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Perceptions of Healthy Children Toward Peers With a Chronic Condition

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Perceptions of children with chronic illness may influence their peer relationships. This study examined the impact of illness visibility (i.e., an illness characteristic visible to other people) and medical explanation (i.e., a condition with a documented medical cause) on peer perceptions. Fifty healthy children (33 girls and 17 boys) aged 8 to 12 years ($M = 9.34$, $SD = 1.26$) were presented with vignettes describing hypothetical children with a visible–medically explained, non-visible–non-medically explained, visible–non-medically explained, or non-visible–medically explained condition. Perceptions of the hypothetical peer along affective, behavioral, and cognitive dimensions were assessed. Children with visible, non-medically explained conditions were perceived more negatively, suggesting that these children may be at risk for peer difficulties.

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Childhood chronic illness and the resulting limitations and disruptions (e.g., pain, fatigue, physical restrictions, or the disruptions caused by treatment demands) can affect peer relationships and interactions of children challenged by chronic conditions (Meijer, Sinnema, Bijstra, Mellenbergh, & Wolters, 2000a). Research has shown that peer relationships provide a good measure of current social functioning, are predictive of future adjustment (Parker & Asher, 1987), and are good indexes of social competence in childhood and adolescence (Ladd, 2006); indeed, strong peer relationships in childhood have been found to be associated with better academic performance, self-confidence, and psychosocial adjustment (e.g., Dodge, Pettit, McClaskey, & Brown, 1986; Ladd & Troop-Gordon, 2003; Parker & Asher, 1987; Reiter-Purtill & Noll, 2003; Wentzel, 2003). Peer relationships have been extensively studied in children with disruptive behavior disorders (e.g., Dodge, 1993; Dodge & Coie, 1987; Dodge et al., 1986; King et al., 2009; Murphy, Pelham, & Lang, 1992; Pelham & Bender, 1982), and findings generally indicate that the development of healthy peer relationships depends on frequent, positive interactions with peers.

Less research has focused on peer relationships in children with chronic illness, despite suggestions that this is an important area for investigation (e.g., La Greca, 1990; Nassau & Drotar, 1997). La Greca (1990; La Greca, Bearman, & Moore, 2002) suggested that a condition that limits a child's physical activity and thereby prevents him or her from interacting in a usual way with peers may produce negative social consequences (e.g., feeling left out or being teased). In addition, treatment regimens that disrupt social activities, such as missing school due to medical appointments or administering treatments at school or in social situations (e.g., insulin injections), may also have negative consequences for peer relationships. Some studies have indicated that children with chronic illness are generally well-adjusted with respect to social relationships and do not seem to be at risk for relationship difficulties (Meijer et al., 2000a; Meijer, Sinnema, Bijstra, Mellenbergh, & Wolters, 2000b), whereas more recent studies report that children with chronic illness experience less peer contact and higher levels of social anxiety than typical children (McCarroll, Lindsey, MacKinnon-Lewis, Chambers, & Frabutt, 2009). Given these mixed findings, it is not entirely clear which specific factors related to chronic medical conditions have the most significant impact on peer relationships.

Peer perceptions of the child with a chronic condition may impact on the peer relationships experienced by that child. It has been hypothesized that perceived responsibility for one's illness (i.e., perceived control or lack of control of one's own behavior) impacts on peer responses to the individual with a chronic condition (e.g., Campbell, Ferguson, Herzinger, Jackson, & Marino, 2004; Weiner, 1993). Weiner (1993) noted that individuals with physical conditions, in contrast to those with behavioral and mental health problems (e.g., addictions or obesity),

are typically not held responsible for their difficulties and often receive sympathy from others as a result.

Providing healthy children with a medical explanation for a peer's chronic condition could negatively impact relationships with their peers and classmates (e.g., La Greca et al., 2002). Sigelman and Begley (1987) provided school-aged children with a description of a hypothetical peer who was either wheelchair-bound, obese, learning-disabled, or aggressive. Results indicated that children who were given no causal information about the condition assigned all but the wheelchair-bound child responsible for their illness. Findings from a follow-up study (Sigelman, 1991) showed that the nature of the disability was more important than its cause when determining whether children liked the hypothetical peer or not. In a vignette study examining the impact of providing a medical explanation of a peer's illness, Guite, Walker, Smith, and Garber (2000) found that children rated symptoms as more severe when there was an organic cause. Given that findings have been mixed in this area, it is not yet clear whether providing a medical explanation of a chronic condition impacts peer perceptions of children with that condition.

Another aspect of chronic illness that may affect peer perceptions and subsequent peer relationships is the visibility of the condition. Children with visible physical differences often receive negative social feedback, leading to decreases in self-esteem and decreased likelihood of approaching peers in the future (Harper & Peterson, 2001). In their naturalistic study of adolescents with craniofacial conditions (e.g., cleft lip and palate), Kapp-Simon and McGuire (1997) found that typical adolescents addressed peers with craniofacial conditions less frequently and were less likely to respond when addressed by the peer with a craniofacial condition. However, visible differences and disabilities do not necessarily lead to peer rejection or to less-positive peer perceptions of the child. Some research suggests that, whereas children believe visible differences will lead to teasing and staring and, possibly, difficulties attracting romantic partners in the future, the presence of a visible difference does not affect their willingness to make friends with these children (Demellweek, Humphries, Hare, & Brown, 1997). These discrepant findings suggest that more research is needed to examine the impact of illness visibility on peer acceptance of children with chronic conditions.

To date, no studies have investigated the visibility of a chronic illness and the impact of providing a medical explanation concurrently. Knowledge of possible interactions between the two factors could help elucidate whether certain illness characteristics are more predictive of peer acceptance or not. The goal of this study was to determine, via use of a vignette methodology, whether providing information about the visibility of an illness and the medical cause of an illness would influence peer perceptions of children with a chronic illness. Based on

previous findings (e.g., Bell & Morgan, 2000; La Greca et al., 2002), it was hypothesized that (a) children would show more positive perceptions of peers with non-visible chronic illnesses, (b) peer perceptions would be less positive when an explanation for the illness was provided, and (c) there would be an interaction between illness visibility and medical explanation such that providing a medical explanation would not impact peer perception in conditions that are non-visible, but would in conditions that are visible. Previous research has not examined differential effects of gender on peer perceptions; however, some research suggests that girls are more likely to like a peer when evidence of organic disease is present (Guite et al., 2000). Therefore, it was hypothesized that girls would be more accepting of peers with medically explained conditions.

METHOD

Participants

Participants were a convenience sample of 50 healthy children (17 boys and 33 girls) between the ages of 8 and 12 years ($M = 9.41$, $SD = 1.33$). Using ethnicity descriptors defined by Statistics Canada, the sample self-identified as White (74%), Black (8%), Asian (12%), and "other" (6%). Twenty percent of parents reported having professional or graduate training, and an additional 30% reported having graduated from university or college. This study was approved by the health center research ethics board, and all participants were treated in accordance with the guidelines provided by the board.

Measures

Development of vignettes. For the purposes of this study, four written vignettes depicting hypothetical peers with various chronic health conditions were developed based on previous research (Guite et al., 2000; Mairon, Roberts, & Prentice-Dunn, 1996). Use of vignettes allows the researcher to systematically vary qualities of interest in order to examine the direct effects on peer perceptions. As in the studies by Mairon et al. and Guite et al., the peer depicted in each vignette was described as being a child of the same age and gender as the participant who would be joining the participant's class. However, the vignettes developed for this study varied on both medical explanation of the condition (i.e., medical explanation vs. no medical explanation) and visibility of the condition (i.e., visible vs. non-visible). As such, participants were presented with the following combination of vignettes: (a) medical explanation–visible, (b) no medical explanation–non-visible, (c) medical explanation–non-visible, and (d) no medical explanation–visible. For naming purposes only, the following

four chronic conditions were presented in the vignettes: (a) spina bifida (medical explanation–visible), (b) recurrent abdominal pain (no medical explanation–non-visible), (c) celiac disease (medical explanation–non-visible), and (d) obesity (no medical explanation–visible). These conditions were chosen based on consultation with pediatric psychologists and graduate students in pediatric psychology, and were selected to be similar to conditions presented in other vignette studies (e.g., Guite et al., 2000; Sigelman & Begley, 1987). Although these conditions are not functionally equivalent, descriptive information provided to participants (i.e., information regarding etiology and visibility) was roughly equivalent and was systematically varied across vignettes.

Vignettes were controlled for word length and amount and type of information presented about the hypothetical peer. Boys were presented with vignettes depicting boys, and girls were presented with vignettes depicting girls. The following is a sample vignette (spina bifida: visible–medical explanation; please see the Appendix for the complete set of vignettes):

Kathy/Matthew is a student who is the same age as you and in the same grade. She/he lives with her/his mom, dad and cat. Soon her/his family will be moving to your school and she/he will be in your class. Before she/he moves here, there is some stuff you should know about. Kathy/Matthew has a condition called Spina Bifida. Her/his spine didn't form the right way and she/he needs to be in a wheelchair, and because of that, Kathy/Matthew can't participate in as many of the recess activities as the other kids. Kathy/Matthew also needs a special desk at school and has to visit the nurse sometimes. The doctor figured out what was wrong when she/he was born so now Kathy/Matthew visits the special doctors regularly to get help.

Peer acceptance. A 12-item subset of the 18-item set of peer acceptance questions used by Mairon et al. (1996) was presented to participants following each vignette. Twelve items were selected to reduce the amount of time required of children and families participating in this study. Selection was made based on consultation with doctoral level pediatric psychologists and graduate students in clinical psychology. Questions were designed to assess the child's perception of the hypothetical peer on three dimensions: affective (i.e., how the child would feel), behavioral (i.e., how the child would act), and cognitive (i.e., how the child would think; see Table 1 for a complete list of questions in each specific domain). To make the procedure more interesting and engaging for children, questions were presented using a computerized "Jeopardy" game projected on a SMART Board screen in the testing room, which had the following headings: *feeling* (affective), *doing* (behavioral), and *thinking* (cognitive). Participants were able to choose the order in which the questions were presented by touching the number on the screen, and were then asked to respond to each question using a 5-point visually presented Likert scale, ranging from 1 (*never*) to 5 (*always*).

TABLE 1
Peer Perception Questions

<i>Dimension</i>	<i>Question</i>
Affective	<ol style="list-style-type: none"> 1. Would you be happy about this child coming to your school? 2. Would you feel good doing a school project with this child? 3. Would you feel comfortable if this child were in your class? 4. Would it make you afraid to be around this child?
Behavioral	<ol style="list-style-type: none"> 1. Would you choose this child to be a teammate when playing games? 2. Would you sit next to this child in class if you had the chance? 3. Would you try to be this child's friend? 4. Would you help this child with a question about school work?
Cognitive	<ol style="list-style-type: none"> 1. Do you think this child can make friends with others at your school? 2. Do you think this child would be popular? 3. Do you think this child can do things you can do? 4. Do you think this child can have as much fun as you do?

Cronbach's alphas for the affective, behavioral, and cognitive scales were 0.76, 0.93, and 0.93, respectively. Given that the alphas were acceptable, mean scores for each domain were calculated.

Procedure

Following the consent process, children were taken to the testing room and seated in front of the SMART Board. While the experimenter read each vignette, the child followed along on another copy (gender of the hypothetical peer was matched to the gender of the participant). To ensure comprehension of the vignettes and as a manipulation check, all participants were asked three questions regarding what they had heard:

1. Is X a boy or a girl?
2. What is wrong with X?
3. Did the doctor figure out what is wrong with X?

Children were required to answer two out of three questions correctly if their data were to be included. All children responded correctly to each comprehension question, with the exception of 3, who did not recall whether the doctor had determined what was wrong with the hypothetical peer. Given that these children responded correctly to the other two questions in the manipulation check, their data was included in the final sample. Presentation order of vignettes was counterbalanced across participants. Immediately following presentation of each vignette, participants were shown the computerized game board and asked to

respond to 12 questions regarding the vignette they had just heard. Children were given the choice as to the order in which questions were answered, but were required to respond to all 12. After each question, children were presented with a 5-point Likert scale printed on a card, and were asked to respond to the question by pointing to or saying the corresponding number. Once all vignettes and questions were finished, the child received a certificate for participating and a small prize. Parents received \$5 to help with transportation costs.

RESULTS

Three separate 2 (Condition: visible vs. non-visible) \times 2 (Medical Explanation: yes or no) \times 2 (Gender: boy vs. girl) mixed-factorial analyses of variance were conducted to examine group differences in peer perception on each of the dimensions (i.e., affective, behavioral, and cognitive). In the affective domain, results indicated a significant main effect of visibility, $F(1, 48) = 5.61$, $p < .05$ ($\eta^2 = 0.11$), such that peer perception ratings were more positive in the non-visible condition (see Figure 1). There was a significant main effect of medical explanation, $F(1, 48) = 6.08$, $p < .05$ ($\eta^2 = 0.11$), such that peer perception

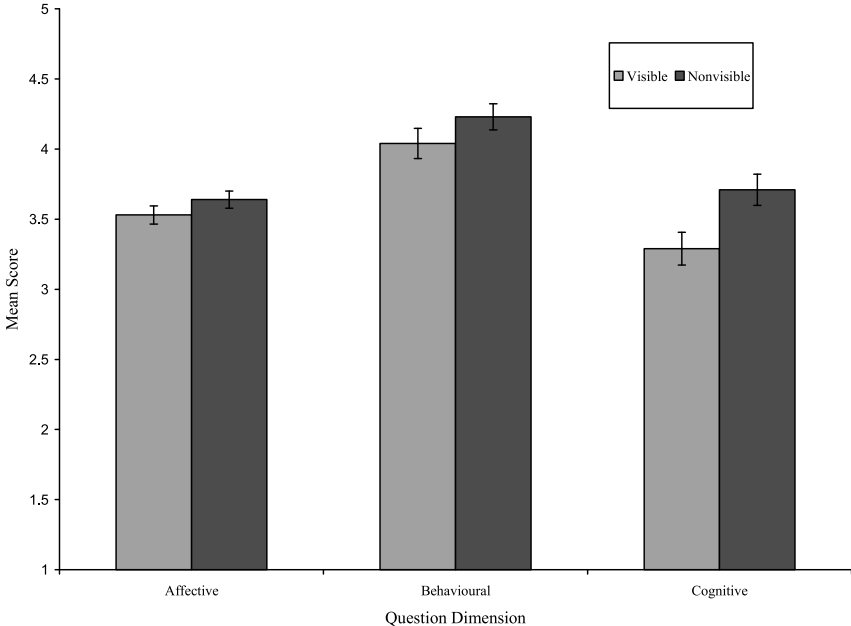


FIGURE 1 Perceptions of hypothetical peers with visible versus non-visible conditions.

ratings were more positive when a medical explanation of the condition was offered (see Figure 2). There were no other significant main effects or interactions.

In the behavioral domain, results indicated a significant main effect of visibility, $F(1, 48) = 9.37, p < .05 (\eta^2 = 0.16)$, such that peer perception ratings were more positive in the non-visible as opposed to the visible condition (see Figure 1). There was also a main effect of medical explanation, $F(1, 48) = 6.47, p < .05 (\eta^2 = 0.12)$, showing that peer perception ratings were more positive when a medical explanation was given (see Figure 2). There were no other significant main effects or interactions.

In the cognitive domain, results indicated a significant main effect of visibility, $F(1, 48) = 33.61, p < .05 (\eta^2 = 0.41)$, such that peer perception ratings were more positive in the non-visible as opposed to the visible condition (see Figure 1). A significant main effect of medical explanation of illness was found, $F(1, 48) = 11.79, p < .05 (\eta^2 = 0.20)$, such that peer perception ratings were more positive when a medical explanation was given (see Figure 2). There were no other significant main effects or interactions.

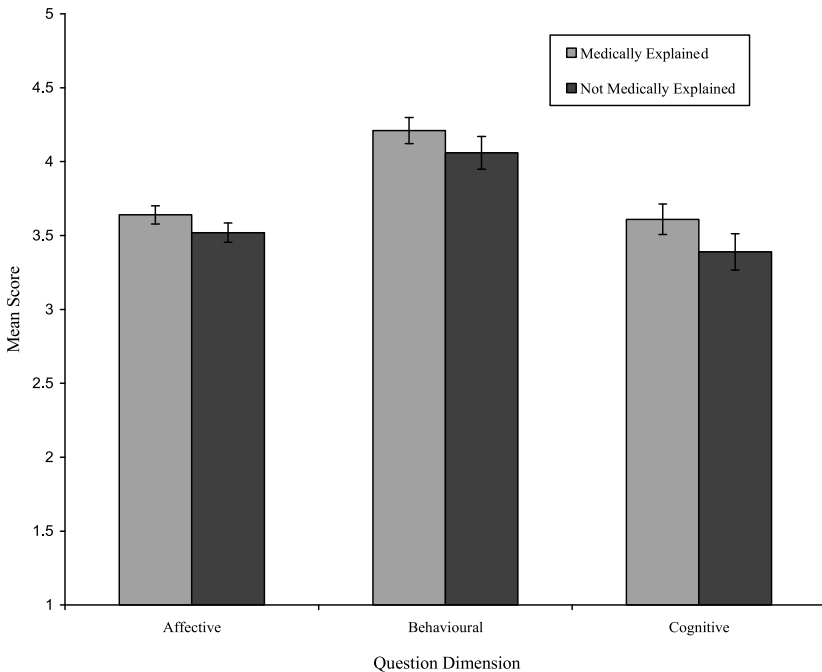


FIGURE 2 Perceptions of hypothetical peers with medically explained versus non-medically explained conditions.

DISCUSSION

The goal of this study was to investigate whether providing information about the visibility of a chronic health condition and its medical explanation would influence perceptions of healthy children toward peers with a chronic condition. It was hypothesized that healthy children would perceive peers with non-visible symptoms of chronic conditions more positively than those with visible symptoms, and would perceive peers less positively if a medical explanation of the condition was provided. Finally, it was hypothesized that there would be an interaction between condition visibility and medical explanation, such that providing a medical explanation would only affect perception of peers with non-visible conditions. The results supported the first hypothesis, as children did indeed have more positive perceptions of peers with non-visible symptoms along all three dimensions (i.e., affective, behavioral, and cognitive). The second hypothesis was contradicted, as children perceived peers with a chronic condition more positively along all three dimensions if a medical explanation for the condition was provided. Finally, no interaction between visibility and medical explanation was found.

With respect to illness visibility, children indicated that peers with visible medical conditions would be less well-liked by their peers and would be unable to do the same things or have as much fun as they themselves could, suggesting that illness visibility is an important factor in determining peer perception of a child with a chronic condition. The results of this study are supported by previous findings suggesting that healthy children are generally more accepting of children with non-visible chronic illnesses and tend to show a lower preference for social interaction with children with visible differences (Harper, 1995; Harper & Peterson, 2001; Harper, Wacker, & Cobb, 1986). In determining why healthy children have more negative perceptions of children with visible illnesses, an examination of the adult literature shows that adults reject friendship with, attribute negative characteristics (e.g., stupidity) to, and feel uneasy interacting with individuals with disabilities, such as cerebral palsy, as well as facial differences (Siller, Vann, Ferguson, & Holland, 1986, as cited in Demellweek et al., 1997). It is possible that children also make negative attributions regarding peers with visible illnesses, and tend to perceive them more negatively than children with non-visible conditions.

Children often indicate that they associate with other children based on the ability to complete the functional requirements of a task, be it play or academic (Harper, 1999). Generally, the more functionally limiting the disability, the more the child with that disability will be avoided by other children (Harper, 1999). With respect to this study, it is possible that participants viewed children with visible illnesses as being less functional in school and play settings and, therefore, perceived them in a more negative manner as compared to children

with non-visible conditions. Hypothetical children with visible conditions were presented as either being obese or having spina bifida, meaning that, in some arenas (e.g., the playground) they may not have been as functionally capable as a typical child. However, consistent with previous findings (e.g., Siller et al., 1986, as cited in Demellweek et al., 1997), children with visible conditions were rated less positively on all dimensions, suggesting that healthy children made other negative attributions about visibly ill children (e.g., less cognitively capable).

As noted earlier, previous research (Bell & Morgan, 2000; La Greca et al., 2002) has found that providing a medical explanation of a chronic illness can result in decreased acceptance of a peer with chronic illness. These results were inconsistent with this research, as findings indicated that the provision of medical information resulted in more *positive* perceptions of the child in question. Whereas this result did not support our original hypothesis, it is not entirely inconsistent with previous findings. For example, studies have shown that providing healthy children with information about a given condition results in assignment of lower responsibility for the condition (Sigelman, 1991), as well as higher ratings of symptom severity (Guite et al., 2000). Taken together with these results and with the evidence provided by studies of attribution theory, it is possible that providing information about a chronic condition to healthy children results in a certain degree of sympathy for the child with an illness, as their condition is perceived to be more severe and less controllable than conditions with no medical explanation. Healthy children, therefore, may be more sympathetic to the child with a medically explained illness, and are then more likely to respond in a positive manner to them.

It is worthwhile to note that, in the Bell and Morgan (2000) study, children were provided with medical explanations for obesity only, and results indicated that this explanation did not necessarily increase liking for the obese child. Medical explanations were provided for celiac disease and spina bifida in this study; therefore, it is possible that providing a medical explanation of obesity is not effective in increasing positive perceptions of an obese peer, whereas it is effective when educating peers about other illnesses. Indeed, research shows that the stigmatization of obesity is very predominant and may have increased over the last 40 years (e.g., Lattner & Stunkard, 2003). From an observational standpoint, many participants in this study reacted unfavorably to hearing the vignette about an obese child, and commented that they would not like to sit beside an obese child in class, as this would be socially undesirable. The results of this study, then, suggest that providing a medical explanation of chronic conditions other than obesity may result in more positive peer perceptions of children with chronic illness.

Although this study highlights some important issues with respect to peer relationships in children with chronic illness, there are several limitations that

should be acknowledged. First, because social desirability has previously been shown to impact participants' responses (e.g., Morgan, Bieberich, Walker, & Schwerdtfeger, 1998), the fact that the investigator asked and recorded the answers may have influenced how the children responded. Second, observations throughout testing indicated that children often appeared to be in a response set where they tended to respond on the higher end of the scale, mostly with a 5 (*always*). This pattern of responding at extreme ends of the scale has been found to be relatively common in younger children (Chambers & Johnston, 2002) and may have contributed to a ceiling effect, making it difficult to detect true differences between groups. In the same vein, the manipulation check asked children to identify "what was wrong" with the hypothetical peer. This wording was chosen so as to be easily understandable to the participants; however, it is possible that this could have been a leading question. Another limitation related to ethnicity of participants should be noted. This sample was comprised almost exclusively of Caucasian children and, although our sample accurately reflects the ethnic breakdown of the region, future studies should aim to include a more ethnically diverse sample. Similarly, participants were largely from middle- and high-income backgrounds, meaning that these results may not be generalizable to participants from low-income backgrounds. This study used a relatively small sample, meaning that the power to detect effects is decreased. Future studies using larger sample sizes would be beneficial and would allow for more conclusive statements regarding peer perceptions of children with chronic conditions. The heterogeneity of conditions investigated in this study may decrease generalizability; future studies should aim to carefully compare specific illness characteristics to determine similarities and differences between various chronic conditions. Finally, the use of written vignettes to describe the hypothetical peer may not have been an effective tool to assess perceptions of peers with chronic illness. With only a few sentences describing the peer's condition and symptoms, participants may not have been able to develop an adequate judgment of the child in the story. Future studies using videotaped vignettes, computerized tasks, or *in vivo* interactions may provide more accurate representations of perceptions of peers with chronic illnesses and may be more generalizable to real-world settings.

Implications for Practice

This study provides important preliminary information regarding perceptions of children with a variety of chronic conditions, and has implications for clinical practice. These findings lend some support to previous research suggesting that children with visible illnesses may be at increased risk for social difficulties, as children who are perceived negatively by their peers may suffer social consequences as a result. Education programs aimed at boosting acceptance

and understanding of chronically ill children could help foster more positive peer relationships for these children. Further, providing children with medical explanations for a peer's chronic illness resulted in more positive perceptions of the child in question; this suggests that, whenever possible, giving children information regarding the nature of a peer's illness may not only increase awareness of the condition, but it may also increase social contact. This being said, it is not clear whether providing information about the child's illness is the factor that increases acceptance of the child, but whether providing *any* information would be helpful in establishing more positive peer perceptions. La Greca et al. (2002) suggested that providing information to children about their peers' positive qualities may help to compensate for their stigmatizing condition; education designed to alert healthy children to the many positive qualities of children with chronic illnesses may be just as helpful as providing a medical explanation for the illness. Future studies investigating this possibility would add to the literature in this area and would aid in elucidating specific child characteristics that may contribute to resiliency in the face of chronic conditions. Indeed, a risk-resiliency perspective may prove extremely useful in understanding peer relationships in children with chronic illness.

The results of this study, although limited in some respects, provide a good starting point for examining the effects of visibility and medical explanations on peer perceptions of children with chronic illness. The findings of this study provide preliminary information regarding salient factors that may affect peer relationships and social interactions between healthy children and those with a variety of chronic conditions. It is hoped that these findings, coupled with future research, will contribute to education initiatives in schools and clinical settings to increase awareness of chronic illness and contribute to more positive social experiences for the children challenged by them.

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REFERENCES

- Bell, S. K., & Morgan, S. B. (2000). Children's attitudes and behavioral intentions toward a peer presented as obese: Does a medical explanation for the obesity make a difference? *Journal of Pediatric Psychology, 25*, 137–145.
- Campbell, J. M., Ferguson, J. E., Herzinger, C. V., Jackson, J. N., & Marino, C. A. (2004). Combined descriptive and explanatory information improves peers' perceptions of autism. *Research in Developmental Disabilities, 25*, 321–339.
- Chambers, C. T., & Johnston, C. (2002). Developmental differences in children's use of rating scales. *Journal of Pediatric Psychology, 27*, 27–36.
- Demellweek, C., Humphries, G. M., Hare, M., & Brown, J. (1997). Children's perception of, and attitude towards, unfamiliar peers with facial port-wine stains. *Journal of Pediatric Psychology, 22*, 471–485.
- Dodge, K. A. (1993). Social-cognitive mechanisms in the development of conduct disorder and depression. *Annual Review of Psychology, 44*, 559–584.
- Dodge, K. A., & Coie, J. D. (1987). Social-information-processing factors in reactive and proactive aggression in children's peer groups. *Journal of Personality and Social Psychology, 53*, 1146–1158.
- Dodge, K. A., Pettit, G. S., McClaskey, C. L., & Brown, M. M. (1986). Social competence in children. *Monographs for the Society for Research in Child Development, 51*, 1–85.
- Guite, J. W., Walker, L. S., Smith, C. A., & Garber, J. (2000). Children's perceptions of peers with somatic symptoms: The impact of gender, stress, and illness. *Journal of Pediatric Psychology, 25*, 125–135.
- Harper, D. C. (1995). Children's attitudes to physical differences among youth from Western and non-Western cultures. *Cleft Palate–Craniofacial Journal, 32*, 114–119.
- Harper, D. C. (1999). Social psychology of difference: Stigma, spread, and stereotypes in childhood. *Rehabilitation Psychology, 44*, 131–144.
- Harper, D. C., & Peterson, D. B. (2001). Children of the Philippines: Attitudes toward visible physical impairment. *Cleft Palate–Craniofacial Journal, 38*, 566–576.
- Harper, D. C., Wacker, D. P., & Cobb, L. S. (1986). Children's social preferences toward peers with visible physical differences. *Journal of Pediatric Psychology, 11*, 323–342.
- Kapp-Simon, K. A., & McGuire, D. E. (1997). Observed social interaction patterns in adolescents with and without craniofacial conditions. *Cleft Palate–Craniofacial Journal, 34*, 380–384.
- King, S., Waschbusch, D. A., Pelham, W. E., Frankland, B. W., Andrade, B. F., Jacques, S., & Corkum, P. V. (2009). Social information processing in elementary-school aged children with ADHD: Medication effects and comparisons with typical children. *Journal of Abnormal Child Psychology, 37*, 579–589.
- Ladd, G. W. (2006). *Children's peer relations and social competence: A century of progress. Current perspectives in psychology*. New Haven, CT: Yale University Press.
- Ladd, G. W., & Troop-Gordon, W. (2003). The role of chronic peer difficulties in the development of children's psychological adjustment problems. *Child Development, 74*, 1344–1367.
- La Greca, A. M. (1990). Social consequences of pediatric conditions: Fertile area for future investigation and intervention? *Journal of Pediatric Psychology, 15*, 285–307.
- La Greca, A. M., Bearman, K. J., & Moore, H. (2002). Peer relations of youth with pediatric conditions and health risks: promoting social support and healthy lifestyles. *Journal of Developmental and Behavioral Pediatrics, 23*, 271–280.
- Lattner, J. D., & Stunkard, A. J. (2003). Getting worse: The stigmatization of obese children. *Obesity Research, 11*, 452–456.
- Mairon, M. J., Roberts, M. C., & Prentice-Dunn, S. (1996). Children's perceptions of peers with AIDS: Assessing the impact of contagion information, perceived similarity, and illness conceptualization. *Journal of Pediatric Psychology, 21*, 321–333.

- McCarroll, E. M., Lindsey, E. W., MacKinnon-Lewis, C., Chambers, J. C., & Frabutt, J. M. (2009). Health status and peer relationships in early adolescence: The role of peer contact, self-esteem, and social anxiety. *Journal of Child and Family Studies, 18*, 473–485.
- Meijer, S. A., Sinnema, G., Bijstra, J. O., Mellenbergh, G. J., & Wolters, W. H. G. (2000a). Peer interaction in adolescents with a chronic illness. *Personality and Individual Differences, 29*, 799–813.
- Meijer, S. A., Sinnema, G., Bijstra, J. O., Mellenbergh, G. J., & Wolters, W. H. G. (2000b). Social functioning in children with a chronic illness. *Journal of Child Psychology & Psychiatry, 41*, 309–317.
- Morgan, S. B., Bieberich, A. A., Walker, M., & Schwerdtfeger, H. (1998). Children's willingness to share activities with a physically handicapped peer: Am I more willing than my classmates. *Journal of Pediatric Psychology, 23*, 367–375.
- Murphy, D. A., Pelham, W. E., & Lang, A. R. (1992). Aggression in boys with attention deficit-hyperactivity disorder: Methylphenidate effects on naturalistically observed aggression, response to provocation, and social information processing. *Journal of Abnormal Child Psychology, 20*, 451–466.
- Nassau, J. H., & Drotar, D. (1997). Social competence in children with central nervous system-related chronic health conditions: A review. *Journal of Pediatric Psychology, 22*, 771–793.
- Parker, J. G., & Asher, S. R. (1987). Peer relations and later personal adjustment: Are low-accepted children at risk? *Psychological Bulletin, 102*, 357–389.
- Pelham, W. E., & Bender, M. E. (1982). Peer relationships in hyperactive children: Description and treatment. In K. D. Gadow & I. Bialer (Eds.), *Advances in learning and behavioral disabilities* (pp. 356–436). Greenwich, CT: JAI Press.
- Reiter-Purtill, J., & Noll, R. B. (2003). Peer relationships of children with chronic illness. In M. C. Roberts (Ed.), *Handbook of pediatric psychology* (3rd ed., pp. 176–197). New York, NY: Guilford.
- Sigelman, C. K. (1991). The effect of causal information on peer perceptions of children with physical problems. *Journal of Applied Developmental Psychology, 12*, 237–253.
- Sigelman, C. K., & Begley, N. L. (1987). The early development of reactions to peers with controllable and uncontrollable problems. *Journal of Pediatric Psychology, 12*, 99–114.
- Weiner, B. (1993). On sin versus sickness: A theory of perceived responsibility and social motivation. *American Psychologist, 48*, 957–965.
- Wentzel, K. R. (2003). School adjustment. In W. Reynolds & G. Miller (Eds.), *Handbook of psychology, Vol. 7: Educational psychology* (pp. 235–258). New York, NY: Wiley.

APPENDIX

Vignettes

Recurrent abdominal pain: Invisible—No medical explanation. Cindy/Timmy is a student who is the same age as you and in the same grade. She/he lives with her/his mom, dad, brother, sister, and pet fish, Goldy. Soon her/his family will be moving to your school and she/he will be in your class. Before she/he moves here, there is some stuff you should know about. Cindy/Timmy gets a lot of stomach aches, and because of that, Cindy/Timmy can't participate in as many of the recess activities as the other kids. Cindy/Timmy misses a lot of school or sometimes has to leave early because her/his stomach hurts so

much. Cindy/Timmy's mom took her/him to the doctor and they ran some tests, but no one can figure out what is wrong.

Obesity: Visible–No medical explanation. Molly/Spencer is a student who is the same age as you and in the same grade. She/he lives with her/his mom, dad, 2 brothers, and 4 cats! Soon her/his family will be moving to your school and she/he will be in your class. Before she/he moves here, there is some stuff you should know about. Molly/Spencer is overweight, and because of this can't participate in as many of the recess activities with the rest of the kids. Molly/Spencer has problems getting out of her/his desk at school and none of the other kids would be able to lift her/him. Molly/Spencer's mom took her/him to the doctor and they ran some tests, but no one can figure out why Molly/Spencer is so big.

Celiac: Invisible–Medical explanation. Ashley/Daniel is a student who is the same age as you and in the same grade. She/he lives with her/his mom, dad, sister and dog, Sparky. Soon her/his family will be moving to your school and she/he will be in your class. Before she/he moves here, there is some stuff you should know about. Ashley/Daniel has a condition called Celiac where her/his stomach gets sore a lot when she/he eats certain foods like bread or cookies. Because of this Ashley/Daniel can't participate in as many of the recess activities as the other kids. Ashley/Daniel has to be very careful of what she/he eats for lunch and snacks and sometimes gets really tired at school. Ashley/Daniel's doctor ran some tests when she/he was younger and they figured out what was wrong.