained in this study (Frick & Semmel, 1978). Interobserver agreement at the end of analyzing 150 task sessions, 2 per dyad, was maintained at a satisfactory level, which supports the reliability of these coded behaviors.

The frequencies of a behavior in each response classification were used to create the three behavioral composites discussed earlier for both the mothers and daughters: receptiveness, directiveness, and dissuasiveness. These behavioral composite frequencies were then converted to proportions to represent the percent of time each behavior was used during the 10-min interaction.

**Statistical procedures.** Repeated measures analysis of the variance was completed using one between groups factor (MS and non-MS) and two within subjects factors: 2 Tasks X 3 Behavioral Composites. The Statistical Package for the Social Sciences, Version X (SPSS-X) was used to study the hypotheses using a multivariate analysis of variance (MANOVA). The data from the two groups of mothers was studied separately from the data of the two groups of daughters. MANOVAs were used because of the high number of variables being analyzed from the larger study from which this paper was derived. All MANOVAs
were calculated using Hotelling's $T^2$, a multivariate $t$-test used to study the relationship between the classification variable (multiple sclerosis) and the criterion variables, interactions from work and play tasks.

Results

Descriptive Statistics

The mean proportions and standard deviations of the three behavioral composites for the work and play tasks for mothers and daughters are described in Table 3. For both groups receptiveness was the most frequently used interaction. Mothers and daughters used proportionately more receptive behaviors during play and more dissuasive behaviors during work. Directive behaviors were a very low proportion of the total behaviors during interaction.

Correlations between the receptive and dissuasive composites indicated strong negative relationships, ranging from -75 to -98, between mothers and between daughters. Correlations between receptive behaviors and the other 2 composites were very low and nonsignificant. This high negative relationship for work and play provides further insight into interaction. As either mothers or daughters increase the use of receptive behaviors, the use of dissuasive behaviors markedly decreases and vice versa. As identified in Table 3, this correlation becomes important when supported by the pattern of interaction within each task. The mothers and daughters, regardless of the presence of MS, exhibited similar behavioral responses, dependent on the task. For instance, as mothers were more receptive, so were their daughters.

Multivariate Analysis of Variance (MANOVA) Statistics

As the focus of this study was to identify the effect of MS on mother–daughter interaction, the group x behavioral composite interaction did not show a significant difference between the two groups of mothers or between the two groups of daughters: for mothers, $T^2 (2, 62) = .02, p = .954$; for daughters $T^2 (2, 62) = .02, p = .476$. Mothers with MS were not more directive, less receptive, or more dissuasive than mothers without disabilities. The same findings were found for daughters being reared by mothers with MS.

Discussion

The results of this study do not support the contention that MS has a significant effect on mother–daughter interactions. Similar proportions of receptive, directive, and dissuasive behaviors were used by mothers with MS and their daughters compared to those used by control group mothers and their daughters. This study is additional evidence beyond the Buck and Hohmann studies (1981, 1982) that children may not be negatively affected from being reared by a parent with a disability or chronic illness.

The findings contradict the majority of literature concerning parent-child interactions for parents with a chronic illness. Perhaps they reflect the effects of contemporary attitudes toward parents with disabilities or illnesses, which are less stigmatizing, more supportive, and less negative than the predicted attitudes reported in earlier studies (Buck & Hohmann, 1983). Besides coping with the stresses associated with MS, mothers in this study were also at a disadvantage in terms of having lower socioeconomic status and greater likelihood of being a single parent compared with the mothers without disabilities. Consequently, these mothers could be more exemplary mothers than the mothers without disabilities in light of their situation and lack of significant differences in mother–daughter interaction.

Several sources of research bias may have influenced the results of this study: sampling bias, response bias, and participation bias. Convenience sampling may have introduced the first bias. Also, because mothers involved in local MS support groups were used, their motivation to stay within the community may be different from that of nonmembers with MS.

Likewise, for mothers whose daughters are in Girl Scouts, parenting motivation may be different from that of other mothers. Response bias may have contributed to the results as each person volunteered to participate in this study. This may have decreased the variation between the two groups. Further, the videotaping process may have influenced mother–daughter behaviors even though an attempt was made to assess this impact via the validity questionnaire.

Although chronic illness is a traumatic event that causes stress and requires social role adaptation, this study did not identify a unique pattern of parent–child interactions among mothers with MS and their daughters. Several explanations for these results are plausible and provide support for these findings. First, this research identified mothers with MS who were community-based instead of ones actively being seen by medical personnel. Their need for medical assistance in response to related...
MS conditions and their motivation for independence may be different from those identified for study through active medical records. Second, this study used direct observation of the mother–daughter interaction; it did not infer interactions, attitudes, or personality characteristics from a self-report procedure. Third, in the validity questionnaire, both mothers with MS and their daughters indicated that their daily interactions were as positive, if not more positive, than those of the mothers without disabilities and their daughters. Fourth, positive adjustment to MS has been related to contact with people without disabilities. These mothers with MS were attempting to maintain independence and typical social interactions within the community and maintained contact with their daughters without disabilities. These factors may also explain why mother–daughter interactions for the experimental group were not significantly different from those of the control group. Adaptation, cited as evidence for effective family functioning (Gantman, 1980), may have been occurring during task performance and has been observed in another study of mothers with children with disabilities (Mash et al., 1981).

In this study, the frequency of communication behavior was assessed but comfort with the tasks selected was not. The researchers and coders informally observed that mothers in both groups indicated their distress at having to engage in the unfamiliar block-building task, which may account for the increased use of maternal receptiveness to obtain assistance from their daughters. The mothers' usual authority based on familiarity or leadership may have been neutralized by this unfamiliar task. Likewise, the daughters may have sensed this maternal discomfort as a need for help and increased their use of receptive behaviors. Regardless, the different uses of receptive and dissuasive behaviors related to the two tasks is potential documentation of the true reciprocal nature and adaptation of mother–daughter interaction related to task qualities.

Social learning theory offers another plausible explanation for the observed differences in receptivity and dissuasiveness during the performance of the two tasks. Imitation and shaping are powerful factors associated with changing behavior (Bandura, 1977). Therefore, the imitating and shaping of socially desirable responses may account for the reciprocal nature of these mother–daughter interactions during these two tasks.

Several research questions emerged from this study about mothers with MS: How does choice of daily activities influence parenting, social interaction, and health? Does the severity of MS influence parent–child interaction? Though behavioral composites were not significantly different, a less desirable pattern of interactions was used by mothers with MS and their daughters than by mothers without MS and their daughters. Does this pattern have a cumulative effect over time or relate to the parenting self-doubt stated by the mothers with MS? What happens with different developmental issues across the mother–daughter life span? Fathering must also be studied. Last, mother–daughter interaction is only one variable that may be sensitive to the presence of illness or disability. Parent–child interaction consists of a complex set of individual, interpersonal, and environmental variables which are reciprocal in nature (Bell, 1981). For instance, the relationship between parent and child self-esteem, outside sources of social support, and the resources of the home environment may exemplify potentially critical influences on the reciprocal nature of parent–child interaction during this unique parenting situation.

Several different implications for research emerged from this study. Studies are needed that identify choice of daily activities as well as the degree of social interaction versus isolation characterizing mothers with MS. Second, since the severity of MS has been shown to affect the amount of time available for social relationships (Maybury & Brewin, 1984), the level of disability should be more specifically monitored than was done in this study. Research into other family interactions when a mother or father has MS or any chronic illness or disability is needed to help dispel myths about this unique situation. Research is also needed on the potentially qualitative differences between having a disability and having a chronic illness as indicated by Buck and Hohmann (1982) and to reflect the known developmental issues for each stage of life span development for both parent and child. Last, mother–daughter interaction is only one variable that may be sensitive to the presence of illness or disability. Because occupational therapists are prepared to help these parents adapt to their parenting role, this knowledge would assist with practice in helping these parents be and feel like successful parents. Practitioners who understand child rearing and parenting as a developmental task based on reciprocity or contingent interactions will provide better services within the context of their client's goals and needs.

Clinical applications of this research is threefold. First, understanding the influence of the tasks selected to assess or treat parent–child interactions is important as is evident from the differences in interaction created by the two different tasks. Second, the qualitative difference of interaction behaviors may either facilitate or hinder contingent interactions in these dyads. Last, occupational therapists can promote healthy engagement in future parenting tasks by helping clients focus on treatment not only for the acute exacerbation period of the illness but also for lifelong adjustment in their parenting role.

Occupational therapy practitioners are cautioned not to automatically assume that MS support groups are generically beneficial for all stages of adaptation to this chronic illness. Sharing coping strategies, developing new values and enhancing adaptation may not lead to continued adjustment for persons with MS. During home
visits with subjects, many mothers reported past participation in MS support groups but indicated that these support groups outgrew their usefulness. Mothers in this study desired information regarding resources about how to engage more fully in roles outside the home with parents without disabilities, friends, workers, and so on. For instance, several mothers with MS explained that their interest in this study was that they worried about whether they were being good parents for their daughters. On the other hand, two mothers reported that when they discussed their current parenting problems and fears with mothers without disabilities, their current concerns were the same as those of other mothers. One mother said that through these typical social contacts she realized that her concerns are part of normal parenting processes and not a reaction to MS. This comment further supports the mainstreaming of persons with disabilities that advocates for adaptation in the rich, social environment through engagement, not disengagement or isolation. Adaptation is continual, satisfactory adjustment that allows one to go beyond mere survival needs; it facilitates self-actualizing decisions and experiences.

Conclusion

During the last decade, advances have been made to integrate persons with disabilities and chronic illness into the mainstream of life and social roles. Negative evaluations of parenting for these persons may be eliminated and greater tolerance encouraged if persons with disabilities were better understood and accepted. When we all realize that the richness of our social environment includes differences among persons, the future will provide acceptance and opportunity for persons, particularly women, with an illness or disability to engage in all forms of human experience, including parenting.

One of the problems in the literature on parents with disabilities or chronic illness has been the overgeneralization of research outcomes to inappropriate situations, especially in the legal and social policy environments. Because of limitations in this study's design, these results should not be used to support legal issues, social policy changes, and social expectations until additional studies are completed that corroborate these findings.

This study of direct observation of mother-child interaction when the mother has MS provides information regarding the natural behaviors occurring during the mother-child relationship. It is hoped that future studies will provide more knowledge about being a parent with a disability or chronic illness and will provide a foundation for the practice of occupational therapy with this important social role.

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References


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