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Best Strategies for Obesity Prevention in Hispanic Youth Using Family Centered Approaches

by

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PERMISSION

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Abstract

Obesity is an epidemic in the United States (U.S.), affecting all ages, sexes, and racial or ethnic groups. Obesity has disproportionately impacted Hispanics and Hispanic youth have the highest rates when compared to their non-Hispanic ethnicities. To prevent the growing rates of obesity and the negative impacts it can have on an individual, family, and community, healthcare providers and community leaders need to identify the best strategies for obesity prevention among Hispanic youth. The family unit is of high importance in Hispanic cultures. This is where values are shared and accepted, and behaviors are developed and supported. Focusing on the family unit when looking to implement behavioral changes will offer the greatest chance of success and sustainability.

An extensive literature search was conducted to identify the best practices, at the family level, to prevent obesity among Hispanic youth. Currently a limited amount of research has been completed, indicating more research is needed. In the literature available, three common themes were identified for interventions: education, physical activity, and education with physical activity. The results indicated educational interventions have been the most successful in reducing obesity among Hispanic youth while focusing on the family unit. This was evidenced by a reduction in body mass index (BMI) and behavior modifications. Education needs to start early in a child's growth and development and be easily adaptable into their everyday lives. In following these recommendations for best practice, our communities will be healthier places for all to grow and thrive.

Best Strategies for Obesity Prevention in Hispanic Youth

Using Family Centered Approaches

Obesity in the United States (U.S.) is an epidemic that has not spared many in its path of destruction. In 1990, only 15% of the adult population was noted to be obese (Centers for Disease Control and Prevention [CDC], n.d.a). Two decades later this rate had risen to nearly 35%, or more than one third of the adult population (Ogden, Carroll, Kit, & Flegal, 2014). Although for some groups, the obesity rate has remained steady, it has disproportionately affected minority groups. The CDC (n.d.a) reports non-Hispanic Blacks have the highest rates of obesity at 48% followed by Hispanics at 43%, and non-Hispanic Whites at 33%. Perhaps even more troubling is the stronghold obesity has taken on children. "In 2009-2010, the prevalence of obesity was 12.1% among children aged 2 through 5 years, 18.0% among children aged 6 through 11 years, and 18.4% among adolescents aged 12 through 19 years" (Ogden, Carroll, Kit, & Flegal, 2012, p. 485). The disparity for minority groups impacted by obesity is seen in children as well. Again, in 2009-2010, the prevalence of obesity for children was highest for Hispanics at 21.2%, compared to 14% for non-Hispanic Whites (Ogden et al., 2012).

There are many concerns with rising rates of obesity, especially in the cohort of children. First, research has identified a link between childhood and adolescent obesity and a greater likelihood of obesity in adulthood. "The probabilities of a child's obesity persisting into adulthood increase from an estimated 20% at age 4 to 80% in adolescence" (Ramirez, Chalela, Gallion, Green, & Ottoson, 2011, p. 251). In addition, the association of acute and chronic diseases with obesity is a reality. In children, studies have shown that 60% of those obese will have at a complication, and 25% will have two or more complications related to obesity (Hampel & Campbell, 2015). Children with obesity can suffer from a wide range of comorbidities, some

being depression, sleep apnea, asthma, type 2 diabetes, musculoskeletal issues, hypertension, dyslipidemia, precocious puberty, steatohepatitis, and gallstones (Hampl & Campbell, 2015). In addition, obese children are at a greater risk as adults for developing stroke, coronary disease, colon cancer, and gynecological cancers (Hampl & Campbell, 2015). Studies have shown that Hispanic children have a greater prevalence of impaired fasting glucose (risk factor for type 2 diabetes), dyslipidemia, and steatohepatitis when compared to children of other racial or ethnic groups (Caprio et al., 2008). These comorbidities extend into adulthood further decreasing quality of life, productivity, and increasing their chance of an early death.

All of society will be impacted by the negative effects of obesity spanning from childhood to adulthood. The CDC (n.d.a) reported the annual medical costs for obesity in the U.S. in 2008 to be \$147 billion dollars. On average, medical costs were \$1429 more per year for obese individuals than their normal weight counterparts (CDC, n.d.a). This will continue to take a toll on our country as medical costs soar and productivity as a result of debilitating comorbidities plague the workforce. As healthcare professionals, we need to identify the best strategies for obesity prevention and this needs to start with our children as they are the future. This paper will seek to identify the best strategies for preventing obesity in Hispanic youth using family centered approaches.

Purpose

In looking at the best methodology for obesity prevention among Hispanic youth, it is essential to understand the needs of the population and how to best reach this target group in a culturally appropriate manner. To date, there has been limited research looking at Hispanic children and obesity prevention. As a result, many interventions in this target population have been ineffective, leading to continued rises in obesity.

In a study conducted by Salud America!, with the Robert Wood Johnson Foundation (RWJF), researchers looked at how best to reach the targeted Hispanic population with regards to obesity and children. What they found was “family was ranked as the most important research area to prevent and/or reverse the obesity epidemic among Latino children, followed by community, school, society, and individual” (Ramirez et al., 2011, p. 255). Indeed, familismo, or the importance of family, can have significant impacts on interventions for health promotion within the Hispanic population. Family is essential in the Hispanic culture and has been noted to provide the following elements, “perceived obligation to provide family members with material and emotional support, reliance on family members for assistance, and the perception of family members as attitudinal and behavioral referents” (Davila, Reifsnider, & Pecina, 2011, p. 71). Maintaining an overall theme of the need to keep the family well, rather than simply looking at individual based interventions has been seen to be more beneficial in the culture (Davila et al., 2011). In addition, the support Hispanic community members can provide to one another can provide sustainable success for interventions implemented.

After a comprehensive literature search looking at the best practices for obesity prevention interventions in the Hispanic youth population using family centered approaches, recommendations will be made for health care professionals. The end result will be a poster presentation to be able to disseminate among the healthcare professionals working with Hispanic communities.

Significance

Obesity is a devastating public health problem. Despite efforts to intervene, obesity has continued to cause destruction in society, holding no one immune. Obesity doesn't just impact one person, rather it impacts the entire nation. It is a disease with many comorbidities that leads

to higher medical costs and a reduction in productivity. Without proper prevention or successful intervention, mortality may be the end result. Unfortunately, the impact it has had on some populations, namely Hispanic children, has been beyond devastating. Hispanic children appear to be more susceptible to the comorbidities associated with obesity than other ethnic or racial groups. For example, 13% of obese Hispanic youth will develop an impaired fasting glucose (a precursor to type 2 diabetes) compared to 7% of non-Hispanic whites and 4% of non-Hispanic blacks (Caprio et al., 2008). Additionally, Triglycerides are highest in obese Hispanic youth, and steatohepatitis is present in 50% of obese Hispanic youth in comparison to 35% of whites and 10% of blacks (Caprio et al., 2008). This is of concern not only because of the disparity it shows, but because it is impacting a growing population that is soon predicted to represent the second largest ethnic group in the U.S. Furthermore, it is impacting the health and wellbeing of our children, the future leaders of the U.S.

It is critical for many reasons that an effective intervention for obesity prevention among Hispanic youth be identified. As noted previously, obesity in children lends to a greater chance of obesity in adulthood, greater risk of comorbidities, and a negative impact on society due to higher medical costs and reduction in productivity. In addition, the Hispanic population has been projected to continue to grow over the next several years, comprising a large portion of the overall population. It has been predicted the Hispanic population will increase by 115% from 2014 to 2060 (Colby & Ortman, 2015). "By 2060, 29% of the U.S. is projected to be Hispanic – more than one-quarter of the total population" (Colby & Ortman, 2015, p. 9). More specifically, Hispanic children are projected to represent 34% of the child population by 2060 while non-Hispanic whites 36% (Colby & Ortman, 2015).

Research has not yet identified the perfect intervention to impact a nation suffering from obesity and its devastating effects. However, research has identified that childhood obesity is highest among Hispanics, among all ethnic groups (Ogden et al., 2014). This knowledge should be the guiding force on future efforts at prevention and reduction of obesity. Strategies need to address the largest populations impacted in order to have the greatest effect. In addition, more recent research conducted has identified that behavioral intervention at the unit of the family level is most effective among Hispanic populations (Ramirez et al., 2011). Involving families in behavioral interventions for obesity prevention increases the chances of acceptance of the changed behavior, provides the support needed to achieve goals, and results in a greater likelihood of sustainability.

As this study identifies the best strategies for obesity prevention among Hispanic children using family centered approaches, nursing practice will be greatly influenced. Healthcare professionals can refocus their efforts for obesity prevention with this population, using interventions that are culturally appropriate and have been shown to have been effective. As a result of using these best practices, there will be a greater likelihood of successful outcomes, reduction of obesity, and a healthier community. This will improve the health not only for the Hispanic youth, but the community, city, state, and nation as a whole. In addition, the results of this literature review will hopefully allow professionals to gain greater insight into both the disparities and devastation as a result of obesity. The hope is that this will lead to more research being conducted on a population suffering from health disparities, further increasing our understanding and guiding our practice to be more effective.

Theoretical Framework

Several factors were considered when trying to identify a theoretical framework or conceptual basis for this study. The study was looking to identify the best practices for obesity prevention among Hispanic youth using family centered approaches. The family environment has a critical role on the development of youth. Some areas that need to be considered in the family environment when addressing childhood obesity include, activity, food availability and accessibility, parental feeding practices, support, and role modeling (Jang & Whittemore, 2015). However, perhaps an even more important factor to consider are the parental perspectives. That is “parental perspectives related to the management of obesity and health behaviors of children within the family environment” (Jang & Whittemore, 2015, p. 6). Many theoretical frameworks have addressed the previous factors in the family environment to be considered in prevention of obesity, but the first framework to address the parental perspectives was the Family Management Style Framework (FMSF) (Jang & Whittemore, 2015).

As Jang and Whittemore (2015) have stated, the FMSF was a tool developed to help providers in understanding the dynamics of a family who are trying to manage a child’s chronic illness. There are three main components to the FMSF: 1) *definition of the situation*, 2) *management behaviors*, and 3) *perceived consequences*. In looking closer at these components, each has defined dimensions. The component *definition of the situation* consists of four dimensions, child identity, view of the condition, management mindset, and parental mutuality. Child identity is how the parent views the child and how much of the focus is on the chronic health condition or their normalcy (Jang & Whittemore, 2015). View of the condition is the “parental beliefs about the cause, seriousness, predictability, and course of the condition” (Jang & Whittemore, 2015, p. 6). Mindset management is the parental view of the treatment plan and

how they might be able to handle it (Jang & Whittemore, 2015). The last dimension for *definition of the situation* is parental mutuality. This is looking at the two parents viewpoints (both similarities and differences) of the child and the situation, how they see the child, the illness, and how they have each approached the situation (Jang & Whittemore, 2015). The next component of the FMSF, *management of behaviors*, has two dimensions. Parenting philosophy is noting the parental goals, values, and priorities that will guide the management of the condition (Jang & Whittemore, 2015). Management approach, the second dimension, is the parental assessment of how they and the child have adapted the intervention strategies into their everyday routines (Jang & Whittemore, 2015). The final component, *perceived consequence*, also has two dimensions. The first, family focus, is how the parent feels the overall management plan and strategies have been accepted into their family life and how satisfied they are (Jang & Whittemore, 2015). Future expectation is the second dimension and refers to the how the parent views the condition and its possible implications on both the future of the child and the family (Jang & Whittemore, 2015). These three components and their dimensions are all related and can impact one another.

In applying the FMSF to the chronic health condition of obesity among youth, other components should be added to ensure the situation is adequately assessed in anticipation of obtaining the greatest success at a reduction in obesity. One component to look at is the contextual influences. The contextual influences to consider are the family's social network, access to care providers or systems of care, and personal resources (Jang & Whittemore, 2015). The other component to consider in prevention of obesity is the perceived barriers. The perceived barriers will potentially impact all other components in the FMSF (Jang &

Whittemore, 2015). Looking at the perceived barriers of the parents can help assess the ability to effectively help manage the situation and, again, result in better chance of sustainable success.

In applying the FMSF directly to obesity prevention for Hispanic youth, the framework would include the following. First, one would note the contextual influences impacting the entire situation. These would consist of social networks, care providers and systems, resources, socioeconomic status, and cultural influences. For this project the contextual influences might be a lack of social networks, or a social network, within their family that supports poor eating habits and sedentary lifestyles, and lacks access to healthy foods. Hispanic families may lack access to health care providers due to no insurance or their remote locations, possibly a lack of understanding the need for healthcare. Resources also need to be considered. The resources can be financial or those available in the community. Possibly the family lacks the finances to support an active lifestyle in sports or a healthy diet. There may be a lack of awareness of community resources, or given their location, possibly there are no resources nearby. Looking at the cultural norms and beliefs of a racial or ethnic group, in this case Hispanics, can provide a lot of insight into their practices and how best to target behavioral changes that will be accepted into their community. In addition, it is important to note, there are many cultures that exist in the ethnic classification of Hispanics. It would be essential to assess cultural beliefs, practices, and influences for each family on an individual basis.

Next are the components of the FMSF that are impacted by the contextual influences noted above. The *definition of the situation* for this study would be the parent's perceptions of the child's weight and activity. "Parental perception of normal body weight shapes parents' views and how they define their children's weight status. Perception influences parents' beliefs about the cause, seriousness, predictability, and potential course of obesity and parent practices

to manage the child's behavior" (Jang & Whittemore, 2015, p. 8). A lack of insight from parents in the fight against obesity in children could lead to struggles with healthy lifestyle promotion efforts, especially long term. In addition, cultural considerations need to be noted. In some Hispanic cultures, a healthy baby or child is one that is usually overweight or obese. A study conducted with Latina mothers found that they often perceived their child to be a healthy weight when they were actually obese or overweight. The study looked at 143 Mexican-American families and found mothers who had obese children viewed obese children as healthy, whereas mothers of non-obese children did not see obese children as healthy (Lindsay, Sussner, Greaney, & Peterson, 2011). In addition, the perception of a parent's own weight status can impact that of their children. It has been shown that Latino parents were more likely to misperceive their own weight when compared to that of White parents (Jang & Whittemore, 2015, p. 8).

The component of *management behaviors* for this study is looking at parenting styles and behaviors. In the management of obesity, this would address the action plan the parental figures identify in addressing their child's obesity and how health and wellness will be brought into the everyday routines of the family and child (Jang & Whittemore, 2015, p. 8). It would be essential to understand the relationship between the parent and child as well as the emotional components. Is the relationship built on love and acceptance, or is there a lack of trust and respect? The parenting strategies will greatly impact the home environment and ability to provide the necessary support for behavior changes. Even more importantly, understanding the underlying parenting styles and behaviors that may have fostered any unhealthy behaviors impacting the child's weight would help guide interventions. Looking at the family eating patterns could provide valuable insight, for example, regular meal times and eating together. In addition, looking at parents eating habits and physical activity could help in the management of a child's

obesity. Parents serve as role models to their children and their day to day health and wellness behaviors would be essential in addressing a child's obesity.

The component of *perceived consequences*, in the context of childhood obesity, refers to the parent's knowledge about how their child's health may impact both the life of the child and that of the family (Jang & Whittemore, 2015). Parents who have a better understanding of the negative impact obesity can have on a child may be more invested in becoming engaged in strategies to prevent. In addition, if it is perceived the obesity of the child could also disrupt the family, there might be a greater understanding of the need to intervene and a willingness to participate.

The final component is the *perceived barriers*. Again, in the context of childhood obesity, these may be a lack of time and control, established preferences, and/or the physical environment (Jang & Whittemore, 2015). A lack of time may be related to two working parents not finding the time to prepare and cook healthy meals or engage in physical activities as a family. Children establish preferences for foods, routines, and activity early on. Changing these habits, for example, consumption of fast food or convenience food, playing video games, can be challenging to break. In addition, parents need to be present to enforce behavior changes. The physical environment can also impact the health of children. Depending on the neighborhood they live in, they may not have a safe place to engage in outdoor physical activity. One additional component to consider as a barrier would be financial. Without the financial capability to support a healthy diet, those more expensive foods, fresh vegetables and fruit, dairy, lean cuts of meat, do not fit into the budget. Instead, the more economical choices that are high in carbohydrates, fat, and sodium, are chosen.

Although the framework presented does not take into account the perceptions of children, for the purposes of this study, the framework was determined to be appropriate. Parental perceptions and behaviors are essential to understand how things work in the home and how best to target strategies in the home to prevent obesity. In addition, taking into account the cultural components are necessary to gain a greater knowledge of perceptions, behaviors, and what would be culturally appropriate in regards to interventions. As a result of looking at all of these components and their various dimensions, one can be assured the family environment was appropriately assessed. This will in return lead to targeted interventions that will have a greater chance at sustainable success.

Definitions

To further clarify and enhance understanding, the terminology used throughout this study will be identified and defined. First, the study is looking at an ethnic group. Understanding the difference between race and ethnicity is imperative. Race defines people by their physical features (Diffen, n.d.). The races identified by the Office of Management and Budget (OMB) are White, Black or African American, American Indian or Alaska Native, Asian, and Native Hawaiian or Other Pacific Islander (Centers for Disease Control and Prevention [CDC], n.d.c). On the other hand, ethnicity, is how a group of people identify with one another, or their cultural traits (Diffen, n.d.). Those shared traits that help groups identify with one another could vary. Some possible traits are religion, language, cultural traditions, nationality, or possibly their history (Diffen, n.d.).

For the ethnic group being addressed, there are many terms that could be used interchangeably throughout the study. In general, the terms Hispanic and Latino are most often used, but there are important distinctions to be made. Hispanic refers to a person who they

themselves or their ancestry come from a country where the language spoken was Spanish (Diffen, n.d.). Latino, on the other hand, relates more to country of origin. The ethnic group Latinos are from Latin America, or more specifically, the Caribbean, South America, and Central America (Diffen, n.d.). Among the large group of Hispanics and Latinos there are various subgroups, further distinguishing themselves by their origin. Mexicans, Puerto Ricans, Salvadorans, Cubans, and Dominicans are the most common subgroups in the United States (Centers for Disease Control [CDC], n.d.d).

In addition to the various ethnic group terminology, throughout this research the terms youth, community health worker, and promotoras will be used. Youth is referred to the lifespan from childhood all the way until adulthood, or when one reaches maturity (Merriam-Webster Dictionary, n.d.). A community health worker is a “frontline public health worker who is a trusted member of and/or has an unusually close understanding of the community served” (American Public Health Association [APHA], n.d.). Promotoras is the Spanish term used for community health workers in Hispanic communities that speak Spanish and are a part of their community (Centers for Disease Control and Prevention [CDC], n.d.e).

Various terminology related to weight will be used throughout this study. The terminology identified are body mass index (BMI), BMI z score, overweight, and obese. BMI determines if an individual is overweight or obese by dividing their weight in kilograms by the square of their height in meters (Centers for Disease Control and Prevention [CDC], n.d.b). For youth, BMI z score (corresponds to the growth chart) is used. BMI z score takes into consideration the sex and age of a child, giving a more accurate indication of their weight status (Must & Anderson, 2006). Based on the BMI z score, the child could then fall into one of four categories for weight: 1) underweight, 2) normal or healthy weight, 3) overweight, or 4) obese.

Children in the overweight category are in the 85th to the 94th percentile of their peers (same sex and age) in weight (CDC, n.d.b). Children in the obese category are in the 95th percentile or greater for weight when compared to their peers of the same sex and age category (CDC, n.d.b).

The literature search also identifies some terms related to interventions that need clarification, including, screen time, motivational interviewing, and motivational counseling. First, screen time is the time spent viewing any electronic device. This encompasses televisions, gaming consoles, computers, I-pads, handheld gaming devices, and/or smartphones. Motivational interviewing and motivational counseling may be used interchangeably; they are one in the same. Motivational interviewing has been defined as, "a directive, client-centered counseling style for eliciting behavior change by helping clients explore and resolve ambivalence" (American Congress of Obstetricians and Gynecologists [ACOG], 2009). In motivational interviewing or counseling, the healthcare provider is assisting the client to move through the necessary steps for behavior modifications. The healthcare provider is serving as an active listener, offering a reflection to the client of the situation as they hear it (ACOG, 2009).

Process

To identify the existing body of knowledge for obesity prevention among Hispanic youth, a comprehensive literature search was conducted. As a result of gathering this information, a review could be conducted identifying the best practices. After the PICO question was formulated: "What are the best strategies for preventing obesity in Hispanic youth using family centered approaches?" core literature databases were selected to review. The author utilized the online University of North Dakota (UND) Harley E. French Library of Health Sciences to conduct the search. The databases initially selected were the Cochrane Library, MEDLINE (PubMed), and the Cumulative Index to Nursing and Allied Health Literature (CINAHL). The

Cochrane Library is a database with systematic reviews. The advantage of searching the Cochrane Library is that systematic reviews can bring all the available research conducted on the topic of interest into one summary to review in greater detail. CINAHL and PubMed were selected as they cover a wide range for nursing and allied health journals (Mateo & Foreman, 2014). In addition, both CINAHL and PubMed have systematic review guidelines for their publications.

The next step was identifying the key words to be used in the search. The keywords identified were overweight, obesity, Hispanic Americans, Hispanics, Latinos, Mexican, Cuban, pediatric, child, adolescent, teen, youth, family, and prevention. To further help focus search efforts, the health sciences librarian at UND as well as the librarian at the Mayo Clinic School of Health Sciences, were consulted. The PICO question was reviewed as were the databases selected, the search terms, and the results. Recommendations were given to also look at the following databases, PsychINFO and ERIC. PsychINFO is a database housing materials for behavioral sciences and mental health (Mateo & Foreman, 2014). ERIC is sponsored by the United States Department of Education and includes many journals with direct links (Mateo & Foreman, 2014).

In addition, the librarians were able to further control the vocabulary used for the keywords. This was done in the PubMed database using MeSH terms and in CINAHL by using subject headings. Another search strategy employed was the use of Boolean Operators. "Boolean logic defines the relationship among terms in a search" (Mateo & Foreman, 2014, p. 27). The Boolean Operators used were AND and OR. The final strategy applied to the literature search was the use of filters and limits. The search was limited to English only and publication

within the last ten years. By setting limitations and controlling the vocabulary, the search was much more manageable and specific, reducing it from 57 articles to 28.

Finally, the author searched online for websites of organizations specifically interested in obesity prevention for youth and Hispanic Youth. The CDC, Division of Nutrition, Physical Activity, and Obesity was a reliable site identified. In addition, the Robert Wood Johnson Foundation Center to Prevent Childhood Obesity and Salud America! were two organizations that were helpful in identifying best practices for obesity prevention among Hispanic youth. All of the websites provided valuable reports, research, and projects underway or conducted in the past to reduce obesity.

Review of the Literature

In the review of the literature there were common themes identified when searching for interventions to prevent obesity among Hispanic youth at the family level. The three main categories identified for interventions were: education, physical activity, and education with physical activity.

Intervention: Education

There are many formats in which education can be provided, finding the right format to obtain the intended results and sustain the results is key. In reviewing the relevant literature, it was found that there were three subgroups for the intervention of education: 1) *education alone*, 2) *education with goal setting*, and 3) *education with motivational interviewing*. Some of the studies provided education solely through classes and distribution of newsletters, other offered classes but went a step further to provide materials in newsletters and videos as well as reinforce with goal setting, and yet another technique used was education in classes with goal setting and the addition of motivational interviewing.

Education alone.

Three studies were identified that used education by itself as an intervention in targeting obesity prevention among Hispanic youth, using family centered approaches. All three of the studies were noted to have a high level of rigor as they were randomized control trials (RCT). In addition, the studies were conducted within the last five years and looked to measure effectiveness of interventions by body mass index (BMI). Two of the studies have been completed, one is still in progress. The study still in progress is noteworthy of attention here given its similarities with the other two and the continued struggle to conduct research for obesity prevention among Hispanic youth.

The oldest was a pilot study published in 2011 with the overall intention to target early parenting and feeding practices at home in an effort to prevent obesity (Huberman, Mendelsohn, & Rhee, 2011). The study included 450 children, 225 intervention and 225 control. Of the study participants, 90% were Latino and 77% reported Spanish to be their primary language (Huberman et al., 2011). The intervention group parents received monthly newsletters, *Primeros Pasos* (Spanish) or *Building Blocks* (English), for their child from birth until age four. The newsletters provided suggestions for activities, parent-child feeding interactions, guidance on nutrition and breastfeeding, supplemental feeding information, and general information regarding parenting, safety, and discipline. In addition, periodic developmental surveys were mailed and quarterly phone calls to follow up on materials mailed. BMI was calculated at baseline, 12 months and 18 months. The results indicated that those children in the intervention group had lower rates of being overweight at both 12 months and 18 months of age. Subjects in the intervention group who reached 36 months of age were on average overweight by 29% versus 46% of the control group (Huberman et al., 2011). The investigators concluded, "This

study suggests that preventive parenting approaches beginning in very early childhood-especially among Latinos-should be an element of broader obesity prevention strategies together with program and policy initiatives addressing the environment, food marketing, and school practices” (Huberman et al., 2011, p. 3). A note of caution is this was a pilot study and is in need of longitudinal data to determine if the intervention had a long-term effect.

The purpose of the second study published in 2012 was to assess the impact of education provided to parents of low-income Hispanic children ages two to four, by assessing the child’s BMI at baseline, and after four months, and one year (Slusser et al., 2012). One hundred and sixty were recruited, 80 assigned to the control group and 80 to intervention. In the intervention group, parents received nine classes, lasting 90 minutes, spanning over 15 to 17 weeks. The classes focused on the importance of healthy nutrition and physical activity. The intent of the content was to increase knowledge regarding the dietary guidelines, educate about behavior modification strategies for both parent and child, strategies to increase fruit and vegetable consumption, and how to identify and address barriers to healthy lifestyles (Slusser et al., 2012). The control group continued to receive the standard education offered and a brochure on nutrition from the Women, Infants, and Children (WIC) program. At the one year mark, it was noted obesity and overweight among the intervention group had been reduced from 56.8% at baseline to 47.7% (Slusser et al., 2012). Whereas the control group increased from 35.1% at baseline to 51.4% (Slusser et al., 2012). There was a high rate of attrition, however statistical analyses were used to overcome this limitation. In addition, this was a small sample size and should be conducted using a larger sample size.

The final study utilizing education as the only intervention strategy has not yet been evaluated for effectiveness. However, as noted previously, the study is worth mentioning given

the limited research to date on the targeted group. Researchers looked to tailor The Early Childhood Obesity Prevention Program (ECHO) for low income Latino and Black children during their first 12 months of life to assess impact on BMI, overall nutrition habits, and time spent watching television, or screen time (Cloutier, Wiley, Wang, Grant, & Gorin, 2015). Researchers randomized 27 subjects to the control group and 30 to the intervention. The control group was to receive a standard home visiting program, Nurturing Families Network (NFN). The intervention group was to receive both NFN and ECHO. ECHO was noted to provide additional education on nutrition, physical activity, cues, routines, and community resource links (Cloutier et al., 2015). Additionally, ECHO targeted the following behaviors: breastfeeding, consumption of juice and sugar sweetened beverages, introduction of solids, screen time, infant routines and cues for sleep, hunger, and satiety (Cloutier et al., 2015). Home visits for both groups ranged 12 months in duration, once weekly. Researchers hypothesized that at six and 12 months the intervention group would have breastfed longer and more exclusively, consumed less juice and sugar sweetened beverages, ingested solid foods later in life, slept more hours in a day, have established routines, greater soothability, and reduced screen time (Cloutier et al., 2015). The second hypothesis was at six and 12 months the intervention group would purchase, cook, and serve more fruits and vegetables, utilize more community resources, and have fewer infants above the 85th percentile for weight when compared to the control group (Cloutier et al., 2015). This study was also limited in sample size, and although the study findings are not yet known, if the hypotheses are validated, it could present valuable insight into effectiveness of educational intervention with this high risk population.

Education and goal setting.

The next subgroup for the intervention of education consists of a combination of education and goal setting. There were three studies relevant to review for the purposes of this study. All three studies were RCT, two measured the impacts on BMI while one looked more at overall dietary intake and satisfaction of intervention.

The first study was published in 2009 and looked at the existing Expanded Food and Nutrition Education Program (EFNEP) compared to a family oriented program called Building Healthy Families: Step by Step (Cullen et al., 2009). The EFNEP classes, conducted over six weeks, continued with the standard topics already in place: nutrition basics and portion size, breakfast and snacks, fruits and vegetables, dairy and meat, breads and grains, and smart shopping (Cullen et al., 2009). The Building Healthy Families program worked to “promote parental modeling, skills, and self-efficacy for healthful feeding practices, home availability of healthful food, self-regulation skills, and improved food preparation practices” (Cullen et al., 2009, p. 381). The components added to the standard EFNEP program were 6 five minute videos to target home food and eating practices, weekly goal setting, and weekly handouts for new recipes (Cullen et al., 2009). Data was collected at baseline, week eight, and four month post programming. At consent, the participants were 89% Hispanic and had no difference in BMI between groups (Cullen et al., 2009). At week eight, 74% were still enrolled but at four months follow up only 55% were still enrolled (Cullen et al., 2009). The results revealed that calorie intake was reduced in both groups, saturated fats reduced for all, fiber and vegetable consumption increased for all, however fiber more so for the intervention group (Cullen et al., 2009). BMI was only impacted in the intervention group but only at week eight and was not sustained at four months follow up (Cullen et al., 2009). Evaluations were completed by 92% of

participants in the intervention group (Cullen et al., 2009). The completed evaluations revealed the most helpful programming activities were videos, class discussions, food preparation activities, and goal setting (Cullen et al., 2009). At conclusion, researchers felt adding goal sheets to the EFNEP classes helped with sustainability of the interventions and should be considered an essential element for future programs (Cullen et al., 2009).

The next study was published in 2012. The purpose of the study was to “compare the independent and combined effects of changes in home/family environments versus changes in school/community environments to prevent and control childhood obesity among Latinos” (Crespo et al., 2012, p. 4). This was a three year study in California with 808 parent-child dyads, children ages kindergarten to second grade. The retention rate was 55% (Crespo et al., 2012). The dyads were randomized to either the home/family environmental change, the community only environmental change, or the family plus community change. The family/home interventions consisted of promotoras working with families once a month for seven months providing newsletters, recipe cards and goal setting activities (Crespo et al., 2012). Promotoras called families four times during the study to discuss barriers and progress. The school/community intervention was also led by promotoras but was more directed at improving school playgrounds, lunches, restaurant menus, and promoting media messaging culturally appropriate (Crespo et al., 2012). There was also a control group that continued with their regular activities. Evaluation to measure effectiveness consisted of measuring the following: parent and child BMI, physical activity of the child, child’s participation in sports, active transportation to and from school, availability and use of active toys, parental support for physical activity, television viewing, dietary intake of child, parenting style for diet and activity, behavioral strategies for fat and fiber, meals that were eaten together as a family, meals eaten out

of the home, and demographics. These thirteen evaluation components were collected at four time points, baseline, immediately one year post intervention, one year follow up, and two year follow up.

The evaluation revealed no impact for any of the four groups in regards to BMI (Crespo et al., 2012). However, the evaluation did reveal that parental figures can impact the health behaviors of a child and, as a result, improve their health outcomes (Crespo et al., 2012). For example, an increased awareness of their child's physical activity and diet resulted in higher reported rates of physical activity, increases in fruit and vegetable intake and reduction, and a reduction of watching television in the mornings (Crespo et al., 2012). Limitations to note are the high attrition rates and self-reported information, in particular the level of physical activity.

The final study to include both education and goal setting was published in 2015. This RCT wanted to identify the benefits on diets while utilizing a promotor as well as nutritional education (Schmied, Parada, Horton, Ibarra, & Ayala, 2015). There were 361 Latino mothers with children recruited, 180 of the mothers were assigned to the intervention group. The remaining 181 mothers with children were assigned to the control group and received no intervention. The intervention consisted of 11 home visits with promotora over four months. The first eight home visits were in the home of participants and the last three were either a home visit or a phone call. Visits consisted of a 12 minute video of a Mexican family trying to change habits, review of video with a standardized manual, goal setting and review of progress, and review of the following week's assignment (Schmied et al., 2015). Evaluation findings revealed 44% of the intervention group increased vegetable consumption by at least half a cup a day and behavioral strategies were used by 68% to increase fiber and 70% to decrease fat (Schmied et al., 2015). Mothers also reported a high satisfaction with the video curriculum (Schmied et al.,

2015). A limitation to note with the study is the control group was not considered in the analyses, as a result no comparison was able to be made between the two groups. Another limitation is the majority of participants were from Mexico, making the ability to generalize to the entire Hispanic population difficult.

Education and motivational interviewing.

Education in conjunction with motivational interviewing has also been studied. As was previously noted, motivational interviewing can be used interchangeably with motivational counseling. Motivational interviewing is the practice of active listening and reflection in helping an individual move through the necessary steps for behavior change to occur. This has been found to be helpful when trying to elicit behavioral changes, for example those related to health and wellness.

Three articles were found to be published that were applicable to the targeted audience. All three studies were strong in that they were RCT. Unfortunately, only one of the studies has published results at this time and the other two are still in progress. Again, another indicator of a need for more research on this cohort.

The completed study was published in 2013. There were 121 families with children ranging in age from two to five years old enrolled. The intervention group consisted of 62 randomly assigned families with children and 59 were assigned to the control group. Participants were primarily Hispanic at 52% and the mean age for children was four (Haines et al., 2013). The intervention group was provided with four specific units to focus on in regards to behavior change: creating routines in the home, sleep for better health, limiting child's inactive time, and eating better together. The four units identified for behavior changes in the study were reinforced through home visits, mailed educational materials, and text messages. The home

visits had set curriculum for each unit. In creating routines, families were introduced to goal setting and worked to identify their personal goals through an interactive activity. The second home visit addressed the unit for better sleep. This was done by discussing bed time routines and tips to improve sleep habits. The third home visit was focused on increasing the activity of children and involved an activity on fitness and discussion about limiting television. The final unit focused on eating healthy and provided a discussion about cooking with their children and healthy snacking. The home visits also provided time to review the previous week's goals, progress, and obstacles. In addition to the home visits, the intervention group received four calls from a trained, bilingual health educator monthly to see how they were doing and provide support, motivational interviewing was the technique utilized for this intervention. Text messages were sent weekly for 16 weeks regarding household routines. If texting was not an option, then postcards were sent. The control group received four monthly mailed packages with educational materials regarding developmental milestones.

Notable results were, at six months, the intervention group children had both an increase in sleep duration by 0.75 hours per night and a reduction in television viewing on weekends by 1.06 hours per day (Haines et al., 2013). In contrast, the control group saw a reduction in sleep duration and an increase in weekend television viewing (Haines et al., 2013). Additionally, when compared to the control group, the BMI for the intervention group had a greater improvement at six months. The BMI at six months for the intervention group was reduced by 0.18, whereas this BMI went up by 0.21 for the control group (Haines et al., 2013). The BMI z score was also calculated to take age and gender of the child into consideration and also revealed a reduction at six months for the intervention group and an increase for the control group (Haines et al., 2013). Of the participating parents, 98% noted they would recommend the program to

others (Haines et al., 2013). Limitations were size of study, as 500 families were contacted but only 121 enrolled (Haines et al., 2013). The follow up period was only six months and that limited the evaluation for long term results.

There were two studies in the literature utilizing education and motivational interviewing or support in the targeted population that have not yet been completed. The first is a RCT with a goal of 136 participants for both the control and intervention groups to account for a 30% attrition rate (Zoorob et al., 2013). The researchers want to identify culturally appropriate interventions for obesity prevention among Hispanic children in elementary school (Zoorob et al., 2013). The inclusion criteria included children age five to seven with at least one parent of Hispanic origin. The study will be 12 months in duration. The intervention will consist of biweekly sessions lasting 90 minutes for families for the first four months. These eight sessions will each have a topic: welcome, what is a healthy weight, energy balance, portions, food pyramid, sedentary time, reducing fat and sugar, and maintenance of positive changes. The sessions will each consist of a move your body activity, education/instructional period, sampling of healthy snacks, tips on how to increase activity, goal setting, and handouts to reinforce lessons learned. At the conclusion of the four months, the classes will be followed by eight months of phone calls every other month to review goals, progress, and answer questions. Newsletters will be sent in the between months to reinforce the group sessions attended in the first four months. The control group will receive the same programming, but the content will be on dental care rather than nutrition. Data collection will be done at baseline, four months, and 12 months. It will consist of anthropometric measurements, dietary intake, food preference assessment, physical activity and screen time.

The other study still in progress, Steps to Growing up Healthy, utilizes both primary care and public health to carry out interventions (Gorin, Ohannessian, Hernandez, Grant, & Coutier, 2014). The RCT is hoping to enroll 150 families over 12 months. The demographics will be Latino and Black mother-child dyads in an urban setting. There will be three intervention groups, first will receive brief motivational counseling by their primary care provider, the second group will receive brief motivational counseling by their primary care provider as well as a monthly phone call from a community healthcare worker, and the third group will receive brief motivational counseling by primary care provider and monthly home visits from community healthcare workers. "The primary goal of this study is to examine whether repeated doses of brief motivational counseling delivered by primary care clinicians and nurses to mothers of young children are sufficient to prevent/reverse childhood obesity in this high risk group or if monthly contact with community healthcare workers via either telephone or home visits enhances any observed interventions" (Gorin et al., 2014, p. 3). The researchers hypothesize that the intervention group receiving brief motivational counseling with their primary care provider and community healthcare worker via in home visits will have a greater reduction in BMI (Gorin et al., 2014). This too will provide valuable insight into the obesity epidemic and how best to reach the targeted group.

Intervention: Physical Activity Alone

Only one study in the category of physical activity alone was located, Expressing Culture and Health through Activity and Lifestyle Education (ECHALE) study. The ethnographic study consisted of a sample of 40 families, randomly selected (Azevedo et al., 2013). The intervention had two treatment components, a folkloric dance program done after school and screen time reduction for Latinas aged seven to 11 and their families (Azevedo et al., 2013). The study was

two years in duration and was conducted in California among mostly immigrant families. The purpose was to identify what encouraged participation in the intervention and what the barriers might be (Azevedo et al., 2013). Evaluation consisted of interviews with participants.

Participation was primarily influenced by perceived gains, self-esteem, confidence, improved attitude, improved academic performance, child enjoyment of the program, positive changes in weight, and a sense of being able to help the research team (Azevedo et al., 2013). "ECHALE helped enhance social capital in the community by improving social networks through bonding, bridging, and linking the participants to community resources" (Azevedo et al., 2013, p. 8).

Intervention: Education and Physical Education

When looking at the studies using both nutrition education and physical education components, six studies were identified. Five of the studies have been evaluated and one has yet to be evaluated. All but a couple of the studies were noted to be at a high level of control being RCT. The other studies were considered to be moderate level of control given they still had control groups, but were not randomized.

Four of the studies used BMI as a primary measurement of effectiveness. The first was published in 2006. This RCT looked at a well-known family weight centered weight management program, Kids N Fitness (KNF). The purpose of the study was to measure effectiveness of an eight week long KNF program versus a 12 week (Dreimane et al., 2006). Weekly the KNF program consisted of 45 minutes physical activity and 45 minutes of nutrition education/behavior modifications, both involving the family (Dreimane et al., 2006). Sample size consisted of 180 in the eight week program, 84 in the 12 week, and 115 in the control. The majority (70%) of participants were noted to be Hispanic in all groups (Dreimane et al., 2006). The control group refrained from any intervention while being monitored for 6 months. Pre and

post measurements were taken. It was identified that those in the 12 week program had significantly less weight gain and higher decreases in BMI when compared to the 8 week group, however the BMI z scores did not differ between the two groups (Dreimane et al., 2006). Additionally, survey results indicated family cohesion was greater among those participating in the 12 week intervention (Dreimane et al., 2006). The major limitation with this study was retention rate. At follow up there was a loss of nearly 50% of participants enrolled in either the 8 or 12 week program. As a result, this high attrition rate significantly impacted the ability to conduct follow up evaluations and results.

The next study published in 2011 measured the impact on BMI and engagement in physical activity for participants in a program called BOUNCE, Behavior Opportunities Uniting in Nutrition, Counseling, and Exercise (Olvera, Leung, Kellam, & Smith, 2011). The study specifically looked at Latina mother-daughter dyads with 61 groups enrolled. At enrollment, 85% of girls were obese and average BMI for mothers was classified as obese (Olvera et al., 2011). The study consisted of a four week healthy lifestyle program with education, followed by 12 weeks of a family based aerobic program and four monthly peer-led sessions (Olvera et al., 2011). After 12 weeks, it was reported among the daughters that the average weight loss was 2.7 pounds, BMI decrease of 1.3%, and a reduction in waist circumference of 3.7% (Olvera et al., 2011). In addition, there was a steady increase in physical activity from 60 minutes a day to 100 minutes (Olvera et al., 2011). Although the results were impressive, the study was small in size and should continue to be researched in various settings in the United States.

Another RCT looking at nutrition education and physical activity was published in 2013. Researchers were in search of the best practice for addressing obesity in the Hispanic community. Research has shown the benefits of utilizing family-centered approaches in

promoting healthy diets and activity. The researchers believed the same would hold true for Latino families, given the high value they place on families in making decisions for health and wellness (Arauz Boudreau, Kurowski, Gonzalez, Dimond, & Oreskovic, 2013). The program piloted was called Healthy Living Today!. Latino children, ages 9-12, were randomized to a control or an intervention group. The 23 participants and their parents in the intervention group attended six interactive classes for nutrition, physical activity, and stress management. This was followed by six months of monthly in-person visits or phone calls. The control group of 18 received the same intervention, however were delayed in starting for six months. The findings concluded that although families were willing to participate in intervention, there were no measurable benefits (Arauz Boudreau et al., 2013). A major limitation was the loss of physical activity measurements as the device was lost by some participants. Sample size was also small and there may have been some bias as study participants were not blinded to group allocation (Arauz Boudreau et al., 2013). Researchers concluded “findings may be due to families requiring a more intensive intervention that includes scheduled coaching and/or changes to the environmental context” (Arauz Boudreau et al., 2013, p. S252).

The last study, looking at the intervention of combined education and physical activity while measuring effect on BMI, was reported in 2013 (Fitzgibbon et al., 2013). The study was mirrored off of a program called Hip-Hop to Health Jr., where low income Latino preschoolers were randomized to intervention or control, however there was minimal parental involvement. Researchers in this study sought to identify the impact of parental involvement. As a result, the program was modified and called Family-Based Hip-Hop to Health. A total of 142 child-parent dyads participated. The dyads were randomly assigned to either the intervention or the control group. The intervention group focused on dietary fat, television viewing, fruits and vegetables,

and physical activity with an emphasis on the component of family and parenting. The control group focused on other health and safety topics, for example, dental health, seat belt use, and immunizations.

Both intervention and control groups were further broken down to separate the child and parents. In the intervention group, the child received three sessions weekly for 14 weeks. The sessions consisted of 20 minutes of nutrition education and 20 minutes of aerobic activity. Parents of the intervention group had six classes offered once weekly. These consisted of 60 minutes of nutrition curriculum and 30 minutes of physical activity. Weekly newsletters outlining child's programming were sent home to parents over the 14 weeks.

In the control group, children received weekly education about various health topics, as previously noted. The sessions were twenty minutes in duration for 14 weeks with no physical activity component. Parents of children in the control group were provided with weekly newsletters supplementing the various health topic their children were learning about over the 14 weeks.

Findings indicated no significant differences in BMI, dietary intake, or engagement in physical activity between the two groups (Fitzgibbon et al., 2013). Researchers noted this may have been attributable to the known peaking of obesity among the two to five year olds, or possibly a worsening obesity epidemic (Fitzgibbon et al., 2013). The study had limitations by utilizing a 24 hour recall versus multiple recalls for food consumption as well as incomplete data from diet recalls and activity on some participants.

A study published in 2014 reflected on how researchers piloted culturally appropriate interventions for low income Hispanic preschoolers (Bender, Clark, & Gahagan, 2014). The study consisted of 43 mother child dyads, 33 that actually completed. All mothers were noted to

be Mexican, primary language was Spanish for 97%, 88% lived at or below the poverty level, and 88% of the mothers had lived in the U.S. for seven years or less (Bender et al., 2014).

Children in the study ranged in age from three to five. The study consisted only of an intervention group and pre and post interventions were conducted.

The intervention consisted of two phases over nine months. Phase one was four biweekly interactive group sessions for mothers. The group sessions focused on healthy nutrition, how to encourage physical activity, and how to model healthy behaviors (Bender et al., 2014). In addition, mothers were given instruction on how to engage in physical activity with their child and were asked to walk 30 minutes a day with their child (Bender et al., 2014). Phase two consisted of six monthly community group activities to reinforce lessons already learned (Bender et al., 2014). The Health Behavior Questionnaire (HBQ) was administered pre and post intervention. Post evaluation revealed consumption of sugar sweetened beverages by children had been reduced by 82% for soda and 73% for other sugar containing drinks (Bender, Nader, Kennedy, & Gahagan, 2013). However, at six months post intervention the HBQ was again administered and revealed that the consumptions of soda reverted back to baseline levels (Bender et al., 2013). Consumption of 1% milk was maintained throughout all evaluation periods. Prior to intervention, only 15% of children were drinking 1% milk and at post intervention this was increased to 67% (Bender et al., 2013). BMI was also measured to evaluate effectiveness of interventions. BMI remained unchanged for children from pre to post evaluation. Mothers saw a reduction in BMI with 88% reported to have been overweight or obese at baseline and 82% post intervention (Bender et al., 2013). Although the post intervention pedometers revealed an increase in walking for mothers, this was not sustained at six months post intervention (Bender et al., 2013). Further, evaluations revealed that participants enjoyed the program, remained

engaged, and appreciated the pedometers as well as the promotora used (Bender et al., 2014). Use of the Bender Cultural Adaptation Scoring Tool gave an overall score of 89%, ranking the program as comprehensive in being culturally adapted (Bender et al., 2014). This study had some significant limitations. First, there was no comparison group, making evaluation and interpretation difficult. In addition, the sample size was small. Finally, there was no maintenance phase, which may have contributed to the sustainability of successes seen in the early evaluation phase.

The final study, (Ayala et al., 2015), that used interventions of education and physical activity has not yet been evaluated. It is in its early stages of implementation, but could supply valuable information and insight given the large sample size. Our Choice is a program working to translate “evidence based approaches for modifying behaviors, policies, systems, and environments to promote fruit, vegetable, and water consumption, physical activity, and quality sleep” (Ayala et al., 2015, p. 38). There have been 1200 Hispanic family’s recruited (Ayala et al., 2015). Subjects will be assigned to one of three groups. The health care intervention will consist of a family wellness plan given by a community health care worker. The public health intervention will involve multiple community organizations and restaurants to promote intake of fruits, vegetables, water, and encourage physical activity and adequate sleep. There have been challenges in the early implementation phases, differences in implementation of interventions, staffing changes, and a lack of time (Ayala et al., 2015). However, the large sample size, use of a control group, and combining family and community level interventions, all combine to make this a promising study to watch, for future findings.

Summary of Review of the Literature

In summary, there are a few points to highlight from the literature review. There were two studies completed showing a positive impact for the intervention of education alone and one still in progress. A simple intervention of monthly newsletters, developmental screening tools, and follow up phone calls to parents of children aged birth to four years proved to be successful in reducing BMI in children (Huberman et al., 2011). This could be an indication that earlier prevention with parents is most beneficial in implementing healthy nutrition and lifestyle behaviors. The other education intervention that was successful was classroom instruction for 90 minutes at a time for a total of nine sessions over 15 to 17 weeks. The study revealed a reduction in children overweight or obese at a year of follow up (Slusser et al., 2012). Of note there was a high attrition rate. The final education intervention being studied, but not yet completed, will be evaluating for the impact of education in homes once weekly over 12 months (Cloutier et al., 2015).

In the category of education and goal setting, three studies were identified in the literature search, only one showing positive impact. The first study, conducted over six weeks, supplemented the basic nutrition education classes with videos, recipes, and goal setting to integrate the lessons learned into everyday practice. Although there was a positive correlation with reduction in BMI at eight weeks, this was not sustained at four month follow up and there was a high attrition rate (Cullen et al., 2009). The second study was unique in that it utilized promotoras to provide education and goal setting in a program conducted once monthly for seven months. Although there was no measurable impact on BMI, the researchers did see that by increasing parental awareness regarding nutrition and physical activity, a child's health behaviors could be impacted (Crespo et al., 2012). The study involving education and goal setting that did

show a positive impact on dietary behaviors provided education as well as utilized a promotor. This study was conducted over four months and provided home visits as well as phone calls. Evaluation revealed that dietary habits were improved at the end of the study (Schmied et al., 2015).

The implementation of education with a motivational interviewing component is still in its early stages for this population. Three studies were identified in the literature review and only one was completed. The completed study was promising. The study involved home visits for education, phone calls for support and motivational interviewing, and text message follow ups. Results revealed at six months there was a decrease in BMI, increase in sleep duration, and reduction in the amount of time spent watching television on weekends (Haines et al., 2013). The two remaining studies still in process will be longer in duration at 12 months. One will be similar in the study already completed in its interventions (Zoorob et al., 2013). The second study will utilize primary care providers for motivational interviewing and monthly home visits from a community healthcare worker (Gorin et al., 2014).

The intervention of physical activity alone was not demonstrated to be of great benefit, however, only one relevant study was identified. Combining the interventions of physical activity and education together revealed six studies, five of which have been completed. The only notable study with positive outcomes was a four week education program, followed by 12 weeks of a family aerobic program and, finally, four months of peer led sessions. The study evaluation showed weight loss, a reduction in BMI and waist circumference, and an increase in daily physical activity (Olvera et al., 2011). The remaining four studies completed either had high attrition rates, loss of data, small sample sizes, and/or no comparison groups.

Interpretation

When looking for the best obesity prevention interventions while using family centered approaches for Hispanic youth, it is evident more research would be highly valuable. To date, there is a limited amount available in the literature, specific to this population and at the family level, where it has been shown to be most effective to target behavioral changes. In addition, most studies are still in progress or awaiting evaluation. Generalization was also an issue as some populations were limited to immigrants only or to certain geographical locations. This may make it difficult to apply the study interventions in other areas or to replicate the study in another group of Hispanics in the U.S. Some other challenges to note were the retention rates and the labor intensiveness for some of the studies. With the limited amount of resources, both financial and personnel, one needs to be sensitive to what might be practical.

A point to consider is both the education and physical activity interventions and physical activity alone identified links between increasing family cohesion as well as socialization. It would be valuable to have more research done in regards to physical activity interventions with the family and to not limit to immigrants only, but rather include the entire Hispanic community. In addition, although the studies did not reveal a great benefit on reduction in BMI, the motivational interviewing and goal setting with education did have an impact on healthier lifestyles. There are still studies out for the motivational interviewing involving utilization of primary care and homecare workers doing in home visits that could prove to have great benefit and should be reviewed.

What was clear was the positive impact of education alone on obesity prevention. The one study simply sent newsletters, developmental screening tools, and did follow up phone calls. The study (Huberman et al., 2011) not only had a decline in BMI, but had a positive impact on

early parenting approaches as the children were aged birth to four years. The other study was more labor intensive as it provided nutritional classes for parents age's two to four, but also saw a reduction in BMI (Slusser et al., 2012). It would be valuable to look at the impact on BMI and dietary changes while utilizing newsletters, developmental screening tools, follow up phone calls, and nutritional classes as well.

The FMSF would be a highly useful tool in the fight against obesity, especially the Hispanic youth. The FMSF allows healthcare providers to get to the root, the heart, of the community, that is the family. The family in Hispanic communities is where values are shared and accepted, and behaviors are developed and supported.

In applying the intervention of education alone to the FMSF, understanding the components of the family's definition of the situation, management of behaviors, and perceived consequences can individualize care and provide culturally acceptable interventions, as a result eliciting a successful program. The components of the FMSF can be utilized to guide the assessment, planning, implementation, and evaluation phases of the program. The definition of the situation will help providers identify where the family is in the acceptance of the chronic health condition, their understanding of the problem, and identify how the family has handled the situation up to this point. The information gathered may also help identify how and why obesity became an issue.

The second component of the FMSF, management of behaviors, will help care providers identify the influencing attitudes and beliefs of parents in handling obesity and what they have done so far to either embrace, or avoid the situation. This component will also give a good idea of how open the family is to receiving help, how they view the interventions as fitting into their daily routines, and, as a result, how best to proceed with interventions for optimal success.

The final FMSF component, perceived consequences, looks at how the family sees the interventions. It will be essential to identify how the interventions are viewed not only to fitting into their daily lives, but understanding what value they place on the interventions. The family will need to embrace the behavioral change to combat obesity, not just the individual. If the interventions are viewed as practical and essential for optimal health and wellness for the family unit as a whole, then sustainability will be more likely.

Outcome/Dissemination

In moving forward, the information gleaned from this study will be shared with providers working with Hispanic communities. A poster presentation was developed highlighting the findings and best strategies for moving forward in the fight against obesity among Hispanic youth, while focusing on the family unit (see Appendix). By developing a poster, it was determined this would be a tool that could be readily shared with providers in various settings, for example, public health, family practice, pediatrics, endocrinology, both in-patient and out-patient, allowing for greater dissemination. In addition, this would be a tool that could continue to be shared in the absence of the researcher, providing sustainability.

The poster highlights the obesity epidemic in the U.S. for all, but focuses on the health disparities faced by our fastest growing population, Hispanics. The focus point of the poster is the family unit. As such, the FMSF is the tool that will be suggested for future program planning and implementation. The recommendation for future programming is on education given the prior successes noted in the literature search. Those prior successes in research to date on education at the family level in the fight against obesity are highlighted, as well with future recommendations. The future recommendations for success are to focus on family as the unit for behavioral modifications, utilize the component of education, and measure effectiveness with a

variety of tools including BMI, BMI z score, and behavioral changes in diets and activity. The components of education that are highlighted are to target early on in the child's growth and development, simplify interventions, and ensure interventions are easily incorporated into their daily lives. As a result, future programming will be made a priority in Hispanic families and sustainability will be achieved, resulting in healthier individuals, families, and communities.

Implications for Nursing

The findings from this study could have significant implications for nursing. First, in nursing practice, it is a public health nurse's responsibility to continually improve the quality of nursing care provided to the populations they serve. This can be accomplished by understanding the concepts of the most effective programs in obesity prevention among Hispanic youth. In addition, it allows nurses to recognize what has not been effective and why with the Hispanic population. As a result, the practice of public health nurses (PHN's) will remain focused and driven by evidenced based knowledge to continuously enhance the quality of care provided.

PHN's also play an integral part in education for their peers, community leaders, and the communities in which they serve. Nursing needs to remain knowledgeable and up to date on the best practices to ensure the best care is always provided. In addition, the knowledge gained will be shared with those around them, further emphasizing the need for quality care. From this study, public health nurses will appreciate the importance of focusing on the Hispanic family as a whole in their interventions, as well as where and how to focus their strategies. In addition, public health nurses will identify the FMSF tool, its components, and be able to competently apply in their future work with Hispanic families. As a result, the situation will be adequately assessed and the education delivered by public health nurses will be individualized for each family, providing for culturally competent care.

PHN's are leaders and advocates in patient rights. Social justice is a foundational value in the practice of public health nursing and PHN's strive to eliminate health disparities among vulnerable populations. The knowledge gained from the study presented here will further guide public health leaders in eliminating the disparities faced by Hispanic youth, specifically those related to obesity. The insight gained from this study will drive public health nurse leaders to fight for equality and for policies that support our Hispanic communities. In addition, it will allow nursing to continue to advocate for future research to support the efforts of reducing health disparities among Hispanic youth, and communities as a whole.

Nursing plays an essential role in promoting and sustaining research. In looking at the value of the current research available today for obesity prevention among Hispanic youth using family centered approaches, public health nurses will be able to confidently report the positive impact education alone can have. The findings of the study will guide nurses in their future research efforts in continuously striving for the best practices. For example, it will be clear that with this transient population a simpler approach may be best in retention of participants and sustainability of interventions. Also, it will be evident that higher attrition rates appear to be a problem with studies that are too time intensive and too labor intensive. Not only for participants are time and labor intensiveness essential to understand, but for staff. Resources are limited and need to be considered before moving forward with program implementation. Finally, focusing on measurable impacts for the behavioral changes, for example, BMI, eating habits, and physical activity, over a longer time frame will help in future support of research activities and program implementation.

Summary/Conclusions

Obesity has continued to be a challenge for our country for many years and now it is an epidemic. The toll it has taken on the economy and the healthcare industry, not to mention the lives claimed from this disease and its comorbidities, calls for a united force and action plan to put an end to the devastation. Even more troubling, the stronghold obesity has taken on our Hispanic youth and, as a result, the devastation it has caused in these innocent lives.

Nursing should recognize the importance of family in the Hispanic culture and the need to involve the family unit when trying to implement strategies for behavioral changes, like diet and activity. In moving forward, the hope is that, interventions aimed at reducing obesity among Hispanic youth would involve the whole family. The most successful intervention to date has been education and in order to be most effective, utilizing the FMSF tool to understand all components of the situation is essential. Programming should be started early in a child's development, at birth if possible, to have the greatest positive impact early in life. This will aim towards primary prevention, hoping to prevent development of obesity before it even occurs. In addition, interventions should be simple and easily adaptable to their lifestyle that is already busy and overwhelming. Simplifying will also help preserve public health resources.

Finally, from this study, nursing should recognize the need for more research on obesity, specifically with Hispanic youth and their families. If our country hopes to get a handle, and possibly, overcome the obesity epidemic, programming needs to be effective. Research will provide answers to the best practices, and as a result, ensure strategies are appropriate. If the U.S. hopes to have a healthier country, a healthier and more productive workforce, and preserve healthcare resources, now is the time to act on obesity. The fight begins with our fastest growing population, Hispanics, and with our most precious population, our youth, the future.

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Best Strategies for Obesity Prevention in Hispanic Youth Using Family Centered Approaches

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Clinical Problem and Significance

- In 1990, 15% of the adult population were obese, in 2000 35% were obese (Centers for Disease Control and Prevention [CDC], n.d., Ogden, Carroll, Kit, & Flegal, 2014)
- Obesity highest among Hispanic children at 21.2%, compared to 14% for non-Hispanic Whites (Ogden, Carroll, Kit, & Flegal, 2012)
- Hispanic population in the U.S. is predicted to increase by 115% from 2014 to 2060 (Colby & Ortman, 2015)
- Hispanic children will represent 34% of the child population by 2060, non-Hispanic White 36% (Colby & Ortman, 2015)
- Obese children are at greater risk for depression, sleep apnea, asthma, diabetes mellitus II, musculoskeletal issues, hypertension, dyslipidemia, precocious puberty, steatohepatitis, and gallstones (Hampl & Campbell, 2015)
- Hispanic children have a higher prevalence of developing impaired fasting glucose, dyslipidemia, and steatohepatitis in comparison to other ethnic or racial groups (Capria et al., 2008)
- The negative effects of obesity result in higher medical costs, reduction in productivity, and higher mortality rates



Figure 1. University of California, Agriculture and Natural Resources (2013). Note: http://ucanr.edu/blog/LatinoBreeds/blogfiles/18219_original.jpg

Purpose

- Reduce the incidence of obesity among Hispanic youth, as a result, invest in a healthier community and country
- In the Hispanic culture, obesity interventions aimed at families are the highest ranked (Ramirez et al., 2011)
- Purpose: To determine the best practices for obesity prevention interventions in the Hispanic youth population using family centered approaches.

Methodology

- Family Management Style Framework (FMSF) conceptual basis for study
 - FMSF considers parental perspectives, better able to understand the dynamics of the family (Jang & Whitemore, 2015)
 - Three components on FMSF: 1) definition of the situation, 2) management behaviors, and 3) perceived consequences
 - Cultural considerations are taken into account with FMSF
 - Provides comprehensive assessment of family environment
- Comprehensive Literature Search
 - University of North Dakota Harley E. French Library of the Health Sciences Online used to search the following databases: Cochrane Library, MEDLINE (PubMed), Cumulative Index to Nursing and Allied Health Literature (CINAHL), PsycINFO, and ERIC
 - Keywords identified: overweight, obesity, Hispanic Americans, Hispanics, Latinos, Mexican, Cuban, pediatric, child, adolescent, teen, youth, family, prevention
 - Medical Subject Headings (MeSH) terms and Boolean Operators utilized
 - Limits and Filters: English only and within last ten years
 - Result: 28 articles applicable
- Additional Online Searches
 - CDC Division of Nutrition, Physical Activity, and Obesity, Robert Wood Johnson Foundation Center, and SaludAmerica*

Synthesis of Evidence

- Education
 - Education Alone: 2 completed studies with positive correlation
 - Monthly newsletters, developmental screening tools, and follow up phone calls to parents of children aged birth to four years resulted in reduced body mass index (BMI) (Huberman, Mendelsohn & Rhee, 2011)
 - Classroom instruction for 90 minutes at a time for 9 sessions over 15-17 weeks resulted in fewer overweight or obese children at a year follow up (Slusser et al., 2012)
 - Education with Goal Setting: 3 studies, 1 showed positive impact
 - Education with health promotor over 4 months with combination of in home visits and phone calls resulted in improvement in dietary habits (Schmied, Parada, Horton, Ibarra, & Ayala, 2015)
 - Education with Motivational Interviewing: 3 studies, only 1 of which is completed
 - Home visits for education, phone calls for support and motivational interviewing, and text message follow ups revealed reduction in BMI, increase in sleep duration, and reduction in time spent watching television on weekends (Haines et al., 2013)
- Physical Activity
 - 1 relevant study identified, no demonstration of great benefit (Azevedo et al., 2013)
- Education and Physical Activity
 - 5 completed studies, 1 of which revealed positive impact
 - 4 weeks of education, 12 weeks of family aerobic program, and 4 months of peer led sessions resulted in reduction in BMI and waist circumference and increase in physical activity (Olvera, Leung, Kellam, & Smith, 2011)

Practice Recommendations

- Education alone is the best practice for reducing obesity among Hispanic youth while using a family centered approach
- Interventions should be integrated early in a child's life, early in the parenting role
- Interventions should focus on child's growth and development
- Ensure interventions are easily adaptable into their everyday lives
- Ensure interventions are practical for the resources on hand
- Measure effectiveness with a variety of tools – BMI, BMI z score, and behavioral changes in diet and activity
- Utilize the FMSF for obesity prevention – allows providers to target the root of the problem where behavioral interventions can be best modified, the family



Figure 2. University of Minnesota Extension (2013). Note: <http://blog.health-nutrition.extension.umn.edu/2013/07/enjoy-family-meals.html>

Implications for Practice

- Identify and understand the best practices for obesity prevention among Hispanic youth and implement into practice
- Utilize the FMSF in future work with Hispanic families
- Conduct more research: avoid generalization, consider the practicality of the intervention to promote retention, and consider the resources, financial and personnel
- Educate peers and other providers on best practice based on current and future research
- Advocate to further reduce the disparities faced by Hispanic youth