Household Task Participation of Children With and Without Physical Disability

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MeSH TERMS
- age factors
- family characteristics
- role
- task performance and analysis

We examined household task participation patterns of 46 children and youth with and without physical disability (PD) and explored the effects of age on roles of and expectations for these children in household task participation. Children with PD did not differ significantly from those without PD in the number of household tasks they performed; however, they did require more assistance than those without PD. In both groups, younger children performed significantly fewer household tasks and required significantly more help than older children. These findings further support the discriminant validity of the Children Helping Out: Responsibilities, Expectations, and Supports (Dunn, 2004) measure of household task participation and its use with adolescents. Assessing such participation would help caregivers and practitioners more successfully prepare children and youths with PD for independent living. Considering the roles and opportunities for social participation inherent in many household tasks will contribute to the usefulness of examining such participation.

Because youth with physical disabilities (PD) are living longer, preparation for independent living is a common concern (Donkervoort, Wiegerink, van Meeteren, Stam, & Roebroeck, 2009; Gall, Kingsnorth, & Healy, 2006; Luther, 2001). Preparation for independent living includes home maintenance and mealtime preparation as well as employment and engagement in community activities. Research on preparation for independent living has often focused on outcomes such as personal care, graduation from high school, employment, and community living (Donkervoort et al., 2009). We found no studies that described the developmental trajectory by which children and adolescents with and without disabilities acquired competence with household tasks, including meal preparation.

Young adults with PD, such as cerebral palsy and spina bifida, have identified difficulties with home management—including meal preparation—as a barrier to independent living (Donkervoort et al., 2009; Gall et al., 2006). Parents have identified assigning household tasks as a key factor that promoted successful transition to adult roles and community living for their children with PD (Luther, 2001; Reid et al., 2011). Participation and responsibility for household tasks also fostered socialization as a family member (Luther, 2001). These experiences allowed children and youth with PD to understand their skills, an ability that allowed them to identify when to seek assistance from others about home management. Such identification is necessary for opening up discussions and for development of skills in obtaining and retaining assistance. However, participation in home activities that promote learning about living in the community, including self-determination skills, often occurs later and with additional support for children with PD (Gall et al., 2006). Thus, these children may not have adequate time or opportunities to develop the independence and skills they need for adult roles and community living.

Participation in home and community activities is an informal process that affords learning opportunities that often take place within the family (Rogoff, 2003). Research...
has indicated that children typically begin doing household tasks between the ages of 4 and 6 (Goodnow, 1996). As children enter early adolescence (ages 11–14), parents transfer responsibility for these daily tasks to them and expect them to perform household responsibilities more autonomously (Goodnow, 1996).

A challenge for families who have children with PD is to provide realistic supports and challenges to promote independence and responsibility for their children. Increasing understanding of the developmental trajectory for household task involvement for children with and without PD can help educators, health care practitioners, and caregivers determine how they can intervene to make this happen and happen better. The purpose of this study was to explore the effects of age on roles and expectations for children with and without PD in household task participation. On the basis of prior research (Dunn, Coster, Orsmond, & Cohn, 2009), we hypothesized that children and youth with PD would perform fewer household tasks and would require greater assistance than typically developing (TD) children and youth. We also hypothesized that younger children would perform fewer tasks and require more help than older children regardless of ability or disability.

Method

Design

We used a descriptive, matched cohort design with a convenience sample to compare household task participation patterns of children and youth with and without PD. The institutional review board at a large Western university approved this study. On the basis of previous research, a power estimate with $\beta = .80$, $\alpha = .05$, and a moderate effect size ($d = 0.40$) indicated that a sample size of 44–46 would adequately power comparison of the groups for this study (Portney & Watkins, 2009).

Participants

The convenience sample consisted of 46 children and young adolescents ranging in age from 6 to 14. Twenty-three of the children had a PD, and the remaining 23 children were TD. PD included limitations in mobility from conditions such as cerebral palsy, spina bifida, muscular dystrophy, osteogenesis imperfecta, and lower-extremity amputation. Parents’ report on their children’s ambulation level and need for assistive devices such as cane, wheelchair, or both described the impairment levels for this population.

We included only children with average to above-average intellectual functioning (as reported by parents) because our focus was on physical rather than intellectual aspects that may support or constrain a child’s participation in household tasks. In our screening, we asked questions about classroom placement, educational diagnoses, communication abilities, and additional concerns (e.g., seizures) to support reports of intellectual functioning. Parents who reported that their children had an intellectual disability or seizures or could not communicate verbally were excluded.

All children with PD included in this study had use of their upper extremities, a criterion we set to ensure their physical capacity to perform household tasks. Family size was limited to parents with two to four children because number of household members may influence participation in household tasks (Goodnow, 1996; Hofferth & Sandberg, 2001). The children who participated in this study were matched for ethnicity to control for ethnic group factors that may lead to differences in participation of children in household chores (Whiting & Edwards, 1988). Exclusion criteria for both groups included sensory impairments (e.g., blind, deaf) and siblings with any type of disability. We controlled group composition to ensure relatively equal numbers of boys and girls as well as similar age matching for the two groups to control for variations that may be attributed to gender or age. Table 1 gives the demographics for the participants.

Instrumentation

The Children Helping Out: Responsibilities, Expectations, and Supports (CHORES; Dunn, 2004) is a 34-item parent-report measure that assesses children’s performance (dichotomous yes–no response) and levels of assistance. The CHORES uses a Likert scale ranging from 1 (cannot do task) to 6 (does task on own initiative $\geq 50\%$ of the time) for household tasks (Dunn, 2004). Higher scores for assistance show greater independence in household tasks. Two attitudinal items, each rated on a 6-point Likert scale, measure caregivers’ perspectives on the importance of and satisfaction with their children’s household task participation. Ratings for importance and satisfaction are rated on a 6-point Likert scale, with higher ratings showing greater importance and greater satisfaction. Open-ended questions follow each attitudinal item to obtain comments from caregivers to assist with interpretations of importance and satisfaction.

The CHORES has strong test–retest reliability (intraclass correlation coefficient = .93) and internal consistency ($\alpha = .96$; Dunn, 2004). The significantly greater need for assistance found in previous studies with children and youth with cognitive and behavioral difficulties (Dunn et al., 2009; Dunn & Gardner, 2012) affords some support for its discriminant validity. Therapist and parent judgment supported content validity (Dunn, 2004). Internal consistency for the current study was computed and is strong ($\alpha = .93$).

Procedure

Participants were children with and without PD in Grades 1–8 and their parents. We recruited participants through community clinics and hospitals, local school districts, past fieldwork sites, professional contacts, and snowball sampling in a large Western U.S. state. Parents of children with PD were recruited first. The comparison group of TD children was matched by grade, gender, and ethnicity through the national CHORES research database and through recruitment in the local community. Researchers explained the purpose of the study and screened participants to determine eligibility. Inclusion criteria were that children and youths were in Grades 1–8, came from families with at least two children and no more than four children, had average or above-average intellect, and did not have siblings with diagnoses that precluded their participation in typical activities of same-aged peers.

Participants who met the inclusion criteria and consented to participate were mailed the CHORES. Parents were asked to complete the CHORES as part of a larger study and to return it by mail in stamped addressed envelopes. On receipt of the
completed measures, the participants were mailed a gift certificate to compensate them for their time.

**Data Analysis**

Descriptive data were computed to obtain the range, means, and standard deviations for the CHORES Performance and Assistance scales for each group. We used independent *t* tests to examine group differences in scores regarding performance of household tasks and level of assistance. The data included in this analysis involved Likert scale sums, which permit the use of parametric statistics (Tabachnick, Fidell, & Fidell, 2000). The criterion for statistical significance was set at *p* < .05 (one-tailed). Because not all children are expected to do all tasks, we used a percentage of maximum possible procedure (POMP) to convert assistance scores to an equal weighting.

Next, we divided the two participant groups into younger and older sections to examine developmental trends across age ranges for children with and without PD. The younger children were ages 6–10, and the older children were ages 11–14. We set the starting age for the older group at 11 on the basis of research showing that many TD children were more independent at this age (Hofferth & Sandberg, 2001). We used a weighted POMP procedure to compare assistance scores across groups because the younger children in both groups participated in significantly fewer tasks than did the older children.

**Results**

**Descriptive Analyses**

On average, parents reported that their children with PD performed 22 of the 34 household tasks, and parents of children who were TD reported their children performed 25 of the 34 household tasks. On average, the younger PD group performed about 19 tasks and the younger TD group performed about 22 household tasks, and the older PD group performed 25 household tasks and the older TD group performed 28 tasks. The average total assistance score was 66.02 for the PD group and 80.77 for the TD group; 59.4 for the younger PD group and 85.7 for younger TD group; and 74.5 for the older PD group and 89.9 for older TD group.

**Household Task Participation for Children With and Without Physical Disabilities**

Overall, children with PD did not differ significantly from children who were TD in the number of household tasks their parents reported they performed. Age did not influence this relationship; neither the younger nor the older group of children with PD differed significantly in the number of household tasks they performed compared with their same-aged TD peers. (Table 2 gives the performance scores and statistics for the group comparisons.)

Children with PD had significantly lower scores on the Assistance scale in comparison with their TD peers. Parents reported that their children with PD—in both age groups—required greater assistance with household tasks compared with their age-matched TD peers. (Table 2 also gives the assistance scores and statistics for these group comparisons.)

**Comparison of Household Task Participation by Age for Each Group**

In both groups, younger children performed significantly fewer household tasks than the older children, PD group, *t*(21) = 2.16, *p* = .04, and TD group, *t*(21) = 4.11, *p* = .00.

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**Table 1. Demographic and Clinical Characteristics of Children and Families**

<table>
<thead>
<tr>
<th>Participants</th>
<th>Physical Disability (n = 23)</th>
<th>Typical (n = 23)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><em>n</em></td>
<td>%</td>
</tr>
<tr>
<td>Younger children, ages 6–10 yr</td>
<td>13</td>
<td>56.5</td>
</tr>
<tr>
<td>Older children, ages 11–14</td>
<td>10</td>
<td>43.5</td>
</tr>
<tr>
<td>Mobility</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Walks</td>
<td>12</td>
<td>52.2</td>
</tr>
<tr>
<td>Walks with device</td>
<td>5</td>
<td>21.7</td>
</tr>
<tr>
<td>Walks with device, wheelchair</td>
<td>3</td>
<td>13.0</td>
</tr>
<tr>
<td>Wheelchair</td>
<td>3</td>
<td>13.0</td>
</tr>
<tr>
<td>Child’s gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>8</td>
<td>34.8</td>
</tr>
<tr>
<td>Male</td>
<td>15</td>
<td>65.2</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>21</td>
<td>91.3</td>
</tr>
<tr>
<td>Hispanic</td>
<td>2</td>
<td>8.7</td>
</tr>
<tr>
<td>Parent report of child intellect</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td>11</td>
<td>47.8</td>
</tr>
<tr>
<td>Above average</td>
<td>12</td>
<td>52.2</td>
</tr>
<tr>
<td>Family</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Two parent</td>
<td>20</td>
<td>87.0</td>
</tr>
<tr>
<td>One parent</td>
<td>3</td>
<td>13.0</td>
</tr>
<tr>
<td>Respondent: mother</td>
<td>23</td>
<td>100.0</td>
</tr>
<tr>
<td>Mother’s employment</td>
<td></td>
<td></td>
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<tr>
<td>Full time</td>
<td>7</td>
<td>30.4</td>
</tr>
<tr>
<td>Part time</td>
<td>13</td>
<td>56.5</td>
</tr>
<tr>
<td>Unemployed</td>
<td>3</td>
<td>13.0</td>
</tr>
<tr>
<td>Mother’s education</td>
<td></td>
<td></td>
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<tr>
<td>High school diploma</td>
<td>4</td>
<td>17.3</td>
</tr>
<tr>
<td>Some college</td>
<td>9</td>
<td>39.1</td>
</tr>
<tr>
<td>Undergraduate degree</td>
<td>7</td>
<td>30.4</td>
</tr>
<tr>
<td>Graduate education</td>
<td>3</td>
<td>13.0</td>
</tr>
<tr>
<td>No. children in home</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Two</td>
<td>15</td>
<td>65.3</td>
</tr>
<tr>
<td>Three</td>
<td>5</td>
<td>21.7</td>
</tr>
<tr>
<td>Four</td>
<td>3</td>
<td>13.0</td>
</tr>
</tbody>
</table>

*Note.* Percentages may not total 100% because of rounding.
The effect sizes for these group differences were large, PD group, \( d = 0.94 \), and TD group, \( d = 1.79 \) (TD group).

In both groups, the younger children required significantly more help with household tasks than did the older children, PD group, \( t(21) = 2.77, p = .01, \) and TD group, \( t(21) = 5.53, p = .00 \). Given the significant differences in performance scores, we used a weighted POMP score. The effect sizes for these group differences were large, PD group, \( d = 1.13 \), and TD group, \( d = 2.33 \).

**Importance of and Satisfaction With Household Task Participation**

On average, both groups of parents rated household task participation as important to very important, PD group, \( M = 5.26 \) (standard deviation \( [SD] = 0.96 \)); TD group, \( M = 5.78 \) (\( SD = 0.42 \)). However, we found a significant difference in ratings between the groups—the TD group rated importance significantly higher than did the PD group, \( t(44) = 2.38, p = .02 \). The reasons parents gave for the importance of encouraging their children’s participation were similar and categorized as preparation for future living, responsibility, and being part of the family.

On average, both groups rated their satisfaction with their children’s household task participation as somewhat satisfied to satisfied, PD group, \( M = 4.52 \) (\( SD = 1.24 \)), and TD group, \( M = 5.04 \) (\( SD = 0.93 \)). Differences between the group ratings were not significant, \( t(44) = 1.16, p = .11 \); in both groups, many parents commented that their children’s good attitude about household tasks satisfied them. Unique to the PD group were comments about being satisfied because their children were willing to try to do the tasks.

**Discussion**

On the basis of previous research with youth with PD, we proposed that we would find a significant difference in household task participation patterns among children with PD compared with their TD peers. Our hypothesis regarding performance was not supported; parents of children with PD reported their children participated in household tasks at levels comparable to those reported by parents of TD children. This finding provides novel information suggesting that some parents are engaging their children with PD in household tasks and providing opportunities to develop life skills that prior research has indicated were lacking (Kingsnorth, Healy, & Macarthur, 2007).

Our hypothesis regarding assistance received support because parents reported that their children with PD, both young and older, required more help to do household tasks than did their respectively aged TD peers. Parents reported that their children with PD, on average, required some assistance (rating of 3), and parents of TD children reported that they required a verbal prompt or supervision (ratings of 4 and 5, respectively). Greater need for assistance might be due to mobility limitations. However, Van Zelst, Miller, Russo, Murchland, and Crotty (2006) found that difficulties in performance of activities of daily living for children with cerebral palsy were the result of weaknesses in both motor and process skills (e.g., initiation, attention, organization, and problem solving). Consideration of process skills as possible factors outside of intellect also warrants examination when planning interventions. In all these cases, actual observation of task performance would open discussion among parents, children, and practitioners regarding potential intervention strategies.

An alternative explanation, supported by prior research (Reid et al., 2011), might be that some parents perceived and offered greater assistance than their children and youth with PD actually needed, thus limiting the children’s opportunities for developing responsibility and autonomy. If tasks involve the whole family, parents may take over doing the task because it is easier for them. Promoting responsibility and autonomy might require that parents allow their children with PD the additional time needed to complete household tasks. Children with PD, especially cerebral palsy, get stuck at receiving and participating in activities and have difficulty progressing to managing and supervising their activities at the same level as do their TD peers (Gall et al., 2006; Reid et al., 2011). Receiving and participating connote passive participation—directed by others—whereas managing and supervising connote a more active, adult role. Children with PD require opportunities to develop the ability to make choices about tasks and to direct others to do tasks that they cannot do to manage their homes, thus increasing their ability to function independently when disability limits them from performing desired tasks.

The developmental trajectory for household tasks was similar between the two groups; younger children performed significantly fewer household tasks and required significantly more help when doing them than did the older children. These findings

### Table 2. Across-Group Comparisons of CHORES’ Performance and Assistance Scores

<table>
<thead>
<tr>
<th>CHORES Scale</th>
<th>Mean</th>
<th>SD</th>
<th>Range</th>
<th>Mean</th>
<th>SD</th>
<th>Range</th>
<th>t</th>
<th>p</th>
<th>d</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Younger PD (n = 13)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performance</td>
<td>19.31</td>
<td>6.43</td>
<td>8–27</td>
<td>22.31</td>
<td>3.47</td>
<td>17–27</td>
<td>1.48</td>
<td>.15</td>
<td>0.69</td>
</tr>
<tr>
<td>Assistance</td>
<td>59.48</td>
<td>19.07</td>
<td>25.00–82.35</td>
<td>73.74</td>
<td>9.73</td>
<td>56.86–86.54</td>
<td>2.40</td>
<td>.03</td>
<td>1.14</td>
</tr>
<tr>
<td><strong>Older PD (n = 10)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performance</td>
<td>25.00</td>
<td>6.13</td>
<td>17–33</td>
<td>28.50</td>
<td>3.72</td>
<td>21–33</td>
<td>1.54</td>
<td>.14</td>
<td>0.80</td>
</tr>
<tr>
<td>Assistance</td>
<td>74.53</td>
<td>16.42</td>
<td>49.31–93.23</td>
<td>89.93</td>
<td>2.31</td>
<td>86.56–93.21</td>
<td>2.94</td>
<td>.02</td>
<td>1.92</td>
</tr>
</tbody>
</table>

*Note.* CHORES = Children Helping Out: Responsibilities, Expectations and Supports; PD = physical disability; TD = typically developing.
support Rogoff’s (2003) model of apprenticeship in which the caregiver transfers responsibility for tasks to children as children age and gain mastery. Caregivers’ listing of initiative as a reason for satisfaction supported this interpretation.

Along with the future effect for these youth, consideration of how their slowed progression might influence their families is important. The parents in the study rated participation in household tasks as highly important. In listing why it was important, many parents reported that participation in household tasks, along with teaching life skills, helped their child feel part of the family. Others felt that it was important for their child to contribute to the family as a whole and share the burden of taking care of the home. Being a part of the family and helping with household tasks seem to be cultural values shared by the families in this study. The increased need for help and decreased autonomy of older children with PD, as demonstrated in this study, may affect the child’s perceived sense of belonging in and social participation with the family.

Caregivers and professionals often recognize the disparity in skills necessary for independence between children with and without PD, yet attempts to intervene often take place in mid- to late adolescence (Gall et al., 2006). By adolescence, the time needed to intervene might not satisfy the additional time needed to close the gap. Promoting responsibility and autonomy, which includes interdependence, requires facilitation throughout childhood so that children with PD gain “knowledge, skills and experience to master the independence required by the adult world” (Gall et al., 2006, p. 52).

Generalizing these findings to others requires caution because the majority of the sample were Anglo-American; thus, findings may vary for families from different cultural backgrounds. Mothers’ educational levels differed across the sample, with more mothers in the TD group than in the PD group having a college degree. Although parents with college degrees have been reported to involve their children in household tasks more than do parents with a high school education, whether this is true for parents with some college education is unclear (Hoffarth & Sandberg, 2001). The sample included multiple physical impairments, and stratifying the sample in future studies would add to the available evidence. Last, the CHORES is a relatively new instrument and further validation of its internal structure is needed.

This examination of household task participation for children and youth with and without PD revealed similarities in the numbers of tasks they perform. Examination of effects of age showed similar patterns; older children in both groups required less help to do household tasks in comparison with younger children. Further research examining participation of children with PD in family routines and household tasks is needed to expand knowledge of preparation for community living and adult roles in a variety of cultural settings, especially the home. Examination of factors such as types of household tasks and type of help required that influence household task participation across childhood and into adolescence would help direct interventions to potentially important factors that might enhance outcomes, especially quality of life.

Implications for Occupational Therapy Practice

- The CHORES measure provides information about age-related expectations for children with and without disabilities regarding household task participation.
- Exploring household task participation will promote discussion with caregivers and children with PD about opportunities to participate in home activities and learning that will enable their successful transition to adult roles. ▲

Acknowledgments

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