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Views on Exercise: A Grounded Theory Exploration of the Creation of Exercise Perceptions in Hispanic Children With Asthma

Michele Rose Shaw, PhD, RN¹, Janet Katz, PhD, RN¹, Sandra Benavides-Vaello, PhD, RN², Gail Oneal, PhD, RN¹, and Carrie Holliday, PhD, RN¹

¹Washington State University College of Nursing, Spokane, WA, USA

²Montana State University College of Nursing, Missoula, MT, USA

Abstract

Introduction—There is a large prevalence of asthma, particularly among Hispanic children. Although physical activity is a good way to manage asthma, more Hispanic children with asthma lack activity than their healthy classmates. Given this, the purpose of this study was to explore the development of exercise perceptions in Hispanic children with asthma and to further develop an existing explanatory theory.

Method—Grounded theory was the approach for the study. Grounded theory illuminated components of exercise perceptions from participants. Participants included Hispanic children with asthma, their families, and professionals who work with Hispanic children with asthma ($n = 29$).

Results—Findings from this study supported the previously identified grounded theory called *The Process of Creating Perceptions of Exercise*. In addition, two new concepts (*cultural* and *peer influences*) were identified that further explain the category of exercise influences.

Conclusion—The revised theory can be used to assist in developing nursing interventions aimed at increasing exercise participation among Hispanic children with asthma.

Keywords

children's health; chronic disease; culture; qualitative methods

Globally, asthma is the most common chronic condition among children, currently affecting 11.7% (6- to 7-year-olds) to 14.1% (13- to 14-year-old) of children (Mallol et al., 2013). Asthma prevalence rates remain high, currently affecting 8.6% of all children in the United States younger than 17 years old (American Lung Association [ALA], 2014; Centers for Disease Control and Prevention [CDC], 2016a). The burden of asthma is heavy on Hispanic

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Corresponding Author: Michele Rose Shaw, Washington State University College of Nursing, P.O. Box 1495, Spokane, WA 99210-1495, USA. michele_shaw@wsu.edu.

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children (ALA, 2016; U.S. Department of Health & Human Services [USDHHS], 2016, USDHHS, Office of Minority Health, 2016). Depending on country of origin, asthma prevalence among Hispanics varies from 3.4% to 15.7% (ALA, 2016). Hispanic children with asthma have significant risk factors leading to inadequate diagnosis, treatment, and control of the disease. These include the following: (a) poverty, (b) lack of access to quality health care, (c) language and cultural barriers, (d) living environment, and (e) possible genetic influences (ALA, 2016; CDC, 2016a; USDHHS, Office of Minority Health, 2016). Overall these risk factors affect management and severity of asthma among Hispanic children (ALA, 2016; Wright & Newman-Giger, 2010). This vulnerable population is living with many disadvantages affecting their health and quality of life (ALA, 2016). Globally, the World Health Organization (2013) asthma objectives focus on decreasing all vulnerable children's exposure to potential triggers and strategies to improve access to health care. ALA (2016) is encouraging collaboration among multidisciplinary health care providers to address health disparities among Hispanics, with specific recommendations on improving health outcomes for Hispanic children with asthma.

Asthma not only affects the diagnosed child, it also places heavy burdens on parents, school systems, communities, health care providers, and the entire health care system (CDC, 2016b). Asthma severity is linked to many childhood problems affecting quality of life (ALA, 2014; CDC, 2016b; Wright & Newman-Giger, 2010). Children with asthma are often significantly less physically active than their healthy classmates (CDC, 2016b; Groth, Rhee, & Kitman, 2016). Moreover, in the United States, Hispanic children have the highest rates of overweight and obesity (43%), participating less often in physical activity when compared to their non-Hispanic Caucasian classmates (Annesi, Pierce, Bonaparte, Smith, 2009; Centrella-Nigro, 2009; Liu, Probst, Harun, Bennett, Torres, 2009). Although exercise participation should be encouraged among all children with asthma, most diagnosed with the condition continue to report they are unable to fully and successfully participate in physical activity (ALA, 2016; Williams et al., 2010). This is a significant clinical and social problem because involvement in exercise plays a health promoting role among children with asthma by decreasing symptom severity and improving quality of life (Bonsignore et al., 2008; Fanelli, Cabral, Neder, Martins, & Carvalho, 2007; Haines & Danny, 2013).

Asthma if treated appropriately can be well controlled. Current evidence-based treatment includes prescription of exercise for children with asthma (National Heart, Lung, and Blood Institute, 2007). Exercise has the ability to markedly improve the health of children with asthma, making it imperative to learn how Hispanic children perceive exercise in order to increase their levels of activity (Bonsignore et al., 2008; Fanelli et al., 2007; Haines & Danny, 2013; Wright & Newman-Giger, 2010). Perception is an important area for research because understanding how perceptions influence health-related behaviors such as exercise is crucial to the development of successful interventions (Barrett & Randle, 2008; Keats, Culos-Reed, Courneya, & McBride, 2007). There is a critical gap in research on exercise perceptions among Hispanic children with asthma.

Purpose

The purpose of this study was to further examine a previously developed grounded theory called *The Process of Creating Perceptions of Exercise* (Shaw & Davis, 2011) and to explore the exercise perceptions of Hispanic children with asthma. By increasing health care knowledge about predominant concepts of exercise perceptions, interventions may be developed to increase exercise participation among Hispanic children with asthma.

Method

Previous Work and Theoretical Framework

The study was guided by an explanatory grounded theory: The Process of Creating Perceptions of Exercise (Shaw & Davis, 2011). The theory was developed through a grounded theory research study including interviews with school-aged children with asthma, primarily Caucasian, middle class, and urban dwelling. Figure 1 displays the theory and four categories identified from the interview data: (1) perceived benefits, (2) striving for normalcy, (3) asthma's influence, and (4) exercise influences. These categories explained factors influencing the creation of perceptions toward exercise. Exercise perceptions were described as values, beliefs, and thoughts. Exercise perceptions of participants were described as a continuous negative or positive process dependent on various influencers in the life of the school-aged child with asthma. A significant recommendation was to explore and test the theory in ethnically diverse and underserved populations of children with asthma and other individuals who influence the creation of exercise perceptions.

Research Design

This study used a grounded theory approach (Corbin & Strauss, 2015). Grounded theory was used because it allows the researcher to gain rich description of participants' knowledge, views, and understanding of their experiences (Corbin & Strauss, 2015). This approach has the ability to provide an explanatory theory including important components involved in the development of exercise perceptions from the perspective of Hispanic children with asthma, as well as other influencing individuals who interact with this population. For this reason English-speaking professionals who regularly interacted with Hispanic children with asthma were also recruited for participation in the study. Based on study findings and categories and concepts identified in a previous study (Shaw & Davis, 2011), participants for this current study included Hispanic children with asthma, parents of Hispanic children with asthma, and professionals who interact with Hispanic children with asthma.

Participants and Setting

Inclusion criteria included English-speaking Hispanic children, 8 to 14 years of age with a diagnosis of asthma and their English-speaking parents. This specific age-group was selected to reflect the same age-group as in the previous study (Shaw & Davis, 2011). Recruitment occurred throughout Washington State. Recruitment flyers were e-mailed and mailed to health care providers and professionals who had contact with the targeted population. Institutional review board approval was granted through Washington State University.

Procedure

Individual interviews of children, parents, and professionals took place in participants' homes. A focus group interview of mothers of children with asthma was completed in a community center. Each interview lasted approximately 45 to 120 minutes. All interviews were conducted by the primary author. Interviews were recorded for transcription.

Data Collection

Grounded theory described by Corbin and Strauss (2015) includes a variety of data collection methods from a variety of sources. Part of the data collection process included theoretical sampling as new leads emerged. Theoretical sampling involved interviewing new participants and modifying the interview guide to further examine the previous theory and to strengthen emerging categories and concepts. This included expanding the interviews to include adults who were identified by the children as influential in the development of their exercise perceptions. Theoretical sampling continued and included gaining perspectives from an asthma outreach worker, a youth coach, and a focus group of Hispanic mothers who had children with asthma. All data collection focused on further explaining how perceptions of exercise are developed in Hispanic children with asthma.

The initial guide used for the interviews was based on a previous study (Shaw & Davis, 2011, see Table 1). The interview questions for each group (i.e., children, parents or professionals) were then modified to reflect their role. All interviews were intended to solicit participants' viewpoints about the development of exercise perceptions in Hispanic children with asthma. For the children's interview guide questions focused on the individual child (e.g., "Please tell me what you know and have learned about exercising with asthma;" and "Tell me about the people in your life who have taught you things about exercise"). For adult participants, questions were reworded to focus on their thoughts about how Hispanic children with asthma create perceptions of exercise (e.g., "Tell me about the people in your child's life [or in the life of Hispanic children with asthma] who have taught your child [or Hispanic children] things about exercise?").

Data Analysis

Grounded theory data analysis steps included the following: (a) beginning coding, (b) open coding, (c) comparative analysis, (d) theoretical integration, and (e) theory refinement. Data analysis was an iterative process among the research team beginning as soon as interview data were gathered with a focus on deconstructing data in search of predominant categories, concepts, and conceptual relationships (Corbin & Strauss, 2015). The team attempted to avoid bias by identifying and separating personal beliefs and preconceived hypotheses during analysis (Corbin & Strauss, 2015). The four members of the research team independently coded each transcript and then met to compare and contrast categories and concepts. The data in each interview transcript built on the previously analyzed data. The research team met twice per month for 6 months until the finalization of the theory was complete. Trustworthiness and credibility were maintained throughout the study by incorporating Corbin and Strauss's (2015) 10 criteria for rigor.

Results

The study included 29 participants: eight Hispanic children (mean age = 9.4 years) with asthma and their parents (eight mothers and one father), one asthma outreach worker, and one coach from a youth basketball camp participated in individual interviews. In addition, 10 Hispanic mothers who self-identified as having one or more child with asthma participated in a focus group interview. The validity of the previously identified grounded theory, The Process of Creating Perceptions of Exercise (Shaw & Davis, 2011), was confirmed with the study described in this article. In the previous grounded theory study (Shaw and Davis, 2011), in-depth explanations of the originally identified categories and concepts can be found. The four categories and concepts in the previous theory (Figure 1) were all supported throughout the data from this study focusing on Hispanic children with asthma. See Table 2 for examples of supporting quotes from this study that further strengthen the validity of the theory's categories and concepts. In addition, two new concepts were identified from the data to further explain and describe the category of exercise influences. The two newly emergent concepts include *culture* and *peer influences*. These played major roles in shaping the ongoing development of exercise perceptions among Hispanic children, ultimately affecting their exercise behaviors.

Culture Influence

Participants commonly shared examples of how they believed culture influenced exercise perceptions. Similar to peer influence on exercise, culture may influence exercise perceptions in both negative and positive ways. The mothers who participated in the focus group interviews all shared stories of how their community is often extremely protective of their children, particularly of their children with asthma:

The parents of Hispanic children with asthma are more protective with their children than the white parents. Hispanic families won't let their children go to play or do sport for asthma, they take care more of the children by keeping them inside.

Mothers felt passionately about finding creative ways to encourage their children to exercise as they believed they were the main teachers of the importance of participating in exercise. All of the mothers discussed exercise activities that could be done for free and could be enjoyed by the family. One mother stated,

I'm the teacher of the sports to my kids. I go to the park and take balls and bats so everybody has to bat the ball ... and we run and walk around. I teach them to do it (exercise). I'm the teacher of doing exercise.

Participants also shared how their communities enjoy learning in groups and that sometimes families may be hesitant to ask for information or to ask questions of those with power (e.g., health care providers and the health department). When asked about their child exercising with asthma, one mother stated,

And I think in the Hispanic community, in our community, sometimes when the doctors don't provide us information, then we don't look for information. We just let the information come to us. So I think this helped being face to face. As

Hispanics, we don't take the time to get the information, but when we have something like this (focus group), we sit down and talk about the stuff. You know?

Many of the parents were torn between encouraging their child with asthma to exercise versus possibly provoking an asthma attack by having the child exercise. The asthma outreach worker who was also the mother of a child with asthma stated,

As a Hispanic asthma health educator, I know we need to persuade the Hispanic parents to give the medicine and motivate the children with asthma to exercise, because many families don't have that much education and they just don't know children with asthma should exercise.

Peer Influence

All of the child participants shared numerous stories of how peers influenced their views and beliefs about exercise. The children shared specific examples of how their friends would encourage them to continue with the exercise activity, even with their asthma. Sometimes this meant taking a break so the child with asthma could catch his or her breath, or use the inhaler to continue with the activity. A 10-year-old Hispanic girl participant stated,

Like running with my friends—like we'll have a race competition or something. And when I'm running, I'll say, "Okay, let's take a break." and they'll all know that—they'll be like, "Okay, let's take a break. They'll all like stop what they're doing and we'll stay still and like we'll just take a couple breaks and then I'll say, "Okay, I'm ready" and then we'll just start again.

Other child participants shared stories of friends who also had asthma. Peers often gave advice to the children with asthma in terms of how to better control their symptoms related to asthma and exercise. Another 10-year-old, female, participant shared about her peers,

Um, my friends at school ... they—some of them have like a little bit of asthma. And so they kind of tell me that they kind of like jog around their house and it like keeps like their lungs nice and good, and they don't like wheeze as much as they usually do.

Peers showed support by advocating for their friend's well-being if they were having asthma symptoms. Participants often shared stories about how their peers who knew they had asthma would encourage them to take care of it. One 11-year-old boy stated,

Good friends, they'll see me breathing hard and they know that like I'm too shy to say to the teacher. And they'll see that I'm breathing hard and they'll be like, just go take it (inhaler).

On the other hand, peers sometimes played a negative role. One participant was a youth basketball coach at a summer camp. She had worked with thousands of children, including Hispanic children with asthma. Her story was quite powerful in describing how a peer's exercise ability can affect how children view exercise. She stated,

I believe some children with asthma are afraid to start exercising because they may be behind others their age. They may be embarrassed or ashamed that they can't do what other children can do.

Discussion

This study explored the perceptions of exercise among Hispanic children with asthma and their parents to confirm or expand categories from a previous grounded theory. All previously studied categories and concepts were supported while two new concepts emerged in this study of Hispanic children. *Culture* and *peer influences* expanded the theory to explain how children create perceptions about exercise when dealing with asthma.

Culture has been described as a pattern of socially constructed beliefs, values, practices, and norms for a group (Barrera, Castro, Strycker, & Toobert, 2013). Culture therefore influences health behaviors such as disease management and physical activity patterns as determined by social expectations of the group. Overall, participants in this study described how their culture was very protective of their children with asthma. For example, children were often encouraged to exercise indoors or under direct family supervision for parents to keep their children safe. Overprotection can negatively influence exercise participation, and this was demonstrated by the findings. Mothers placed restrictions on certain types of physical activity due to fear of provoking an asthma attack in their child. Dantas et al. (2014) found mothers of children with asthma place restrictions on physical activity because of their anxiety and/or fear of their child becoming sick or short of breath. Several reports have shown that *familismo* and *marianismo* (importance of family and maternal gender roles) as well as the importance of protecting family members are important Hispanic cultural factors that affect levels of exercise and other health behaviors (D'Alonzo, 2012; Montalvo-Stanton, 2011; Pyatak, Florindez, Peters, & Weigensberg, 2014).

Although the Hispanic mothers in the study were very protective of their children with asthma, they took great efforts to encourage their children to exercise in safe and controlled ways. Participants discussed exercising as a family event, and mothers were often in charge of organizing the physical activities. The importance of doing things together has been described as an integral part of the Hispanic culture in several studies (D'Alonzo, 2012; Pyatak et al., 2014). Parents' positive attitudes toward exercise often translate into similar attitudes in their children with chronic conditions (Fereday, MacDougall, Spizzo, Darbyshire, & Schiller, 2009). Family-centered approaches should be considered when working with Hispanic families who have children with asthma. Mothers should be included in the development of programs and interventions aimed at increasing exercise participation for Hispanic children with asthma. The findings in this study demonstrate that the Hispanic culture, including the strong influence of mothers and their health beliefs, is influential in developing exercise perceptions among Hispanic children.

Other studies demonstrate the strong role that peers can play in influencing health behaviors (Fitzgerald, Fitzgerald, & Aherne, 2012; Smith, Troped, McDonough, & Defreese, 2015). The participants in this study commonly identified peers as influences on exercise perceptions and behavior. Peers are described as equals with respect to age or social standing ("Peer," n.d.). Peers may or may not be friends but are usually people within a person's social environment. Regardless, peers at all ages have an influence on many behaviors. Similar to these findings, other studies have described the influencing roles that peers and friends play in physical activity support such as presence, acceptance, and norms (Fitzgerald

et al., 2012; Pyatak et al., 2014; Smith et al., 2015; Williams et al., 2010). Similar behaviors have also been described by Smith et al. (2015) as “peer proximity” in their study investigating how youth perceive the influence of peers and their surrounding neighborhoods on physical activity participation (p. 5). The importance of strong peer connections for Hispanic children with asthma is crucial when planning interventions to encourage active participation in exercise. Further evaluation of peers and how they could be integrated into interventions developed for all children with asthma warrants future research.

Peers also negatively influenced participants by discouraging participation in exercise. These findings are supported by other studies demonstrating that social support, approval, and social context are important to getting youth to engage in exercise and that peers can be positive and/or negative influences (Fitzgerald et al., 2012; Salvy, de la Haye, Bowker, & Hermans, 2012; Smith et al., 2015; Williams et al., 2010). The presence of positive peer exercise partners for Hispanic children with asthma is important to improve the likelihood of exercise participation and enjoyment.

The health belief model and the theory of planned behavior are two models (Ajzen, 1991, 2011; Pender, Murdaugh, & Parsons, 2015; Rosenstock, 1960) with similar components that overlap with the results of the study. For example, similar to the health belief model and the theory of planned behavior, the new concepts of culture and peers were found to act as both inhibitors and facilitators in the development of perceptions of exercise in Hispanic children with asthma. The concepts were described as both positively and negatively influencing exercise perceptions and behavior. The psychosocial influences of peers and the cultural environments that surround children with asthma are important areas to consider in the creation of perceptions of exercise and ultimately in the health behavior of the child. Thoughts, beliefs, and feelings toward exercise were described by participants as being affected by peers and culture. Targeting barriers and benefits can help in program development aimed at increased exercise participation among children with asthma.

Limitations

One limitation for this study may be the inclusion criteria recruiting all Hispanic children. Hispanic subpopulations may not share the same beliefs and health practices. Research should consider uniqueness of subcultures and individual patients and family members. Another limitation was the exclusion of Spanish-speaking participants. Including only English-speaking participants narrows the applicability of the findings. On the other hand, the in-depth data provided enough detail for categories and concepts to be thoroughly supported, allowing for theoretical saturation to be met. Research is needed to capture variation in other cultural groups, particularly among non-English-speaking participants.

Conclusion

The findings of this study focusing on Hispanic children with asthma, their parents, and other professionals who interact with this population support the grounded theory, “The Process of Creating Perceptions of Exercise” (Shaw & Davis, 2011). Two newly identified concepts, *culture* and *peers*, help explain and define the category of exercise influences and are important additions in broadening the description of who and what influences exercise

perceptions and behavior of Hispanic children with asthma. Although the two new concepts emerged in this study focusing on Hispanic children with asthma, it is important to note that these concepts are most likely generalizable to other populations of children with asthma. The new concepts strengthen the theory and can also be incorporated into improving health care practice. All children with asthma are likely to experience important cultural and peer influences, and these factors are important for care providers to assess and incorporate in order to provide patient-centered care. Categories and concepts of the updated theory provide areas to focus on when educating and caring for children with asthma. Future intervention studies could be developed using ideas presented in the theory. For example, focusing on incorporation of a peer mentoring program to improve asthma management, and the development of culturally appropriate education based on parent feedback, may improve health outcomes and quality of life for children with asthma and their families. Intervention studies developed with cultural considerations and peer components have the potential to be both feasible and acceptable for children with asthma and other chronic conditions. The development of feasible and acceptable interventions for Hispanic children with asthma should also include important input from Hispanic mothers. Involving children with asthma and their peers in the development phase of interventions to increase participation in exercise would be another way to include culturally specific content and peers. The theory, with the incorporation of the new concepts, can be used as a guide for health care providers to encourage participation in exercise for all children with asthma.

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Figure 1.

The Process of Creating Perceptions of Exercise: Illustration of the grounded theory's main categories and supporting concepts involved with the development of exercise perceptions.

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Table 1

Initial Interview Guide for Children.

1	How do you feel about exercising with your asthma?
a.	Can you share or tell me a story about how you feel and what happens when you exercise?
b.	What do you think about when you know you are going to exercise?
c.	How about when you are actually doing it?
d.	What does it feel like, physically to exercise with asthma?
e.	How about when you watch others exercise, tell me about that.
2	Share with me what you know and have learned about exercising with asthma.
a.	Please tell me about the people in your life who have taught you things about exercise.
b.	What sorts of things have you learned from them? Please share some examples with me.
c.	Are there any other sources or people you can think of that have helped you learn about exercising?
d.	Can you share with me what you believe to be good about exercise?
e.	How about the negative or bad things about exercise?
f.	Is there anything else you would like to share with me?
3	Can you tell me what it's like to live with asthma?
a.	How about during your school day?
b.	Tell me a story about asthma and your normal daily routine.
c.	Are there activities you avoid because of your asthma?
d.	If so, can you tell me more?
e.	Tell me about some of your favorite ways to exercise or be involved in physical activity.
4	What would you like to tell other children with asthma?

Table 2

Selected Supporting Quotes for Categories and Concepts of the Theory: The Process of Creating Perceptions of Exercise (Shaw & Davis, 2011).

Category	Concepts	Participant Quotes
Perceived Benefits of Exercise	<i>Fun</i>	<i>"They (children with asthma) like to play different games ... play running ... horsey, that's how we play inside when it's cold outside."</i>
	<i>Friends</i>	<i>"I enjoy like being able to compete against friends (basketball) and then there are other kids to support me and I can stick with them, and it's not just me, me, me."</i>
	<i>Health</i>	<i>"Exercise opens up your lungs, and they get better."</i>
Asthma's Influence	Symptoms	<i>"It feels like you're doing something and then all of a sudden you're short of breath. And you try to inhale as best as you can, but then it just keeps getting shorter of breath."</i>
	Triggers	<i>"Winter- they don't want to play outside or do some exercise because they run out of air."</i>
	Tolerated Activity Level	<i>"Cause I'm just like pretty much jogging in P.E. class so I don't even have to use my inhaler when we're at P.E."</i>
Exercise Influences	Parental	<i>"Yeah, my dad taught me that taking walks is good for my asthma."</i>
	PE Teachers	<i>"Well, they tell me (PE teachers) to do like a little bit of it and try, and if I feel like I can't do any more, then I can just stop."</i>
	Health Care Providers	<i>"They tell me (doctors) that I need exercise 'cause it like helps my asthma."</i>
Striving for Normalcy	Keeping it Private	<i>"My friends do know, but I don't think the rest of the kids know that I have asthma."</i>
	Planning	<i>"I think about what I had done (type of physical activity) that made me have an asthma attack, so I don't do the same thing again and have that happen again."</i>
	Continuing	<i>"Like every time I would run, um, I would- it'll be hard for me to breathe, but I would try and finish it. And then as soon as I stop, I'll take a long break and try and catch up on my breathing and then I'll start going again."</i>