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Provider Attention to Weight of Pediatric Latino Patients: An Opportunity for Communication to Prevent Type 2 Diabetes

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PROVIDER ATTENTION TO WEIGHT OF PEDIATRIC LATINO PATIENTS:

Opportunity for Communication to Prevent Type 2 Diabetes

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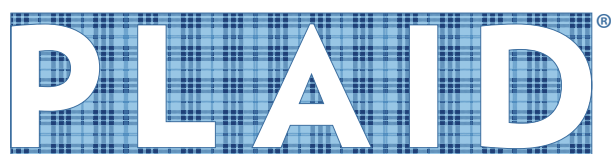
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People Living with And Inspired by Diabetes

ABSTRACT

Objective: Diabetes is one of the most common chronic illnesses among pediatric patients, and the number of youth living with this condition is expected to grow—particularly among minority ethnic youth. Type 2 diabetes, historically a disease of older overweight adults, is now being diagnosed in children, along with a rise in childhood obesity. Unfortunately, primary care providers infrequently communicate the weight of pediatric patients. The purpose of this study was to assess communication of weight-related information between providers and Latino children and their parents during well-child office visits.

Research Design and Methods: This study utilized chart reviews and structured interviews to assess the level at which weight-related information was communicated to Latino children and their parents during well-child office visits.

Results: Results indicated that providers are inconsistent in their provision of weight information and are more likely to include weight-related chart documentation when children are younger and when they have a high body mass index (BMI). Parents' intent to take corrective actions to improve their child's diet and exercise was more likely when the provider documented that weight information was provided in the child's chart.

Conclusion: Findings from this study contributed to the development of a toolkit designed to improve primary care providers' behavioral skills for implementation of clinical guidelines, including routine assessment of weight and patient-centered interventions in the treatment of obesity.



INTRODUCTION

According to the Centers for Disease Control and Prevention (CDC), diabetes is one of the most common chronic illnesses among pediatric patients and its prevalence is increasing [1]. Estimates indicate the prevalence of diabetes in pediatric patients under the age of 20 at 2.2 per 1,000 [2]. With the dramatic increase in childhood obesity, type 2 diabetes has begun to receive increased attention. In 2001, the SEARCH for Diabetes in Youth study estimated that approximately 3,700 U.S. youth under the age of 20 were being diagnosed with type 2 diabetes annually [3, 4]. Recent estimates project that by 2050 up to 84,131 youth will be diagnosed with type 2 diabetes [5]. Researchers have predicted that the increase in the number of youth living with type 2 diabetes will be primarily among patients of minority ethnic groups – including Hispanic/Latinos [5, 4].

An elevated Body Mass Index (BMI) has been found to be associated with increased insulin resistance and the increasing prevalence of type 2 diabetes in youth [6]. Type 2 diabetes can lead to serious health consequences including cardiovascular disease, long-term morbidity and increased mortality [7]. Given the burden of type 2 diabetes and its complications, the American Diabetes Association [8] and the U.S. Preventive Services Task Force [9] recommend screening at-risk individuals for diabetes risk, which includes routine assessment of BMI as a means of improving weight and ultimately lowering the risk for type 2 diabetes.

BMI use has diagnostic benefits during medical encounters since it can facilitate a more scientific and objective identification of obesity – particularly in comparison to visual assessment or ambiguous growth charts [10]. BMI information may also enhance a health provider's ability to communicate risks to parents by serving as a tool which frames the information as a health concern. Despite the recommendations, research suggests that overweight status and obesity continues to go underdiagnosed in the pediatric primary care setting [10, 11]. Perrin, Flower and Ammerman conducted a survey with pediatricians to determine how frequently BMI information was utilized [12]. Their results indicated that only 11% of providers reported always using BMI data to determine if a child was indeed overweight. A 2008 national survey of primary care providers found that less than half of the providers assessed child BMI percentiles regularly and only 18% of providers reported having referred children for further evaluation/management of their weight [13]. Most (58%) reported

never, rarely, or only sometimes tracking their patients' weight or weight-related behaviors over time. Similarly, few parents and children/adolescents reported being told their weight status by healthcare professionals. CDC data from the 1999-2002 National Health and Nutrition Examination Survey showed that only 36.7% of overweight children and adolescents (ages 2-19) had been told by a healthcare provider that they were overweight [1]. Pediatric minority patients and their families in particular, tend to receive less than optimal information related to nutrition and physical activity [14]. Research on healthcare provider weight assessments for pediatric patients of high risk ethnic groups is rare [15]. Given the rise of obesity and the risk for type 2 diabetes among Latino youth, it is imperative to examine how the problem can be addressed across settings, including primary care.

The purpose of the current study was to assess communication of weight-related information between providers and Latino children and their parents during well-child office visits. We report on how the findings from the study contributed to the development of a toolkit designed to help primary care clinicians implement clinical guidelines that recommend routine assessment of weight and patient-centered interventions in the treatment of obesity.

RESEARCH DESIGN AND METHODS

Participants

Participants were Latino parents and children, ages three to seventeen, who presented for a well-child office visit. Participants were recruited during a 15-month period from the pediatric department of a community health center serving a predominantly Spanish-speaking population located within a rural agricultural area of Southwest Florida. A total of 495 parents agreed to participate. A very small number (N=23) of high school age adolescents were dropped from the analysis, yielding a final sample of 472 with a mean child age of 6.4 years.

Procedure

The study was approved by the Florida State University Institutional Review Board (IRB). During a 15-month period, parents and their children who were identified by the clinic's intake process as Hispanic were invited to participate in the study. A bilingual research assistant ex-

plained the study to the parents, and interested mothers signed the consent form for an interview and review of their child's medical record. The interview was conducted immediately following the office visit. All questions were directed to the parent in their preferred language (English or Spanish).

Interview questions were adapted from a previously developed questionnaire designed to measure parent reactions to BMI screenings [16, 17]. Interview questions addressed only the child being seen on the day of the office visit, even if the parent had other children – present or not. Questions assessed parental endorsement of whether or not the treating primary care provider (i.e., physician or nurse practitioner) addressed the child's weight (e.g., "During today's office visit, did the doctor talk to you about your child's weight?"), and parental intent to take action in order to improve their child's weight (e.g., "After today's office visit, do you plan to change what your child eats or how much exercise your child gets?"). Questions also assessed parental concern about the child's weight (e.g., "Are you concerned or worried about your child's weight?"). Demographic information collected included the child's country of origin, school grade, and eligibility for free or reduced price lunch.

After the provider completed documentation of the office visit, each child's chart was reviewed. Charts were in the form of an electronic health record, thus the software provided BMI data calculated from height and weight information entered by nursing staff on the date of the office visit. Using this information, children were placed into one of four weight categories: obese (BMI percentile ≥ 95); overweight (BMI percentile ≥ 85 and <95); healthy (BMI percentile ≥ 5 and <85); and underweight (BMI percentile < 5) [18]. Charts were also reviewed for provider documentation related to the child's weight status. Documentation was treated as a dichotomous variable (yes, documentation was included or no, documentation was not included). The following provider actions were considered as valid forms of documentation: free-text indicating that counseling was given during office visit; referral provided to nutrition; referral provided to behavioral health (for assistance in treatment of overweight); referral provided to other relevant specialty (e.g., endocrinology); and ICD-9 diagnoses of overweight/obesity applied. A total of four providers (one nurse practitioner and three physicians/pediatricians) rendered services to the children participating in this study.

Data Analysis

Descriptive data were presented as means, standard deviations (SDs), frequencies, and percentages. Multiple regression models were run to determine predictors of provider documentation of a child's weight status in the medical record (yes/no), parental report that the provider gave attention to weight during the office visit (yes/no), and parental intent to take corrective actions to improve their child's weight (yes/no). Model assumptions were checked and validated (independently/identically distributed errors, independence between predictors). Data were analyzed using Stata, version 11.

RESULTS

All children were of Hispanic ethnicity, with the majority of Mexican descent (Table 1). The sample was predominantly in preschool or elementary school and almost all of the school-age children qualified for free or reduced price school meals, reflecting the low socio-economic status of the sample. The majority of participating parents were mothers; the mean age of parents was 32.1 years. Table 1 displays classification of participants by weight category. Close to 47% of children were either in the obese (27.0%) or overweight (20.1%) category.

Level of Attention Given to Weight

Table 2 depicts the percentage of children whose chart included weight-related documentation, and also reports the percentage of parents who endorsed that the provider spoke to them about their child's weight during the same visit. For the healthy weight group, charts of males included documentation more often than those of females; in the overweight and obese categories, the opposite was true. However, no significance was found when the gender effects were examined in the obese ($\chi^2 = 0.8598$, $p = 0.3538$), overweight ($\chi^2 = 0.0009$, $p = 0.9756$) and healthy ($\chi^2 = 0.0885$, $p = 0.7661$) categories. Across weight categories, weight level did have a significant effect on provider documentation for both males ($\chi^2 = 9.5880$, $p = 0.0083$) and females ($\chi^2 = 17.9307$, $p < 0.0001$). The higher a child's weight, the more likely the provider was to include chart documentation, regardless of the child's gender.

Table 1: Characteristics of the Study Sample (N =472)		
Characteristic	N	% or mean (SD)
<i>Child Gender</i>		
Male	241	51.1%
Female	231	48.9%
<i>Parent Gender</i>		
Male/Father	21	4.4%
Female/Mother	437	92.6%
Other Guardian	14	3.0%
<i>Child Hispanic Ethnicity</i>		
Mexico	357	76.0%
Guatemala	77	16.4%
Other	26	5.5%
Cuba	5	1.1%
Puerto Rico	3	0.6%
El Salvador	2	0.4%
Parent Age		32.1 (6.6)
Child Age		6.4 (3.2)
<i>Child Grade Level</i>		
Preschool	252	53.4%
Elementary	166	35.2%
Middle School	54	11.4%
Free or Reduced School Meal	306	97.5%
Child BMI	471	18.8 (4.3)
<i>Child BMI percentile</i>		
Obese > 95 th percentile	126	27.0%
Overweight >85 th to <95 th percentile	94	20.1%
Healthy > 5 th to < 85 th percentile	243	52.0%
Underweight < 5 th percentile	4	0.9%

A greater number of parents reported that the provider communicated their child's weight than the number of charts documenting that weight was discussed, indicating that perhaps providers did not always include documentation despite having addressed the child's weight with parents. Several non-significant gender differences were observed when examining parental report of provider attention to weight. In the healthy weight category, parents of males reported that weight was discussed more often than parents of females; in the overweight and obese categories, parents of females more frequently endorsed provider attention to weight.

Table 2. Weight Documentation in Chart and Parent Report of Information (N = 472)		
Characteristic	% Children with Chart Documentation Addressing Weight	% Parents Endorsing Provider Addressed Weight
All	29.92%	70.00%
Male	29.03%	70.45%
Female	30.83%	69.57%
<i>Obese</i>		
All	50.39%	73.68%
Male	46.27%	71.19%
Female	55.00%	76.36%
<i>Overweight</i>		
All	25.51%	63.83%
Male	23.68%	61.11%
Female	26.67%	65.52%
<i>Healthy Weight</i>		
All	21.83%	70.51%
Male	22.96%	72.50%
Female	20.51%	68.42%

Attention to Weight by Provider

Table 3 indicates the percentage of charts including weight documentation, across three weight categories, by each of the four providers included in the study. It also includes the percentage of parents who endorsed that the provider spoke to them about their child's weight. Consistency of documentation varied among providers. Provider 3 most frequently included documentation across all three weight categories: obese (69.4%), overweight (43.3%), and healthy (33.7%). Provider 2 did not include chart documentation for overweight or healthy weight children and infrequently documented the weight of obese children (19.2%). Similarly, for all weight categories, parents least often endorsed Provider 2 having discussed their child's weight: obese (22.7%), overweight (12.5%), and healthy (22.6%). Given the frequency of chart documentation included by Provider 3, as expected, parents whose children were treated by that provider frequently endorsed that their child's weight was addressed. Although Provider 1 was not as consistent as Provider 3 in documenting in their child's chart, parents endorsed that both providers discussed weight at similar rates.

Table 3. Weight Documentation in Chart and Parent Report of Information by Provider (N = 472)

Weight Status & Provider	% Children with Chart Documentation Addressing Weight	% Parents Endorsing Provider Addressed Weight
<i>Obese</i>		
Provider 1	35.7%	84.6%
Provider 2	19.2%	22.7%
Provider 3	69.4%	89.7%
Provider 4	47.4%	76.5%
<i>Overweight</i>		
Provider 1	4.8%	81.8%
Provider 2	0%	12.5%
Provider 3	43.3%	81.5%
Provider 4	13.3%	47.1%
<i>Healthy Weight</i>		
Provider 1	2.2%	84.8%
Provider 2	0%	22.6%
Provider 3	33.7%	84.4%
Provider 4	10.0%	47.8%

Parental Report of Intent to Take Corrective Action

Following the office visit, parents were asked if they intended to engage in some form of corrective action (e.g., change child's diet or exercise) to improve their child's weight. Figure 1 compares the percentage of parents who reported intent to take action when the provider documented having discussed weight versus when no documentation of weight status was included in the medical record. Parents more frequently reported plans to take corrective action when weight-related documentation was included by the provider in the child's chart (65.69%) than when no documentation was included (40.46%). A two sample z-test on these proportions yields a p-value of 0.0003, thus indicating that these percentages are significantly different.

Predictors of Provider Documentation, Parental Report of Provider Attention to Weight, & Parental Intent to Take Corrective Action

Table 4 depicts the multiple regression results predicting provider documentation of a child's weight status in the medical record, parental report that the provider gave

attention to weight during the office visit, and parental intent to take corrective actions to improve their child's weight.

The provider, child's weight status (obese or overweight), child's age, gender, and whether or not the parent was concerned about the child's weight were tested as predictors of the provider including weight-related documentation in the child's medical record. Significant predictors included individual provider, obese weight status, child age, and parental concern about the child's weight. Provider number 3 was most likely to document weight-related information in a child's chart. Overall, providers were more likely to include chart-documentation if the child was obese (vs. overweight). Charts of older children were more likely to include documentation. If a parent reported being concerned about his/her child's weight, the provider was also more likely to include documentation in the child's medical record.

For the outcome variable of parental report that the provider did discuss weight during the office visit, only provider documentation and child's age were significant predictors. When a provider included weight documentation in the medical record, parents were more likely to indicate that the provider did in fact communicate their child's weight during the office visit. Parents of younger children were especially more likely to indicate that the provider addressed their child's weight status during the office visit.

When examining predictors of parent's intent to take

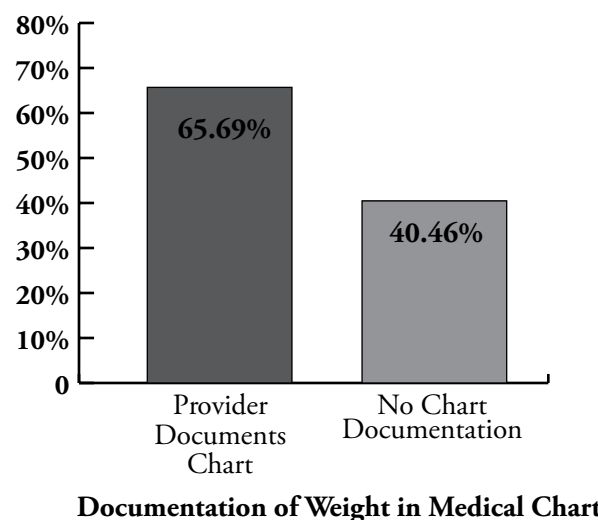
Figure 1. Provider Documentation and Parent Intent to take Corrective Action

Table 4. Multiple Regression Results for Provider Documentation, Parental Report of Provider's Attention to Weight, Parental Intent to Take Corrective Action		
Outcome variable and predictors	Coefficient	p
Provider documentation of the child's weight status		
<i>Providers (w.r.t.provider1)</i>		
2	-0.8524309	0.171
3	2.675968	<0.001
4	0.9973328	0.056
Child Obese (yes/no)	1.931349	<.001
Child Overweight (yes/no)	0.2848993	0.490
Child Age	0.1328178	0.003
Child Gender	0.085904	0.770
Parental Concern (yes/no)	1.189475	<0.001
Parent report of provider's attention to weight		
Provider Documentation (yes/no)	2.363136	<0.001
Child Age	-0.0706284	0.045
Child Gender	0.0072322	0.975
Child Obese (yes/no)	-0.3183499	0.314
Child Overweight (yes/no)	-0.4743096	0.100
Parental Concern (yes/no)	-0.5421538	0.062
Parent's intent to take action (yes vs no)		
Child Age	0.0868451	0.014
Child Gender	0.1839307	0.428
Child Overweight (yes/no)	0.5886559	0.039
Child Obese (yes/no)	1.147924	<0.001
Provider Documentation (yes/no)	0.3233585	0.231
Parental report of provider attention (yes/no)	0.7171154	0.010
Parental Concern (yes/no)	2.058191	<0.001

some form of corrective action to improve their child's weight, several predictors were significant: child age, overweight or obese status, parental report that a provider addressed weight during the office visit, and parental concern about their child's weight. Parents were more likely to report intent to take action with older children. Additionally, parents were more likely to report intent to take action if their child's weight was either overweight or obese. If a parent reported that their child's provider discussed weight during the office visit, and/or if parents were concerned about their child's weight, they were more likely to report intent to take corrective action.

CONCLUSION

Findings in this study provide further evidence of the high prevalence of overweight/obesity status among Latino children – a finding that highlights the increased risk for

type 2 diabetes among this population. Despite the risk, results indicate that providers are inconsistent in their provision of weight information during well-child office visits. Lack of documentation may explain some of these inconsistencies as parents in this study endorsed provider attention to weight more often than what was documented in their child's medical record. Providers were more likely to include chart documentation for older children and for obese children. Interestingly, overweight status was not a significant predictor of provider attention to weight. Providers were also more likely to include documentation for children of parents with concerns about their child's weight. While it is encouraging that parental concern may have triggered additional attention from the provider, parents may not always recognize their child's overweight status [19]; this may be even more common among Latino parents [10, 20, 21]. Providers of pediatric primary care are well positioned to "catch" these otherwise missed opportunities to raise parental awareness, partic-

ularly as children are frequently seen for preventive care and treatment of common illnesses [20, 22]. Encounters with providers also present an opportunity to identify and address parental misperceptions of their children's weight status [15].

Parents in this study were more likely to endorse intent to take corrective actions to improve their child's diet and exercise when they also reported that their provider discussed the child's weight during the clinic visit. Additional research is needed to determine to what extent provider counseling around weight leads to actual behavior change.

This study is limited by data collection at a single site, as well as by the use of a convenience sample. Given the study design, there are cross-sectional limitations, such as the inability to infer causality. The structured interview utilized included a yes/no question to ask parents if the provider addressed their child's weight; further studies may consider using more in depth methods to better assess the quality/type of information they perceived having received. Future studies may also use direct observations to assess what weight information is provided during office visits. While interviews conducted for this study were in the subject's preferred language, the study did not analyze if English or Spanish was used during the office visit. The extent to which this may have influenced patient-provider communication around weight needs further analysis.

Future Directions: The HealthyMe Toolkit

Results of this study highlight two significant findings. First, primary care providers are not consistently communicating weight status, and thus missing an opportunity for early intervention and prevention of chronic diseases such as type 2 diabetes. Second, clinician attention to weight is a predictor of parent report to take corrective action – an encouraging finding. These results highlight the need for interventions to improve provider attention to weight. Organizations such as the American Academy of Pediatrics [22] have provided guidelines with clear recommendations and protocols around obesity treatment. These include recommendations that healthcare providers follow a patient-centered approach, assess patient readiness to change and incorporate behavioral interventions to engage patients in positive health behaviors according to their level of readiness to change. However, several obstacles to the provision of weight counseling have been



identified including lack of office time [19, 23-25] and lack of comfort or skill around counseling families [13, 10, 20, 21, 26].

In response to these barriers, the Healthy Me Toolkit [27] was developed as a set of behavioral interventions, or tools, that can be used to 1) assess a young patient's readiness to change (i.e., to adopt positive health behaviors); and 2) motivate youth to adopt agreed upon positive health behaviors specifically aimed at addressing or preventing obesity and its health consequences, such as type 2 diabetes and other chronic conditions. The tools are based on the Transtheoretical Model of Behavior Change [28] and incorporate behavioral interventions and motivational interviewing principals [29]. The toolkit provides worksheets designed to be utilized as discussion guides to facilitate dialogue between the healthcare provider and the patient. Using the worksheets, providers can help patients set realistic, achievable goals and monitor their new behaviors that produce and maintain weight loss. Future research will evaluate the impact of the Healthy Me Toolkit at improving provider self-efficacy in obesity treatment and its effectiveness at helping pediatric patients move through the stages of change – and ultimately maintaining positive behavior change and a healthy weight status.

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