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ADVANCES IN PEDIATRIC RESEARCH

Does obesity among youth with chronic pain affect the way parents perceive their children's pain?

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Abstract

Background: Overweight and obese youth are at an increased risk for chronic pain. The objective of the present study was to investigate whether parental perceptions of youth pain complaints are influenced by youth weight status or the provision of a medical diagnosis for the pain problem.

Methods: Using an analogue model, participants (N=272 parents) read a randomly assigned vignette and completed a 26-item questionnaire. Vignettes varied according to a 2 X 2 design (weight status: obese versus normal weight; medical diagnosis: presence versus absence). A two-group between-subjects multivariate analysis of variance (MANOVA) was conducted.

Results: There was a statistically significant main effect for weight status (F (2, 230) = 5.840, p<0.05). The effect of weight status was significant for Likelihood of Treatment Benefit (F (1, 231) = 10.186, p<0.05), but not Seriousness (F (1, 231) = 0.885, p>0.05). Providing a medical diagnosis for the pain problem did not affect parents' perceptions.

Conclusions: Results suggest that obesity strongly influences parents' perceptions of youth pain reports. Parents of youth with chronic pain may perceive their children's pain as more modifiable as a function of their child's obesity. The current findings are an impetus to examine factors that may positively influence perceptions of pain legitimacy and attitudes toward the child.

Citation: Jastrowski Mano KE, Bergmann K, Corvan J, Weisman SJ, Davies WH, Hainsworth KR (2015) Does obesity among youth with chronic pain affect the way parents perceive their children's pain? Adv Pediatr Res 2:20. doi:10.12715/apr.2015.2.20

Received: February 15, 2015; Accepted: May 12, 2015; Published: August 28, 2015

Competing interests: The authors have declared that no competing interests exist.

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Introduction

The decision to seek treatment for a child's – particularly a young child's – pain condition rests on the shoulders of parents. Once treatment is initiated, parent involvement in acute, recurrent, and chronic pain management is critical to the child's response to treatment [1, 2]. Beyond parent involvement, child characteristics (e.g. developmental maturity, gender) may affect how parents and clinicians perceive childhood pain and pain severity. For example, parents, pediatricians and nurses have been found to attribute greater pain severity to older children [3]. Thus, the transactional environment in which children are diagnosed and treated for pain is a critical area of clinical research.

Parents' perceptions of their children's pain

The importance of understanding parents' beliefs about, and attributions to, pain is highlighted by the fact that such beliefs affect parents' reactions to, and treatment of, children in pain. For example, rather than viewing chronic pain from a biopsychosocial perspective, a significant number of parents believe that their child's chronic pain is solely biologically based. Framing a chronic pain problem in purely biomedical terms has been linked with greater functional disability in adolescents [4] and may contribute to ineffective problem solving efforts and a high demand for medical services [5]. Walker and colleagues [6] found that mothers and fathers were more likely to excuse children's misbehavior when their pain had a known medical explanation. Compared to other conditions (e.g. depression, pain without an identified medical basis), when the pain had a medical explanation, parents tended to respond "…with less anger, disappointment, blame, and punishment (p. 329)." Taken together, these and other studies [7] suggest that in the context of chronic illness, perceptions may be mitigated by the provision of information pointing to an organic basis for a medical condition. These studies provide valuable insight into the relationship between parents' perceptions of the underlying cause(s) of a child's pain problem and parents' behaviors toward the child. However, they are limited in their ability to inform providers on two important relationships – the effect of youth weight status on parental perceptions of pain, and whether the provision of a medical diagnosis (i.e. providing an organic explanation) for a pain problem influences parental perceptions if the child experiencing pain is also overweight.

Concurrent pain and obesity in children

There is growing evidence that pain and obesity are concurrent in children and adolescents. Compared to children in the healthy weight category, overweight youth are more likely to report musculoskeletal pain, headaches, abdominal pain and widespread chronic pain [8–12]. Furthermore, youth experiencing chronic pain may, over time, be at greater risk for developing weight problems given that they exhibit a high degree of activity restriction [13]; and weight status may contribute to activity limitations among children and adolescents with chronic pain [14].

In addition to experiencing poorer health outcomes and quality of life [15–18], obese youth are at heightened risk for various psychosocial complications, including stigmas related to negative weight-related perceptions [19–21]. Previous research has found that providing a medical explanation for obesity may positively affect children's judgments about an obese peer's culpability for being obese; however, doing so does not tend to change children's negative attitudes toward the obese peer in terms of likability [19, 22] or behavioral intentions [23]. Given the pervasiveness of weight-based stereotypes and discrimination [21, 24–26] it is perhaps not surprising that parents hold negative attitudes toward pediatric obesity, including attitudes about their own child's weight [27–29]. Parents' perceptions of their child's weight status may influence their caregiving behaviors, and in the case of concurrent obesity and pain, the likelihood of pursuing treatment for their child's pain.

Objectives of the present study

Given the potential ramifications of parental attributions to pain, an important question is whether weight status influences pain attributions in parents and other caregivers. In the context of youth with concurrent pain and weight problems, it is unknown whether parents view these problems as symbiotic, or whether the child's weight status has even been considered if seeking treatment for only the pain. Based on well-documented biases toward obesity, it is possible that parents' views of the presenting pain problem may be impacted by the presence of comorbid weight concerns, which has far-reaching public health implications [25]. Despite the important influence of parents' perceptions of children's presenting pain complaints, no pediatric pain research has examined the role of parental biases toward obese children with pain. Therefore, the purpose of the present study was to examine parental perceptions of youth pain complaints, with a specific emphasis on whether parental attitudes vary based on the weight status of the child, and/or on whether a medical diagnosis was given for the pain problem.

Methods

Overview

To the best of our knowledge, no empirical research investigating parent perceptions of chronic pain in the context of pediatric overweight has been published. Thus, an analogue approach was taken, which is well suited for the purpose of this study because it increases control by reducing the number of confounding variables that exist in naturalistic settings [30]. Data for this study were collected through an online survey developed by the authors to evaluate the effects of weight status and the provision of a medical diagnosis for a pain problem on parents' perceptions of a child exhibiting chronic pain symptoms. Parents were asked to read one of four randomly distributed vignettes and completed a 26-item questionnaire. The study received Institutional Review Board approval.

Participants

Undergraduate and graduate students, who were enrolled in an advanced child health psychology course, identified the participants (N=272 parents). Blind to study hypotheses, the students were required to identify six individuals willing to participate in the study. Participants were eligible if they were parents of at least one child. Parents were predominately female (57.6%) and Caucasian (88.8%) ranging in age from 17 to 61 years (M=44.5 years).

Vignette and questionnaire development

A vignette was developed based on pediatric headache; this was chosen as the focus of the vignette because it is among the most frequently reported chronic pediatric pain conditions presenting in medical settings [30]. Moreover, overweight and obese youth have been found to be at increased risk for headaches [31]. Three pediatric psychologists and a physician with extensive professional experience related to pediatric pain and obesity developed the vignette and questionnaire items. To further evaluate the accuracy and appropriateness of the items, study materials were presented to two additional physicians with expertise in pediatric pain management, as well as to a third pediatric psychologist, a clinical nurse specialist, a pediatric advanced practice nurse, and psychology doctoral students with expertise in pain management.

Materials and procedures

Participants were directed to an online survey to facilitate data collection. The first page of the online survey consisted of questions pertaining to demographic information. Each participant then read one of four vignettes created specifically for this study. All versions of the vignette described a 13-year-old adolescent ("Tammy") who was experiencing headaches. Vignettes varied according to a 2 X 2 design (weight status: obese versus normal weight; medical diagnosis: presence versus absence). The vignette is presented in Fig. 1 with alternate items stated in square brackets.

> Tammy is a 13-year-old seventh grader. She works hard in school and usually keeps up with her coursework. Although her health is generally good, she has been having a lot of headaches over the past year. Tammy's parents recently took her to see a doctor. The exam showed that Tammy is considered [obese versus normal weight]. Tammy's history of headache symptoms, and the exam, [led to versus did not lead to] a specific diagnosis for her headache pain. Tammy's doctor has developed a treatment plan for her headache pain that includes medication, increased physical activity, and going to see a counselor or therapist.

Figure 1. Vignette with altered items indicated in square brackets

After reading the vignette, participants were presented 26 questions regarding the adolescent described in the vignette. Items were designed to reflect socially rejecting and accepting attitudes toward the vignette character, as well as to assess the extent to which respondents believed that various treatment modalities would be helpful for the adolescent's headaches. Participants rated how much they agreed or disagreed with each statement (e.g. "I feel pity for Tammy"). The response options ranged from 1 (strongly disagree) to 5 (strongly agree).

Completion of the questionnaire took 15–30 minutes. Informed consent was obtained prior to initiation of

the survey. A paper-and-pencil version was offered for participants who preferred this method or who were unable to access the internet.

Results

In order to reduce the number of items and increase the reliability of the dependent variables, an exploratory factor analysis (EFA) of the 26 items developed for this study was conducted using the correlation matrix, principal axis factoring, and promax rotation. This study's sample size (N=272) exceeded standard recommendations of five to ten cases per measure suggested for factor analysis [32,33].

A three-factor solution provided the clearest extraction, and accounted for 33% of the variance. However, upon examination of item loadings, four items were excluded due to having multiple scale loadings or pattern matrix loadings below 0.35. After re-running the EFA, two factors provided the clearest extraction, and were labeled 'Seriousness', which reflected the degree to which respondents perceived the headaches to be a serious concern and cause of worry (e.g. "I feel sorry for Tammy"); and 'Likelihood of Treatment Benefit', which reflected the degree to which respondents felt the vignette character would participate in and benefit from counseling and physical activity (e.g. "Physical activity will be helpful for Tammy's headaches"). The two factor scores were computed by summing their respective items, or their reversed values if the item had a negative loading. All retained items loaded on only one scale. The internal consistency for both factors was acceptable (Likelihood of Treatment Benefit Cronbach's α =0.78; Seriousness Cronbach's α =0.81) for the subsequent analyses.

A two-group between-subjects multivariate analysis of variance (MANOVA) was conducted on the dependent variables, Seriousness and Likelihood of Treatment Benefit. The results indicated no significant main effect for medical diagnosis provision (F (2, 230) =0.077, p>0.05). There was a significant effect for weight status (F (2, 230) =5.840, p<0.05). Univariate analyses indicated that the effect of weight status was statistically significant for Likelihood of Treatment Benefit (F (1, 231) =10.186, p<0.05) but not for Seriousness (F (1, 231) =0.885, p>0.05). Specifically, the suggested treatments were perceived as being more helpful if the vignette character was obese. Table 1 provides the means, standard deviations, sample sizes, and effect sizes (Cohen's d) for the follow-up univariate analyses.

Table 1. Descriptive statistics comparing the effects of weight status and provision of a medical diagnosis on seriousness and potential benefits with treatment

	Seriousness				Potential benefits with treatment			
Weight status	*M*	*SD*	*n*	*d*	*M*	*SD*	*n*	*d*
Obese	39.4[ns]	4.9	115	0.13	14.02[1]	2.4	115	0.42
Healthy weight	38.7[ns]	6.0	120		13.03[1]	2.3	120	
Diagnosis provided								
No diagnosis	38.9[ns]	5.8	113	–0.05	13.5[ns]	2.4	113	0.01
Diagnosis	39.2[ns]	5.3	122		13.5[ns]	2.4	122	

[1] denotes significant mean differences between the main effects
[ns] represents non-significant differences

Discussion

The primary purpose of this investigation was to explore the impact of youth weight status and the provision of a medical diagnosis for a chronic pain problem on parental perceptions of adolescents reporting pain complaints. Overall, an important predictor of parental attitudes was youth obesity status. Specifically, parents rated treatment recommendations as more likely to be effective for the obese adolescent, than for the adolescent with a healthy weight. Study findings are consistent with those demonstrating a strong influence of obesity status on perceptions of medical conditions [24–26, 34]. However, parents did not rate obese children's pain as less serious. Interestingly, and in contrast to previous research [6, 7], the provision of a medical diagnosis for the pain problem did not impact parents' perceptions of the pain, in terms of seriousness and likelihood of treatment benefit. These results suggest that while parents perceived the headache pain of the obese child to be as "real" as that of the child with a healthy weight, they perceived the obese child's pain to be more modifiable than the headache pain of the child with a healthy weight. Taken together, this pattern of findings implies that parents may have attributed the child's pain to her weight, rather than to her medical diagnosis. If that was the case, these findings are consistent with the widely held view of obesity as a modifiable problem (i.e. that obesity can be reduced by eating less and/or exercising more), which is largely under the personal control of the obese individual [9, 35].

Limitations

This study involved the use of a vignette methodology with a community sample, and thus may not reflect a clinical population or the actual behaviors of parents. We only considered parents' perceptions of youth pain complaints in the context of pediatric headache. Attitudes are suspected to differ based on medical condition as well as child age. It is possible, and indeed likely, that parents of children who experience headaches would have responded differently, and thus this study may not speak to the real concerns and issues that parents dealing with pediatric headache face when presented with other, potentially clinically relevant information. An additional limitation of the present study is that the description of the history and nature of headache symptoms provided in the vignettes was unavoidably abridged and not individualized to each participant. Headache symptoms are complex, and the contributing factors are diverse. Thus, among physicians, there are likely unique explanatory models of pediatric headache. However, reading a comprehensive description of pediatric headache would likely have been burdensome to study participants.

Conclusions

The perceptions of childhood obesity held by parents have wide-ranging implications. Future research should examine whether parents of youth with chronic pain perceive children's pain differently (e.g. as more controllable or responsive to treatment options such as exercise) as a function of their child's obesity status. This also has broader implications for future work addressing the transmission of such biases from parents to children. It will be important for future studies to examine parental weight perceptions, and the parent–child transactions across development that influence the developmental trajectories of those perceptions in their children. Given the stigma associated with obesity alone, it will be important to use the current findings as an impetus to examine factors that may positively influence perceptions of pain legitimacy and attitudes toward the affected individual.

Though beyond the scope of the current study, future work should investigate the degree to which health care settings are an additional source of weight stigma for youth with concurrent pain and overweight [24]. Physicians treating a child for chronic pain may feel uncomfortable discussing weight concerns with families, particularly if the patient's family appears reluctant to discuss weight concerns. Though, to date, research on obese patients' experiences of weight bias in health care have primarily focused on adult samples [24, 36, 37] it seems highly probable that, to some degree, this bias is similarly experienced by overweight pediatric patients. Given the numerous studies finding weight bias and differential treatment of patients who are overweight or obese [24, 26, 38, 39], it seems that one necessary component of the health care provider–family discussion should be

about previous negative experiences, since these may contribute to poorer outcomes and a reluctance to initiate treatment on the part of the child or family. Furthermore, health care provider–family dialogue should also address the family's concerns and treatment expectations, as well as correcting misconceptions about the relationship between weight status and chronic pain.

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