Objective. Effective play and coping skills may be important determinants of children's adaptive behavior. Play and coping have undergone extensive individual study; however, these two variables have not been explored in relationship to each other.

Method. The play behaviors of 19 randomly selected preschool children were rated by researchers using The Test of Playfulness. The children's coping skills were rated by their teachers with the Coping Inventory.

Results. A positive, significant correlation was found between children's level of playfulness and their coping skills. Overall, girls were rated as more playful than boys and scored higher in coping skills. Younger children (36-47 months of age) were rated as better players and copers than older children (47-57 months of age).

Conclusion. This pilot study supports occupational therapy intervention in children's play environments and playful interactions as a way of influencing their adaptability in all life skills.

Many investigators in the fields of occupational therapy, education, and psychology have studied how play skills and coping skills affect a child's development (Barris, Kielhofner, & Watts, 1988; Piaget, 1962; Reilly, 1974; Zeitlin & Williamson, 1990). In pediatric occupational therapy, the child's play and coping skills are evaluated as separate components that contribute to a larger picture of functional behavior (Kramer & Hinojosa, 1993).

Occupational therapists strive to promote a sense of competence and adaptability to change in their clients (Schkade & Schultz, 1992). Both effective play and effective coping contribute to the formation of a positive spiral that builds the child's sense of competence. Through play, coping skills are developed that can shape adaptive behavior for a lifetime (Michelman, 1971; Williamson, Szczepanski, & Zeitlin, 1993).

Despite strong implications of a relationship between play and coping found in the literature (Arend, Grove, & Stoufe, 1979; Fisher, 1992; Hupp, Boat, & Alpert, 1992; Michelman, 1971; Reilly, 1974; Takata, 1971), there has been little examination of an actual link between the two. The question we considered is whether a relationship exists between playfulness and coping skills in children. The outcome of this study could provide a stepping-stone to further study and understanding of the benefit of play and coping interventions.

Literature Review

Effective play and coping behaviors share many similar...
characteristics. Both are self-directed processes that involve creative, multistategy approaches; persistence; active engagement; and flexibility and often produce positive affect (Bundy, 1993; Florey, 1971; Garmezy & Rutter, 1983; Zeitlin, 1980; Zeitlin & Williamson, 1990). Links have been made between play and coping in terms of adaptability to the demands of the environment, exploration of options, creative problem solving, social competence, and internally driven motivation (Compass, 1987; Rosen, 1974; Takata, 1971; Williamson & Weiner, 1995).

Play is the context in which play behaviors take place. The positive attitude of the player that is brought to the play arena is described by Morrison, Bundy, and Fisher (1991) as "playfulness." They defined playfulness as "the combinations of a child's feeling of control over the environment, internal motivation, and ability to be creative or imaginative" (p. 688). Bundy (1994) measured these characteristics in her Test of Playfulness (ToP).

Occupational therapists have accepted play as a measure of children's sense of competence (Knox, 1974; Reilly, 1974; Schaal, 1990; Takata, 1969). Through observations of play, therapists gain information about children's abilities to interact positively with their environment (Behnke & Menarchek-Fetkovich, 1984; Schaal, 1990; Takata, 1969). When children play, they test reality and experiment with the roles and tasks of life as a prelude to the development of mature coping skills (Barris et al., 1988; Behnke & Menarchek-Fetkovich, 1984; Michelman, 1971; Takata, 1969). Studies by Dansky (1980), Fisher (1992), and Smilansky (1968) have shown that intervention in play positively affects children's cognitive, social, and divergent problem-solving skills, thereby increasing their coping abilities. Through play exploration, a child develops his or her unique coping style and strategies in order to meet inner needs while concurrently managing the demands of the environment (Garmezy & Rutter, 1983; Zeitlin & Williamson, 1990).

Coping is a response to some types of stress, either positive or negative, that challenge the child to search through a repertoire of adaptive behaviors and choose an effective strategy (Christiansen & Baum, 1991; Zeitlin & Williamson, 1990). The coping response is essential to the learning process because it facilitates new learning that can be generalized to other situations (Zeitlin, 1980).

Bandura (1977) described the coping process as related to the development of a sense of efficacy. When a child copes effectively with a given situation, he or she feels a sense of competence that is based on a perceived match between his or her internal resources and the expectations of the environment (Williamson et al., 1993). The development of coping styles and strategies has been of interest to researchers (Chess, 1994; Garmezy & Rutter, 1983; Werner & Smith, 1982) because of the impact they will have on the child's future interactions.

Characteristics of the temperament and behavior of a resilient coper include flexibility, adaptability, ability to use multiple problem-solving strategies, social responsivity, positive mood, persistence, high self-initiative, self-perception of an internal locus of control, creative thinking, and high self-esteem (Arend et al., 1979; Carson & Bittner, 1993; Compass, 1987; Hupp et al., 1992). The characteristics of the resilient coper are frequently echoed by researchers who describe the playful child. Liebermann (1964) defined playfulness as an attitude that is an index to divergent thinking and the experimentation with and testing of alternative solutions to problems. She found a positive correlation between kindergartners' playfulness and their problem-solving ability. Separate studies by Rosen (1974) and Connolly and Doyle (1989) found a similar correlation in kindergartners' level of sociodramatic play and divergent thinking. Compass (1987) linked the improved coping ability of children 4 to 5 years of age with the emergence of their cognitive ability to generate alternative solutions to problems. Flexibility in problem solving contributes to healthy, adult social behavior. Vandenberg and Kielhofner (1982) and Williamson and Weiner (1995) suggested that rigid patterns of behavior and poor adaptability in adulthood may be associated with play deficits in childhood.

As occupational therapists, the greater our understanding of the relationship between play and coping, the better we can direct our treatment to help children reach their optimal potential. The purpose of this study was to determine whether there was sufficient evidence of a relationship between preschool children's playfulness and coping skills to support practice assumptions and warrant further research on the topic. In treatment, we set up a play milieu that provides children with the "just-right challenge" to test strategies using creativity, flexibility, and problem solving because we believe that a low-risk play environment will promote these adaptive coping skills. We hypothesized that there would be a positive correlation between playfulness.
and coping skills and questioned whether age or gender would affect children's playfulness and coping ability.

**Method**

**Sample**

Nineteen preschool children were randomly selected by their teachers to participate in the study. The seven participating preschools were located in urban, rural, and suburban areas of western Massachusetts and included Headstart programs, public preschools, and a private preschool. Children ranged in age from 36 to 63 months and were divided into two groups, a younger group (≥ 46 months of age) and an older group (≥ 47 months of age). Age and gender can be inferred from Table 1.

**Instruments**

Play behaviors were measured by Version 2.0 of the ToP (Bundy, 1994), an observation-based assessment designed for use with children between 2 years and 8 years of age. The 24 test items quantify playfulness or how the child approaches the play experience in terms of internal locus of control, intrinsic motivation, and the freedom to suspend reality. Three characteristics of play behavior are scored on a 4-point (0–3) Likert scale: the extent to which the behavior is observed, the intensity of the child's participation, and the skillfulness of the child's play behavior. Overall playfulness is scored for extent and intensity with a scoring system that is based on Rasch analysis. Rasch analysis allows the scored items to be rated on the same linear scale, simultaneously considering rater leniency, skill item easiness, and child's ability (Park, Fisher, & Velozo, 1994). The ToP has been preliminarily evaluated for goodness-of-fit according to Rasch measurement standards, with 98% of children tested, 100% of test raters, and 93% of test items meeting the criteria for goodness-of-fit (Brooks, 1995).

The Coping Inventory (Zeitlin, 1985), a 48-item observational instrument that measures adaptive behavior in children 3 years to 16 years of age, was used to assess each child's coping skills. Two categories of coping behavior (self, environment) and three dimensions of coping style (productive, active, flexible) are assessed. Each item is rated on a 5-point (1–5) Likert scale. An adaptive behavior index (ABI) and a coping profile can be generated from the compiled observation scores. Internal consistency reliability coefficients reported in the Coping Inventory manual (Zeitlin, 1985) ranged from .84 to .98 across the six rated dimensions. All interrater reliability coefficients were significant, ranging from .781 to .895 (p < .001) (Zeitlin, 1985).

**Procedure**

In collaboration with Bundy, we were trained to assess play behaviors using the ToP on five practice videotapes and were confirmed for interrater reliability. Original interrater reliability data were combined with the interrater reliability scores for the 19 children in the sample. Bundy confirmed that our overall interrater reliability scores were between .6 and 1.4 for the pair of mean squares and between –2 and 2 for the pair of t-scores. This is an acceptable range for Rasch analysis. Each child in our sample was videotaped during spontaneous, nonstructured free play, both indoors and outdoors, for a total of 40 min. Using the ToP, we scored all the videotapes separately and sent the raw scores to Bundy for computation.

The children were also assessed by their teachers with the Coping Inventory. Teachers were provided with verbal instructions on how to use the rating form and were asked to observe the children for 5 school days before completing the form. An ABI was derived from the raw scores generated by the teachers.

**Data Analysis**

Descriptive data were gathered on the children's overall performance in coping and playfulness by using the ABI and the measurement score of the ToP. To investigate the relationship between playfulness and coping, a Pearson correlation coefficient was calculated. In addition, independent t tests were calculated to see whether differences existed in play or coping performance on the basis of age or gender.

**Results**

The Pearson correlation coefficient indicated a moderately strong correlation between playfulness and coping (r = .51, p = .02). This significant correlation (p < .05) revealed a positive linear relationship, as noted on the scatterplot shown in Figure 1.

Reviewing the additional findings, we determined that

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**Table 1**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coping</th>
<th></th>
<th></th>
<th>Playfulness</th>
<th></th>
<th></th>
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<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
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<tr>
<td>Boys</td>
<td>3.90</td>
<td>.87</td>
<td>9</td>
<td>−1.50</td>
<td>.83</td>
<td>9</td>
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<td>Girls</td>
<td>4.38</td>
<td>.71</td>
<td>10</td>
<td>−.043</td>
<td>.80</td>
<td>10</td>
</tr>
<tr>
<td>Age (months)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>36–46</td>
<td>4.40</td>
<td>.15</td>
<td>6</td>
<td>−2.41</td>
<td>.97</td>
<td>6</td>
</tr>
<tr>
<td>47–63</td>
<td>4.04</td>
<td>.96</td>
<td>13</td>
<td>−.025</td>
<td>.73</td>
<td>13</td>
</tr>
</tbody>
</table>

*Note. Coping was rated with a 5-point Likert scale; playfulness was rated with a 4-point Likert scale and scored with Rasch analysis.*
the children performed in the normative range for overall playfulness and coping. Their mean performance for playfulness ($M = -0.093$, $SD = 0.79$) was compared with the normative score developed for the ToP ($M = 0.00$, $SD = 0.14$) (A. Bundy, personal communication, February 16, 1996) and were found to be similar. The mean coping score for our sample ($M = 4.15$, $SD = 0.80$) was similar to the mean coping score for preschool children ($M = 4.05$, $SD = 0.53$) in the field test conducted with the Coping Inventory (Zeitlin, 1985).

Independent $t$ tests were calculated to determine coping and playfulness ratings on the basis of age and gender (see Table 1). Although the results of all $t$ tests were not significant ($p > 0.05$), the findings on coping for our sample concurred with Zeitlin’s (1985) findings. Girls were rated higher on coping than were boys ($p = 0.20$), and younger children were rated higher on coping than were older children ($p = 0.38$). Girls were rated higher on playfulness than were boys ($p = 0.78$), and older children were rated as more playful than younger children ($p = 0.59$).

Discussion

Examination of the available literature on the constructs of play and coping inspired this pilot study. We noted common elements in the discussion of playfulness and coping that suggested a strong link worthy of further investigation. The results of the study suggest a positive linear relationship between playfulness and coping.

The finding that girls were rated higher for coping than boys was similar to Zeitlin’s (1985) findings. The mean playfulness score for the girls in this study was higher than the mean score for the boys. From our observations, girls appeared to engage more readily in indoor pretend play with others (e.g., dress up, housekeeping, office work). Heavy reliance on their verbal and nonverbal social skills may have helped the girls to develop effective coping skills. Our findings were in contrast with those of Tyler (1996) who examined the impact of gender and environment on ToP scores and concluded that gender did not affect playfulness scores.

The mean play and coping scores of the younger participants were higher than those for the older participants. A review of the literature revealed notable disagreement in discussions about the relationship between age and coping skills. Children appear to develop the cognitive skills necessary for coping around 4 or 5 years of age (Compass, 1987), but Zeitlin’s (1985) study indicated a slight drop in coping scores as children enter kindergarten. Lindquist, Mack, and Parham (1982) discussed an increase in social play around 6 years of age. Although we can draw no definitive conclusions because of the small sample size of this study, it is possible that younger children may exhibit more playfulness because they are not yet as concerned with the social rules of play (Vygotsky, 1966) and that an increase in social awareness places more of a demand on both the coping and play skills of older children.

The following limitations of this study bear on interpreting the findings. The small sample size makes it difficult to draw any firm conclusions or generalize the results to a larger population of children. Although children in the sample were randomly selected within their classrooms, the schools were carefully chosen to represent a broad cross section of the population of western Massachusetts. Although all the play milieu in the observed classrooms provided safe, age-appropriate toys, varied media, and gross motor equipment, the play situations varied from highly structured and teacher directed to more child-centered free play. The difference in play structure in the classrooms may have affected children’s level of playfulness. Occupational therapists have frequently considered the demands of the environment to be an important factor influencing occupational behavior (Schkade & Schultz, 1992; von Zuben, Crist, & Mayberry, 1991). We noted a marked difference in the quality of the free-play experience among the Headstart program, the public preschools, and the private preschool from which the sample was selected. The richness of the play environment (particularly the outdoor play environment) and the license given the children for creative exploration in the private preschool were exceptional. In contrast, the Headstart programs were more structured during indoor free play, and the outdoor play environment had limited equipment.

Videotaping children during both indoor and outdoor play for 40 min and then viewing and rating the tapes is the current method used for observation at this stage in the development of the ToP (Bundy, 1997). The presence of the videocamera may have had an affect on the children’s play, and the short period for observation may not have given us a chance to see a full range of the children’s play.
fulness. Although the Coping Inventory allowed a longer observation period (5 school days) than did the ToP, the data obtained were limited by the perceptions of only one person, the child's teacher. Including the parents' perspective may have provided a more comprehensive view of the children's coping abilities.

Conclusions
The young child's development of a sense of playfulness and adaptive coping skills is the crucial key that opens up a world of exploration and interaction rich with possibilities. In an effort to understand how occupational therapists can shape children's environments so that these skills will be nurtured, there is a need for further study of the nature of the play–coping relationship. Examining the multiple components that contribute to the development of play and coping skills was beyond the scope of this study. However, future research with a larger sample of children might continue to explore the effects of age and gender, temperament, cultural and socioeconomic influences, and play environments on play and coping skills. In today's fast-paced world, with its continuous demand for healthy adaptation to change, an attitude of playfulness and adequate coping skills can fortify a child and assure his or her smooth passage into adulthood. ▲

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