



## RESEARCH ARTICLE

## A Preliminary Study on the Effects of Parental Accommodations on Frequency of Sickness in Children

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### Abstract

**Introduction:** Common childhood sicknesses, such as infections, colds, stomachaches, and headaches are inevitable for all children. The influence parents have on their sick children has been well studied in chronic illness populations; however, few studies have examined these associations among general sickness conditions in children. This study examined how parental accommodations and other parental variables affected frequency of sickness and functioning during sickness in children.

**Methods:** An online survey was administered through a secure website to 301 parents, using an accommodations measure adapted from the OCD literature.

**Results:** Parents ranged in age from 18-65 years old ( $M = 34.49$ ,  $SD = 10.28$ ); children ranged in age from 1-18 years ( $M = 6.51$ ,  $SD = 4.95$ ). Overall, parental accommodations ( $r(220) = 0.153$ ,  $p < 0.05$ ) and worry ( $r(220) = 0.155$ ,  $p < 0.05$ ) were related to frequency of sickness in children. Parent age was significantly associated with frequency of sickness in children ( $r(220) = 0.255$ ,  $p < 0.001$ ) and positive functioning during sickness ( $r(220) = 0.257$ ,  $p < 0.001$ ).

**Discussion:** Although parent variables have been examined in chronic illness and pain populations, these findings suggest the importance of parent behaviors in everyday childhood sickness as well. Parent accommodations may be a target for children's health behavior more globally.

Sickness, in some form, is inevitable for all children. Many children become sick with a variety of ailments, including ear infections, colds, the flu, pinkeye, sore throats/strep, and headaches. In general, however, chronic sickness is not an issue for most children. In 2010, only 15%-18% of children in the U.S. had a chronic illness of some type [1]. Despite this, data from the

National Health Institute Survey indicated that out of a sample of 74,626 children, 55,564 children visit a health care professional every 6 months for various general sickness conditions, and 10,000 of these children were reported as missing 6-11 or more days of school in a 12-month period [1]. Given that some children have higher rates of general sickness conditions and given the fact that sickness can be problematic across many areas of their lives, it is important to examine various parental and child variables that may be related to increased sickness in children.

Sickness is defined as the state of being ill or having a disordered and weakened condition [2]. For the purpose of this study, sickness will refer to common childhood illness, such as ear infections, headaches, stomach illnesses, colds, influenza, and strep throat. Sickness behavior refers to those behaviors that individuals engage in when they believe they are ill. Illness behaviors are active processes that involve interpreting, evaluating responses, and deciding how to alleviate or ignore the symptoms [3]. Sickness behaviors are considered appropriate for those perceived as being ill and is comprised of regulatory features that control the unexpected behavior of illness [4].

However, these sickness behaviors become part of a sick role for children. Overall, the sick role includes components of escape (social responsibility and self-blame) and reinforcement [4,5]. Generally, it is the social community that determines whether one can consider themselves ill [3]. If accepted, the sick role becomes very naturally reinforcing by allow children to



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be excused from normal activities and receive attention [4,5]. Since the deciding social community for children is mainly comprised of parents, it is likely that parental attitudes towards the child's development of the sick role matter significantly.

The influence parent's actions have on their sick child has been well studied in diagnosed chronically ill populations (e.g. cancer, diabetes, asthma) [6-8]. However, there are limited studies regarding the effects parental behaviors have on children's level of functioning and frequency of sickness behaviors. Of the few studies conducted, results have shown that parental response is associated with more pain reactivity and somatization behaviors [9]. Thus, the explanation for these results may be related to parental reactions. Meaning, parental reactions to general sicknesses behaviors could have an effect on frequency of sickness for the child, as well as the level of functioning during sickness. However, it also may be that children who get sick more often may have who react differently than those children who have less sickness.

One parental reaction that may increase frequency of sickness is accommodations. Even though this concept has not been studied in the general sickness literature, it seems important, as it has been linked to symptom severity in other disorders. For example, it has been studied thoroughly in the OCD (Obsessive-Compulsive Disorder) literature, finding that more parental accommodations were associated with higher severity of symptoms [10-14]. Given these results, greater research examining how family accommodations affect frequency of general sickness is needed.

Beyond parental accommodations, internalized parent behaviors also may be related to sickness behaviors in children. In fact, several studies have found that parental worry and stress have been shown to increase the number of somatic complaints in children and reduces children's ability to deal with common childhood aches [15-18]. Further, attachment has shown to have an effect of the development and maintenance of certain chronic conditions in children [19,20]. More specifically, secure attachment to parents is associated with lower levels of pain severity and pain catastrophizing, as well as anxiety and depression [21-23]. Given these findings, it is likely that high stress and worry in parents and parental attachment could cause an increase in sickness behaviors in children.

Outside of the reactions by parents, child variables also may be related to sick behaviors. These variables might include temperament, externalizing behaviors, and internalizing behaviors. Like parent behaviors, these child variables have not been well researched in regard to development and maintenance of a general sickness condition, even though several of these variables have been studied chronically ill and chronic pain populations [24,25]. Overall, some of these variables (positive atti-

tude, temperamental regularity, and adaptability) have been associated with better coping better functioning, [26-28] while other variable (anger defiance, depression, and anxiety) have been associated with negative health outcomes [29-35]. This, it is important to examine how these factors and temperamental styles relate to children with general sickness conditions.

The present study examines parental and child factors across common childhood illness. Overall, it is predicted that parental and child variables will be associated with frequency of sickness and lower functioning during sickness in children.

## Methods

### Procedure

Online administration of the survey was conducted through the secure website at [www.surveymonkey.com](http://www.surveymonkey.com). The survey contained various predictor variables including demographic information, parental worry, attachment, parental accommodations and child behaviors. The survey also contained two outcome variables related to the child, including frequency of sickness and functioning during sickness.

Participants were recruited in three ways. First, the study was advertised on websites (i.e., Craigslist, Yahoo answers, Google, Facebook, parenting forums). Second, participants were recruited using "snowball" emailing methods, which are asking contacts to complete the survey and email the research opportunity to their contacts. For this portion, emails were sent to people in the community who have children. These people then forwarded it to others they knew with children. Third, parents at small southern university were recruited through the participant pool. For all types of recruitment, a link to the survey was provided so potential participants could access the survey website.

After accessing the website, participants were presented with the informed consent form. After reading it, they were asked to click on a button acknowledging that they read and understood the consent form and therefore agreed to participate. If the participant agreed to participate, they completed the questionnaire. If they did not agree to participate, the study ended. Once consent was received, participants completed the remainder of the questionnaire. The study took about 30 minutes to complete. In the consent form and instructions, parents were told we were interested in frequency of sickness and functioning during sickness. Parents were also told to complete the survey on one child. If they have more than one child, they were told to complete the survey thinking of the child that was sick the most often. During the study, each illness and symptom was named. Near the end of the survey, participants were then asked again to indicate their child's age, so they could be directed to age-specific CBCL.

Upon completion, participants were directed to a

separate website where they could leave their contact information, so extra credit could be assigned (students) or where they could be entered to win a cash prize. The website was completely separate so their names were not associated with their answers on the survey.

It should be noted that all procedures were approved by the Institutional Review Board of the University. Further, all measures were approved by the IRB and they included several predictor variables and two outcome variables.

### Predictor variables

**Demographic Information:** Participants provided information pertaining to their own and their child's race/ethnicity, age, and gender. It should be noted that race was dichotomized (due to low numbers of ethnic diversity) into white and other.

**Accommodations:** Family Accommodations Scale-Parent Report (FAS-PR) [36] is a 12-item parent-report measure designed to assess accommodation of a child's OCD-related behaviors over the previous month. Items are measured on a 5-point likert scale ranging from 0 (never) to 4 (always), with higher scores indicating greater parental accommodation. The FAS-PR has an internal consistency  $\alpha = 0.94$  and a test-retest reliability of  $r = 0.41$ . The researcher adapted this measure to assess accommodations pertaining to child's sickness and sickness behaviors, as no such measure is currently available. This scale has preliminary psychometrics [37].

**Parental worry:** Penn State Worry Questionnaire (PSWQ) [38] is a 16-item questionnaire used to measure worry in individuals. Participants rate each statement on a scale of 1 (not typical of me) to 5 (very typical of me). Scores are calculated as the sum of respective items. Higher scores indicating more worry. The PSWQ has an internal consistency of  $\alpha = 0.90$  and test-retest reliability at  $r = 0.67$ .

**Attachment:** Measure of Attachment Qualities (MAQ) [39] measures adult attachment patterns. It has separate scales to assess secure attachment tendencies and avoidant tendencies, and two scales reflecting aspects of the anxious-ambivalent pattern. The participant responds to each statement using a four-point likert scale (1 = disagree a lot to 4 = agree a lot). Scale scores above the midpoint (2.5) suggest the participant agrees more with the items on the scale; scores below the midpoint suggest the participant disagrees. The MAQ has an internal consistency of  $\alpha = 0.85$  and test-retest reliability at  $r = 0.73$  [39].

**Child internalizing and externalizing behaviors:** Child Behavior Checklist (CBCL) [40] is a 118-item instrument that describes specific behavioral and emotional problems. Parents rate the child on how true each item is now or within the past 6 months using the following scale: 0 = not true (as far as you know); 1 = somewhat or sometimes true; 2 = very true or often true. Two ver-

sions of this measure exist (1.5 to 5 years of age 6-18 year of age). There are several subscales on each version. In this study, when the data was converted to T-scores, all participants fell within the normal ranges. Because of this, the data is reported in means. The CBCL has an internal consistency of  $\alpha = 0.80$  and test-retest reliability at  $r = 0.70$ .

**Child temperament:** EAS Temperament Scale [41] assesses temperament in children. This instrument has a total of 20 questions, with 4 items corresponding to each of the 5 temperament subscales (sociability, activity, emotionality fearfulness, emotionality distress, and emotionality anger). Each item is rated on a 5-point likert scale ranging from 1 (not characteristic of the child) to 5 (very characteristic of the child). Higher scores demonstrate higher levels of that temperament style for each subscale. The EAS Temperament Scale has an internal consistency of  $\alpha = 0.78$  and test-retest reliability at  $r = 0.60$ .

### Outcome variables

**Frequency of sickness:** Frequency was measured by how often the child is sick with each sickness and how many total times they were sick in the past year. Parents selected from a drop-down menu how many times the child has been sick with each condition, 0-100 times, in the past year. From those scores, a total number of times a child was sick was calculated.

**Level of functioning:** Level of functioning during the sicknesses was measured using questions examining what the child does across 18 domains of activity (e.g., homework, chores, going to school) when sick. Activities were scored on a 5-point likert scale ranging from 0 (never) to 4 (always). A total functioning score was calculated by summing the items. The internal consistency of this measure overall in our study was good ( $\alpha = 0.89$ ).

## Study Design & Statistics

The primary aim of this study was to understand what parental and child variables were associated with the reported frequency of sickness behaviors, and a secondary outcome was to examine the variables associated with the level of functioning by the child during sickness. These aims were investigated using a survey of parents, and then using t-test and correlations to analyze the association between the predictor variables and the outcome variables (frequency of and sickness and functioning level). Although this type of study design does not lend itself to the interpretation of causal relationships. Given this study is one of the first studies to try to examine this behavior, this study design allows for a preliminary examination of the variables that might be important in understand sickness behaviors in children.

## Results

### Participants

Participants (N = 220) ranged in age from 18-65 years

**Table 1:** Means for parental and child variables (N = 220).

Standardized Measures	Means	SD
FAS-PR	36.85	7.39
PSWQ	51.2	14.28
ECR-Short Form		
Attachment/Avoidant	13.73	6.31
Attachment/Anxious	20.12	6.39
MAQ		
Security	3.46	0.53
Avoidance	1.85	0.62
Ambivalent/Worry	1.78	0.71
Ambivalent/Merger	1.7	0.64
Primary Exposures		
Control	18.76	3.22
Warmth	26.32	3.95
Irritability	9.87	2.59
EAS-Temperament		
Sociability	15.13	3.26
Activity	12.46	3.48
Emotionality		
Distress	9.83	4
Fearfulness	7.22	2.68
Anger	11.63	3.52
Outcome Measures		
Frequency of Sickness	30.68	43.73
Functioning	49.95	12.1

**Table 2:** Scores on CBCL.

	1.5-5 years age		6-18 years of age	
	Mean	SD	Mean	SD
<b>Internalizing</b>				
Emotionally Reactive	2.27	2.58		
Anxious/Depressed	2.23	2.54	3.97	3.46
Somatic Complaints	3.15	2.49	2.2	2.39
Withdrawn	1.15	2.04	1.34	2.31
Social Problems			2.29	3.25
Thought Problems			5.95	2.61
Internalizing Total	9.29	8.19	7.59	7.04
<b>Externalizing</b>				
Sleep Problems	3.69	3.07		
Attention Problems	2.42	1.96	4.14	4.25
Aggressive Behavior	10.33	7.13	4.62	5.64
Rule-Breaking Behavior			5.19	3.68
Externalizing Total	12.75	8.46	9.86	8.88
Other Problems Total	9.99	7.36	15.22	10.87
CBCL Total	35.72	23.82	32.9	24.03

old ( $M = 34.49$ ,  $SD = 10.28$ ). Almost all (96.4%) participants were female. With regard to ethnicity, 81.8% were Caucasian, 11.3% were Hispanic, 2.3% African American, and 4.6% other (Native American, Pacific Islander, Asian). Parents reported almost equally on female children (50.6%) and male children (49.4%). The children used for this study ranged in age from 1-18 years ( $M = 6.51$ ,  $SD = 4.95$ ).

### Descriptive data

The mean data for all of the standardized measures, except for the CBCL, for the study population is presented in Table 1. Data for the CBCL, age 1.5-5 years, is presented in Table 2, data for the CBCL, ages 6-18 years, is

**Table 3:** Correlations between outcome and predictor variables (N = 220).

Measure	Frequency	Functioning
Accommodations (FASPR)	0.153*	- 0.063
Parental Worry (PSWQ)	0.155*	- 0.03
Attachment (MAQ)		
Security	- 0.109	0.146*
Avoidance	0.125*	- 0.126
AmbivWorry	0.113	- 0.044
AmbivMerger	0.089	- 0.081
Temperament (EAS)		
Activity	0.134*	- 0.017
Sociability	0.014	- 0.042
EmotDistress	0.108	0.004
EmotFearful	0.093	0.072
EmotAnger	0.103	- 0.05

\*Significant at the 0.05 level; \*\*Significant at the 0.01 level.

presented in Table 3. The CBCL examines T-scores on a range from normal to clinically significant levels. All participants in the current population fell within normal ranges.

The mean for frequency of sickness and function scores are reported in Table 1. It should also be noted all children were reported sick at least 10 times or more per year. The top 5 most frequent sicknesses included headache, stomachache, ear infection, the common cold, and diarrhea. However, it should be noted that the majority (96.8%) fell in the low range, indicating "low" overall functioning in children when sick. The top 5 activities affected by sickness included going to school, homework, chores, sports and extra-curricular activities.

### Variables associated with frequency and functioning for sickness

**Demographics:** Overall, age was related to frequency of sickness and functioning level of children when sick. Older parents had children with higher rates of sickness ( $r(220) = 0.255$ ,  $p < 0.001$ ) and higher rates of functioning during sickness ( $r(220) = 0.257$ ,  $p < 0.001$ ). Age of the child was not related to frequency of sickness, but it was related to level of functioning during sickness ( $r(220) = 0.437$ ,  $p < 0.001$ ). Younger children had lower functioning during sickness than older children. Due to the low number of male participants ( $n = 7$ ), gender was not run. The remaining demographic variables (gender of child, race/ethnicity) were not significant with regard to frequency of sickness and functioning during sickness.

**Parental behaviors:** Overall, several parental behaviors were associated with the frequency of sickness and functioning level when sick. See Table 3 for the correlations between parental behaviors and sickness behaviors. In summary, as accommodations increased, the frequency of sickness in children also increased and child's overall level of functioning decreased. Further, parental worry was associated with frequency of sickness, but



not functioning. Overall, as parental worry increased, the child's frequency of sickness increased. With regard to attachment, parents with higher scores on the secure attachment subscale had children with higher levels of functioning during sickness. On the other hand, parents with higher scores on the avoidance-attachment subscales have children with lower levels of functioning during sickness.

**Child's variables:** Overall, only some parts on the child's temperament were related to frequency of sickness. More specifically, of the five EAS subscales (sociability, activity, emotionality fearfulness, emotionality distress, and emotionality anger) only activity was related to frequency of sickness. Children who exhibit high activity levels in the activity temperament reported higher rates of sickness. Given one study [9] combined the three emotionality subscales (Overall Emotionality), those scales were also combined in this study. When that was done, Overall Emotionality was significant. More specifically, the higher the score on this emotional subscale, the higher the reported frequency of sickness.

**Child's internalizing and externalizing behaviors:** With regard to the CBCL for 1.5-5 year-olds, frequency of sickness was not significant with any subscales on the CBCL. When examining functioning during sickness, several subscales were associated with functioning. The emotionally reactive subscale was significant with regard to functioning,  $r(61) = -0.242, p < 0.05$ , indicating that children who were more emotionally reactive had lower levels of functioning during sickness. Sleep problems also were significant with regard to functioning,  $r(61) = -0.297, p < 0.05$ , indicating higher rates of sleep problems were associated with lower levels of functioning. Aggressive behavior was positively correlated to functioning during sickness,  $r(61) = 0.264, p < 0.05$ , indicating that higher levels of aggression were reported with higher levels of functioning during sickness.

When examining the CBCL for children 6-18 years of age, several subscales mattered with regard to frequency of sickness and functioning during sickness. Somatic complaints were significant with regard to frequency of sickness,  $r(99) = 0.359, p < 0.001$ . This relationship shows that as somatic complaints increased in children, so did frequency of sickness. The withdrawn/depressed subscale was significantly correlated with functioning,  $r(99) = -0.292, p < 0.001$ , meaning higher levels of withdrawn/depressed symptoms in children leads to lower functioning when sick.

## Discussion

The present study aimed to examine how specific parental and child factors affected common illnesses in children. Specifically, this study examined how parental variables (accommodations, attachment, stress and worry) and child variables (temperament, externalizing behaviors, and internalizing behaviors) affect the fre-

quency of sickness and functioning during sickness in children.

Overall, it appears parents play a major role in frequency of sickness, as well as functioning during sickness in children. When examining the demographic variables of parent, age was related to both frequency and functioning during sickness was age. As the current study did not put parents in "age groups", understanding the results may be important to define the difference of older parents (not a defined number but "as parent age") to younger parents. Thus, it may be that older parents are more cautious and attentive with their children, which reinforces the sickness behaviors and complaints for that child. However, older parents also had children with higher levels of functioning during sickness. Even though older parents might be giving increased amounts of attention to their children during sickness, they might be less likely to allow their children to miss school or be omitted from household duties, causing these children to have higher rates of functioning during sickness when compared to children of younger parents. Given these results, if older parents are more likely to engage in these attention giving behaviors when children are sick, pediatricians should be aware of this fact and educate parents on the detrimental effects of these behaviors, while continuing reinforce increased functioning when the child is sick.

Outside of demographics, parents who were more accommodating to their children when sick had children with higher rates of sickness and less functioning when sick. This is given results have been found in other disorders (OCD). Soothing a child's discomfort or anxiety has been shown to lead to more severe symptoms [10-14]. Thus, when children are experiencing symptoms that are severe, parents often feel like they comfort their child and do whatever they can to help their children function (i.e., get them dressed, feed them, allow them to stay home from school often). Given these results, it is likely that accommodations are made up of both negative (escape/avoidance) and positive reinforcement (attention). Thus, this information could also provide direction when discussing these concepts with parents. Perhaps, instead of telling parents to discourage these behaviors (i.e., telling their children to stop "playing into the sick role" or punish a child for their sick role behaviors), it might better have received if one can explain that accommodating a child during these complaints is causing the sick behaviors to increase in frequency and severity.

Another parental variable that was related to frequency of sickness in children was level of parental worry. It may be that the more parents worry in general, the more they attend to each physical symptom or complaint from their child [19,42]. It may be that the extra attention is reinforcing the symptom or complaint in that child, causing it to occur more frequently.

Further, worrisome parents may allow their children to stay home, thus reinforcing the behavior or allowing the child just to have attention and escape for complaining of a sickness. Unfortunately, like accommodations, this behavior reinforces the sickness complaint in children and increases the likelihood that they will use sickness complaints in the future [10-14]. Last, given that anxious people have higher rates of sickness in general [18], it may be that anxious parents model more sickness behaviors for their children. This modeling could manifest in two ways, including modeling through verbal behaviors (parents saying "I am sick") or modeling via verbal and direct behaviors (i.e., not function by not going to work or doing chores [18]). Given these relationships between sickness and parental anxiety and worry, it is important to educate parents on the effects their anxiety can have on their children's behaviors and encourage them to model these responses differently. Also, it is important to intervene with parents whose children have high rates of sickness and absenteeism.

Parental attachment styles were shown to be important with regard to children's functioning during sickness. More specifically, parents with higher scores on the avoidance-attachment subscales had children with lower levels of functioning during sickness. In this case, it appears that a lack of attachment and sense of security creates decreased levels of functioning. Perhaps, when parents avoid responding, children need to find a way to get attention. One way to get this attention in a socially acceptable way is through sickness [4]. Therefore, a child may resort to sickness behaviors because they do not get attention in any other ways. Even though attachment to the child is often developed as the child ages, it may be important to encourage parents to make changes in their overall parenting style, as a way to intervene early.

With regard to child variables, activity was the only temperament subscale that was related to frequency of sickness. It may be that children with high activity levels are reporting more sickness symptoms and complaints due to constantly moving, thus causing them to be exhausted. However, it may also be that children who are more active have more accidents. Since the current study did not differentiate sickness from physical injury, perhaps this result is driven by the accident-based sickness, which research shows is more common in active children [43]. Thus, even though this study could not distinguish this difference, these types of issues were not directly queried in the measure, and all children did not have chronic illness (which the parents reported at the onset of the study). Interestingly, temperament was not related to functioning during sickness. It is likely that this is due to the way functioning was assessed in the present study, or that functioning in general does not matter. Perhaps finding a better way to measure functioning might allow for clarification of the role functioning has on sickness in children.

Several internalizing and externalizing behavior problems were related to functioning during sickness in younger children. Overall, those children who were more emotionally reactive had more sickness and lower levels of functioning during sickness. These results are supported by previous research on level of functioning in children who have emotional regulation issues (depression, anxiety, emotionality) [44,45]. Suggesting that depression and other psychological complaints (e.g., anxiety) could be negatively affecting children and manifesting through sickness complaints. It might be that children who are high in emotional reactivity are less able to regulate their emotions when sick, thus making them unable to perform tasks they would normally do. These results could provide important screening tools for pediatricians to use when a child is frequently presenting with complaints of sickness without apparent organic cause. Examination into the psychological factors could shed light onto the possible causes of the complaints, thus providing behavioral interventions that could decrease the complaints.

Even given these new and interesting results, it is important to note that this study is not without its limitations. First, the measure of functioning during sickness needs to be greatly improved. The measure developed for this study examined functioning across a wide domain (e.g., chores, getting dressed, going to school, participating in sports, playing with friends). To get a stronger measure of functioning during sickness, it will be important to focus on functioning as it relates to school and academic performance, as those are major areas of concern when children are sick. Next, it should be noted that the majority of parents who responded were female. This difference may be related to a gender bias of who completes survey, which is consistent with other studies. Further, this difference may be related to who "deals" with the child when they are sick. Overall, women are still the primary caretakers when child are ill. Even though this may be reflective of the norms, a lack of male participants mostly likely biases the data. It is logical to assume that fathers and mothers engage in different behaviors in response to their child being sick; thus, with male data, this study was unable to capture and examine this gender difference. Also, the survey used in this study was completed online. While this method was easy to administer to a large population at once, it was only available to those participants who had access to a computer and the Internet, which limits accessibility to the survey overall. Further, most participants were recruited through snowball emailing methods or through various parenting pages on Facebook, which probably resulted in a bias sample and limited the generalizability of the results. Last, one of the outcome measures was accommodations. This is a new measure in this area of study; it has only been frequently studied in the OCD literature. Given the newness of the measure, caution should be made when using it as an

outcome measure, given the limited use in this population and limited psychometric studies on the measure.

Even given these limitations, this study is important in the initial understanding of general sicknesses in children as well as behaviors that may cause these sicknesses to occur more frequently. Overall, it appears parents play a major role in frequency of sickness, as well as functioning during sickness in children. Further, this study is one of the first to examine accommodations with regard to childhood sickness, and these results indicate that accommodations might be more important than previously thought. While this study is preliminary, the results provide useful direction for mental and medical health care professionals when consulting with parents about the effects of their externalized and internalized behavior, especially for those whose children are frequently complaining of general sickness conditions.

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## Ethical Statement

All procedures were approved by the University's Institutional Review Board, and all of those approved procedures were followed.

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