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University of Nevada, Reno

Exploring the Roles of Health Care Professionals in Reducing Children's Intake of Sugary Drinks

A thesis submitted in partial fulfillment
of the requirements for the degree of

Bachelor of Science in Nutrition and the Honors Program

By

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Abstract

Intake of sugary drinks, including soda, sweetened juice drinks and sports drinks, has increased dramatically in the U.S. and is particularly high among children from low-income households. Their consumption is a public health concern due to the implications for obesity and the displacement of other more nutrient-dense beverages. Health care professionals have a unique opportunity to address sugary drinks with their pediatric patients and parents in the context of assessment and/or education. The purpose of this study was to learn about the perceptions and experiences of health care professionals in Northern Nevada who are likely to treat children from low-income households. A mail survey instrument was developed for this purpose and sent to 214 Washoe County physicians, nurse practitioners, physician assistants, and dentists. A response rate of 30 percent (n=65) was achieved after two weeks of the initial mailing. From these surveys it was determined that there is great concern among health care professionals regarding pediatric consumption of sugary drinks. Of the health care professionals who returned their surveys, 99 percent reported that they regularly or sometimes inquired about the amount of sugary drinks their pediatric patients were consuming; and over 50 percent of the health care professionals reported that they would use all of the resources stated in the survey. The top three perceived barriers of health care professionals when addressing sugary drinks were lack of parent concern, patient motivation, and time. The findings will be used to develop additional strategies for an ongoing public health campaign, known as “Rethink Your Drink”.

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Introduction

In order to lower health care costs, health care professionals are increasing their emphasis on health promotion and disease prevention (Warren-Findlow, Laditka, Price, & Hochhalter, 2010). Today, one out of every two adults has at least one chronic illness, many of which are preventable (U.S. Department of Health and Human Services, 2011). Nutrition plays a critical role in health promotion and disease prevention (Centers for Disease Control and Prevention, 2011). A preventable disease associated with nutrition is obesity. Consumption of sugary drinks has been associated with childhood obesity (Ludwig, Peterson, & Gortmaker, 2001; Malik, Schulze, & Hu, 2006; Pereira, 2006; Vartanian, Schwartz, & Brownell, 2007).

The number of children consuming sugary drinks has steadily increased in the past 20 years (Lasater, Piernas, & Popkin, 2011). During this time, the obesity rates for children ages 6-11 increased as well (Ogden, 2010). There are many negative health implications associated with sugary drinks, including obesity, nutrient displacement (replacing other more beneficial fluids, such as milk and water), and dental caries (de Silva-Sanigorski, Waters, Calache, Smith, Gold, Gussy, et al., 2011; Lasater et al., 2011; Jones, Riley, & Whiting, 2001). Health care professionals have an opportunity to reduce chronic disease risk by implementing strategies that will influence children to reduce sugary drink consumption.

The existing literature discusses how various health care professionals address childhood obesity in general, but lacks information regarding how they address sugary drinks specifically. In order to identify the perceptions and experiences of health care

professionals regarding sugary drinks and their pediatric patients, I investigated the following research questions:

1. What is the level of concern among health care professionals about their pediatric patients' sugary drink intake?
2. To what extent do health care professionals address sugary drinks with their pediatric patients?
3. What methods and tools, if any, do health care professionals use to assess sugary drink intake among their pediatric patients?
4. What barriers have health care professionals experienced in their effort to reduce sugary drink intake among their pediatric patients?
5. What resources may be useful to health care professionals to assist in their efforts to reduce sugary drink intake among their pediatric patients?

In order to learn how health care professionals address the problem of sugary drink intake among children, a survey was sent to health care professionals (n=214) in Washoe County. These health care professionals included nurse practitioners, physicians, dentists, and physician assistants. The surveys were distributed by surface mail, according to the methods described by Dillman et al., in order to enhance the response rate and minimize response bias (Dillman, Smyth, & Christian, 2009). The surface mailings included an initial notification of the study, the inclusion of pre-paid addressed envelopes for the survey return, reminder post-cards, and a follow-up mailing to non-respondents. The data were analyzed using SPSS software to compute descriptive

statistics. The findings of this survey, described herein, will be used to enhance the “Rethink Your Drink” social marketing campaign.

Literature Review

This literature review will discuss sugary drinks, negative health implications associated with sugary drinks, how sugary drink consumption may be reduced, and the roles of health care professionals.

Sugary Drinks

A sugary drink was defined here as any beverage that contains added caloric sweeteners (e.g., high fructose corn syrup, cane sugar, and/or sucrose). Examples are sodas, sports drinks, sweetened juices, and sweetened waters and teas. According to three nationally representative surveys, Continuing Survey of Food Intakes by Individuals (CSFII 1989-1991), National Health and Nutrition Examination Survey (NHANES 2005-2006), and NHANES 2007-2008, the percent of children ages 6-11 consuming sugary drinks has increased steadily within the past 20 years from 79 percent to 91 percent (Lasater et al., 2011). In 2007-2008, children ages 6 to 11 were consuming an average of 212 calories from sugary drinks per day, or eleven percent of their daily energy intake (Lasater et al., 2011). Among children, sugary drinks are the largest contributor to empty calories, or sources of energy with virtually no nutritional value (Reedy & Krebs-Smith, 2010).

Consumption patterns of sugary drinks are not equal among all children. Children from low-income households consume greater amounts of sugary drinks (Wang, Bleich, & Gortmaker, 2008). Children living in households with an income of 200 percent of poverty or less are more likely to be frequent soda consumers, have a higher Body Mass Index (BMI), and poorer nutritional intake than children from higher income households

(O'Dea & Wilson, 2006; Rehm, Matte, Van Wye, Young, & Frieden, 2008; Singh, Siahpush, & Kogan, 2010).

Sugary Drinks & Negative Health Implications

Many researchers have suggested that there is a correlation between children's sugary drink intake and the number who are overweight and obese (Ludwig et al., 2001; Malik et al., 2006; Pereira, 2006; Vartanian et al., 2007). The exact relationship between sugary drink consumption and excess weight gain is not known, but researchers have suggested that it may be due to some individuals not compensating for excess liquid calories by reducing consumption from solid food (Bellisle & Rolland-Cachera, 2001; DiMeglio & Mattes, 2000; Mattes, 1996). Another study suggested that consumption of sugary drinks may provoke hunger, causing an increased consumption of other foods and adding to one's daily caloric intake (Malik et al., 2006).

In addition to obesity, there are several other negative health implications associated with sugary drinks. Sugary drinks tend to replace the consumption of other fluids, such as low-fat milk, thus reducing the intake of important nutrients, as well as adding additional empty calories (Marshall, Levy, Broffitt, Warren, Eichenberger-Gilmore, Burns, et al., 2003). Reduced milk consumption has been associated with lower bone mineral density and an increased risk of bone fractures among girls (Jones, Riley, & Whiting, 2001). Sugary drinks have many additional negative health implications including a greater risk of dental caries (de Silva-Sanigorski et al., 2011; Parhar, Yoon, & Chussid, 2009; Warren, Weber-Gasparoni, Marshall, Drake, Dehkordi-Vakil, Dawson, et al., 2009). Sugary drinks with high levels of caffeine have been shown to cause health problems, including anxiety, withdrawal, and poor-quality or reduced sleep (Nawrot,

Jordan, Eastwood, Rotstein, Hugenholtz, & Feeley, 2003; Pollak & Bright, 2003). Other negative health conditions that are associated with sugary drinks include: elevated triglycerides, type II diabetes, and cardiovascular disease (Apovian, 2004; Dabelea, Bell, D'Agostino, Imperatore, Johansen, Linder, et al., 2007; Dhingra, Sullivan, Jacques, Wang, Fox, Meigs, et al., 2007; Fung, Malik, Rexrode, Manson, Willett, & Hu, 2009; Montonen, Jarvinen, Knekt, Heliovaara, & Reunanen, 2007; Sohn, Burt, & Sowers, 2006; Stanhope, Griffen, Bair, Swarbrick, Keim, & Havel, 2008).

Reducing Intake of Sugary Drinks

Many federal and professional agencies recommend reducing sugary drink intake. The Surgeon General's Vision for a Healthy and Fit Nation 2010 recommends that individuals drink more water, low-fat and non-fat dairy products, and less sodas and juices with added sugars (U.S. Department of Health and Human Services, 2010). The 2010 Dietary Guidelines for Americans recommends reducing the intake of sugary drinks by drinking fewer sugary drinks and by consuming smaller portions. The Guidelines also say, sugary drinks should only be consumed when nutrient needs have been met and without exceeding daily calorie limits. The 2007 expert committee of the American Academy of Pediatrics (AAP) recommends that health care professionals remind patients to consume little or no sugary drinks (Barlow, 2007). The AAP recommends that health care professionals set goals with their patients. For example, the AAP recommend that patients who consume a large amount of sugary drinks only consume one serving of sugary drinks each day, and ideally eliminate sugary drinks from their diet entirely (Barlow, 2007). The AAP further recommends that health care professionals remind

families about specific nutrition goals at wellness visits and use posters and handouts on sugary drinks to reinforce these recommendations (Barlow, 2007).

Health Care Professionals and Sugary Drinks

While registered dietitians (R.D.) are experts in the field of food and nutrition, children, especially low-income children, do not routinely see a R.D; this may be due to insurance not consistently reimbursing or not covering the services of a registered dietitian (Slusser, Yeh, Staten, Stephens, Liu, Armstrong, et al., 2011). Health professionals that see children more frequently include those that work in a medical or dental office and/or clinics. This includes physicians, nurse practitioners, physician assistants, and dentists (Centers for Disease Control and Prevention, 2011). In 2009, 84 percent of children ages 5-17 had at least one dental visit (Bloom, Cohen, & Freeman, 2010). From 2006-2007, children under 15 years of age visited a primary care office an average of 2.3 visits/year (Schappert & Rechtsteiner, 2011). Children are visiting health professionals that work in these settings once or twice a year, giving health professionals the opportunity to routinely follow-up with their patients and discuss nutrition related health behaviors.

Health care professionals' have the opportunity to discuss health-related behaviors (e.g., diet) with pediatric patients (Barlow & Dietz, 1998). Health care professionals, such as physicians, nurse practitioners, and physician assistants, can identify, evaluate, and treat obesity, as well as offer more individualized opportunities and suggestions to prevent and manage obesity in children (Centers for Disease Control and Prevention, 2010). Ideally, health related behaviors can be monitored in the health

care setting over a long period of time, and counseling can be provided during routine well-child visits and episodic sick-care visits (Barlow & Dietz, 1998).

Health care professionals can have a strong impact on their pediatric patients' health habits, as they are likely to be viewed as reliable and credible sources of nutrition information by their patients (Glanz & Gilboy, 1992; Hiddink, Hautvast, vanWoerkum, Fieren, & vantHof, 1997; Hunt, Kristal, White, Lynch, & Fries, 1995). They have been found to make a difference in their patients' health behaviors. For example, health professionals played an important role in helping low-income families restructure unhealthy aspects of their lives in order to manage weight in one study (Tyler & Horner, 2008). Another study found that 71 percent of patients that received counseling from a health care professional about physical activity increased their physical activity level and improved their health (Halm & Amoako, 2008). In another study, counseling by a health care professional helped adolescents improve their diet and increase their physical activity levels (Patrick, Calfas, Norman, Zabinski, Sallis, Rupp, et al., 2006).

Although there is potential for health care professionals to counsel children about nutrition related topics, such as sugary drinks, one study found that only 23 percent of parents reportedly received counseling from their child's doctor to limit sugary drink intake (Park, Sherry, & Blanck, 2011). This may be due to the lack of resources and time professionals' have to address sugary drinks (Barlow, Trowbridge, Klish, & Dietz, 2002). One study found that pediatric professionals' assessment and management of childhood overweight were improved after they were provided with training and tools (Dunlop, Leroy, Trowbridge, & Kibbe, 2007).

Health care professionals have the potential to play an important role in the development of healthy nutritional habits among children. While there are studies that have explored the strategies health professionals use when treating overweight and obese children, only one paper was found that noted the extent that health professionals were specifically addressing sugary drink intake (Park et al., 2011). Furthermore, after conducting a literature review, no information on the tools health care professionals use or would like to use when addressing sugary drink intake was found.

Methods

In this section, the development of the instrument, the sample population, the data collection process, and the analysis of the data will be discussed.

Instrument Development

Prior to creating the survey instrument, a literature review was conducted. No studies were found that surveyed health care professionals regarding their perceptions of sugary drinks. However, several studies were identified that conducted surveys of health care professionals regarding other topics such as obesity (Barlow et al., 2002; Delichatsios, Hunt, Lobb, Emmons, & Gillman, 2001; Jacobson, & Gance-Cleveland 2011; McDonald, O'Brien, Ayash, Taveras, Goldman, Mitchell, et al., 2011; Steele, Wu, Jensen, Pankey, Davis, & Aylward, 2011). These studies were helpful in identifying potential barriers that health care professionals may encounter when discussing nutrition-related topics with their patients. Several surveys were requested from the main authors of the studies and reviewed. Although questions from the various questionnaires were not directly used in the survey instrument for this thesis, the questionnaires provided examples of how to best phrase questions and responses. Other resources that were useful to format the survey included the following references: *Designing Surveys: A Guide to Decisions and Procedures*, *Improving Survey Questions: Design and Evaluation*, and *Internet, Mail, and Mixed-Mode Surveys: The Tailored Design Method*. These texts discussed how to phrase survey questions and format a survey (Dillman, Smyth, & Christian, 2009; Czaja & Blair, 2005; Fowler, 1995).

The texts and the surveys from previous research studies were helpful in designing the survey content, including the cover page, survey layout, instructions, and

each part of the survey. The resulting survey instrument, *Sugary Drinks and Children: Perceptions of Health Professionals* had five sections with a total of 41 questions. The instructions provided a brief overview of the survey content, how much time the survey may take to complete, the privacy of those who take and receive the survey, and a definition of sugary drinks. The definition of sugary drinks was provided so the health care professionals knew how our study defined sugary drinks, since not everyone agrees on the definition. A more brief definition of sugary drinks was included on each page of the survey following the instructions as a reminder. No copyrighted questions were included in the survey.

Part I of the survey was designed to answer the first research question, as to the level of concern among the health care professionals' about their pediatric patients' sugary drink intake. Concise instructions were provided at the beginning of the section and respondents were asked to choose the response that best matched their opinion. Based on the texts and the previous surveys, a Likert scale was chosen for the response set. This allowed the respondents to have an ample amount of choice in their answer, and for the researchers to identify if there was concern among health care professionals regarding their patients sugary drink intake.

Part II of the survey addressed research question two, as to the extent health care professionals address sugary drinks with their pediatric patients. This part was similar to the first, with concise instructions and a frequency response set. Questions were developed to assess behaviors related to assessment, education, and counseling.

Part III of the survey addressed research question four, as to the significance of potential barriers health care professionals may have encountered while addressing

sugary drinks with their patients. It was not known what potential barriers might be inhibiting health professionals from addressing the topic of sugary drinks with their patients. The results from previous research studies were used to form this section. Twelve barriers were identified from previous studies that focused on nutrition and other risk reduction efforts.

Part IV of the survey addressed research questions three and five. Research question three addressed the use of resources health professionals were currently using to address sugary drinks, and question five addressed what resources may be of benefit to health care professionals. The last part of the survey, Part V was about the general characteristics of the health professional and their patients.

The survey was reviewed and edited by content experts, my mentor, Dr. Benedict and a researcher, Trish Freed. Following these edits, the survey was pre-viewed by three health care professionals in order to ensure that the questions were clear, concise, and relevant. A pediatric dentist, physician, and nurse practitioner completed the survey. Following their completion of the survey, the health professionals were interviewed in person with an interview guide (see Appendix A). Feedback from these interviews led to minimal changes in the survey. The final survey instrument can be found in Appendix B

Sample

For our study health care professionals included physicians, nurse practitioners, physician assistants, and dentists. We did not include Registered Dietitians in our sample, since children from low-income households don't routinely see a Registered Dietitian (Slusser et al., 2011). Health care professionals were identified through three different public databases: Amerigroup

(<https://www.myamerigroup.com/English/Medicaid/NV/Pages/ProviderSearch.aspx>), HealthPlan of Nevada (<http://www.healthplanofnevada.com/body.cfm?id=11>), or Medicaid Dentist (<http://www.medicaiddentistry.com/nevada.html>). These databases list the names and locations of the health care professionals that accept payment by Medicaid or Nevada Check-up (a public insurance program for children who are not eligible for Medicaid). Inclusion criteria for the sample were health professionals who (1) treated pediatric patients (18 years and younger), (2) practiced in Washoe County, and (3) accepted payment from Medicaid or State Children's Health Insurance (SCHIP), also known as Nevada Check-up.

Using the information provided in the databases, eligible physicians in family practice, pediatrics, and internal medicine; nurse practitioners; physician assistants; and dentists were identified. One database failed to identify if the internal medicine physicians on their website treated pediatric patients. In order to identify if these physicians treated pediatric patients, their practice was called and asked what age population the physician treated. The final survey sample included 214 health professionals (126 physicians, 56 dentists, 22 nurse practitioners, and 10 physician assistants) in Washoe County who treated children (age less than 18 years).

Before the study was implemented, Institutional Review Board (IRB) approval was necessary because human subjects were involved in our research. Due to the nature of the study, the research was considered social behavioral research, and was, therefore, approved under that IRB. This study was a modification to an ongoing study, "Rethink Your Drink": Development of a Social Marketing Campaign to Reduce Intake of Sugar-Sweetened Beverages among School-Age Children. A full application was completed

that illustrated steps taken to minimize risk, maximize benefits, and ensure the privacy of the subjects. IRB approval was obtained on March 27, 2012.

Data Collection

The survey was distributed by surface mail according to the methods described by Dillman et al. (2009) to enhance the response rate and minimize response bias. Methods that were used to enhance our survey response rate included: hand signing all letters, using postage stamps opposed to metered mail, maintaining a professional and respectful correspondence, and using an incentive. An initial notification letter of the study was sent to every health professional in the sample (see Appendix C). This letter was hand signed by Dr. Benedict and myself and addressed personally to the health professional. The letter was printed on UNR letterhead and sent in a UNR envelope that had a postage stamp on it. If the health professional was not interested in participating in the study, they had the option of opting out of the study. A week following the initial notification letter, the survey instrument was sent with a cover letter (Appendix D) and the inclusion of a pre-paid addressed envelope for the survey return. A week after the first survey was sent, a reminder post-card was sent to those who had not yet returned the survey (Appendix E). Two weeks after the post-card was sent, a follow-up mailing with a second survey, another cover letter (Appendix F), and a second pre-paid self-addressed envelope was mailed to non-respondents. Health professionals that returned their survey before May 4, 2012 were enrolled in a drawing to win an iPod, valued at \$200. Using an incentive has been shown to increase response rate (Dillman, et al., 2009).

In order to reduce risk and maintain the confidentiality of the health professionals, surveys did not include the participants' names, and participants were instructed not to

write their names on their surveys. Each health care professional was assigned a unique identification number. This number was recorded on the second page of the survey, above the instructions. This number allowed the researchers to distinguish between health professionals, as a database matched a health professionals' name to an ID number. This database was secure and only viewed by the researchers to distinguish between those who returned their surveys and those who did not, in order to prevent sending superfluous materials, such as a second survey or postcard reminder. Lastly, the ID number was necessary to identify the winner of the iPod drawing.

The first surveys arrived at UNR three days after they were sent. As the surveys were returned, the responses to the surveys were entered into a Microsoft Excel spreadsheet using a codebook, which showed how responses to each question were recorded.

Analysis

The survey results were analyzed by computing descriptive statistics using the SPSS software as a means of describing the findings and comparing survey responses. Descriptive statistics included frequencies for categorical data. Five graphs were made using Microsoft Excel in order to illustrate findings related to the five research questions identified in the introduction.

Results and Discussion

At the time this thesis was written, 65 surveys had been returned representing 30 percent of the original sample. The respondent characteristics can be found in Tables 1 and 2. Of the 65 respondents, it is not surprising that 60 percent of the returned surveys were from physicians because 59 percent of our original sample was physicians. The proportion of the remainder of the returned surveys were similar to our original sample, dentists represented 22 percent of the returned surveys, and 26 percent of the original sample size represented dentists; nurse practitioners accounted for nine percent of the returned surveys, the original sample of nurse practitioners was ten percent; physician assistants represented five percent of the original sample and six percent of the 65 surveys returned were from physician assistants.

All of the respondents' reported treating pediatric patients. It is important to know that the health professionals who returned their surveys treated pediatric patients, as the survey was targeting health professionals who treated pediatric patients. The proportion of patients insured through Medicaid or Nevada Check-Up greatly varied (see Table 3). It is surprising that 28 percent of health professionals reported seeing no patients who were insured through Medicaid and 31 percent reported seeing no patients insured through Nevada Check-Up, as these professionals were identified through databases that recognized them as accepting payment from Medicaid or Nevada Check-Up. However, about 50 percent of the health professionals reported treating some proportion of patients who were insured with federal or state health insurance, the rest of the health professionals reported that they did not know if they treated patients who were insured through Medicaid or Nevada Check-Up.

Research Question One

Part I of the survey (survey questions one through four) addressed research question one. Research question one related to the level of concern among health care professionals about their pediatric patients' sugary drink intake. The results are shown in Figure 1. For question one, 82 percent of professionals reported that they "strongly agree" and 19 percent reported that they "agree" that they are concerned about their patients' sugary drink intake. Question two has similar results, with 80 percent responding "strongly agree" and 20 percent responding "agree" that discussing sugary drinks with patients and parents is important. For the third question, 95 percent "strongly agreed"/"agreed" that sugary drinks present a significant risk to pediatric patients' health, and only five percent disagreed with this statement. Question four asked if reducing patients' sugary drink consumption was a priority. The responses to this question were slightly more diverse, with 48 percent of professionals answering, "strongly agree," 43 percent answering, "agree", and 9 percent responding, "disagree" with this statement. As there was no previous research on this topic, there are no other studies to compare to regarding the results. However, based on these results, it appears there is a high level of concern among health professionals in Washoe County regarding sugary drink intake and their pediatric patients.

Research Question Two

Part II (questions five through fifteen of the survey) addressed research question two. Research question two related to how health care professionals addressed sugary drinks in their practice. The results are found in Table 4. The results show that 99

percent of health care professionals reportedly assessed consumption, regularly or sometimes inquiring about the amount consumed; 92 percent followed-up at later visits; and 71 percent recorded sugary drink consumption in their patients' medical chart. The professionals that are regularly or sometimes assessing their patients sugary drink intake and following-up about their intake are impacting their patient's sugary drink intake, as patients view their health professionals as reliable and credible sources of nutrition information (Glanz et al., 1992; Hiddink et al., 1997; Hunt et al., 1995).

Education about sugary drinks was mostly verbal, as 92 percent reported this type of education, where only 23 percent reported using written materials, and 20 percent reported using online resources. In regards to counseling, health care professionals regularly or sometimes set goals (88 percent), discussed barriers (63 percent), and followed up at subsequent visits (72 percent).

Previous studies have shown that verbal education and counseling improved their patients' health behavior (Halm et al., 2008; Patrick et al., 2006). With a large percentage of health professionals regularly or sometimes verbally educating, setting goals, and following-up with their patients about their pediatric patients sugary drink intake, it is more likely that their patients will alter their behavior of consuming sugary drinks, as previous studies have shown that other health behaviors were altered after counseling and education from health professionals (Halm et al., 2008; Patrick et al., 2006; Tyler et al., 2008).

Lastly, approximately 34 percent of health care professionals referred to a registered dietitian regularly or sometimes. This is surprising, as most low-income families cannot afford to pay out of pocket for visits with a Registered Dietitian, as health

insurance doesn't typically cover visits with a Registered Dietitian, patients may only be covered to see a Registered Dietitian if they have a disease, such as type II diabetes (Slusser et al., 2011). Even though health professionals are referring patients to see a registered dietitian, patients may not be going to these referrals because they can't afford to.

Research Question Three

Part IV (questions 28-33 of the survey) addressed research question three. Research question three was related to the methods and tools health care professionals used to assess sugary drink intake among pediatric patients. Only two professionals reported using a tool, such as a questionnaire to assess intake; one reported using a handout on sugary drinks for parents; and three reported using a seminar/webinar on sugary drinks for their own professional use. It is not known why so few health care professionals reported the use of resources to address sugary drinks. One possibility may be the lack of resources available to them.

Research Question Four

Part II (questions 16-27 of the survey) addressed research question four. Research question four related to the perceived barriers health care professionals may have experienced in their effort to reduce sugary drinks among their pediatric patients. The responses to each potential barrier are shown in Figure 3. Time, lack of patient motivation, and lack of parent concern were the top three perceived barriers by health care professionals. It is interesting that the most significant barriers perceived by health care professionals were related to their patients and patients parents' feelings, or lack there of. An area for future study would be to analyze if health care professionals are

interpreting their patients willingness to adhere to their advice correctly; as health care professionals may be misinterpreting their patients feelings and not giving them the treatment they need based on misjudged characteristics of a person's feelings. One study showed that parents who earned lower incomes (<\$25,000/year) were more likely than parents with higher incomes to receive counseling on sugary drinks from their child's doctor; however, only 37% of these parents reported receiving counseling about this topic (Park et al., 2011). Health care professionals in Washoe County may be addressing their patients sugary drink intake more often than was reported in the previous study, conducted throughout the U.S.

Research Question Five

Part IV (questions 28-33 of the survey) addressed research question five. Research question five related to the resources health care professionals may find useful in reducing sugary drink intake among their pediatric patients. The results from this aim are illustrated in Figure Two. Over half of all the health care professionals said they would use all of the tools included in the survey. This seemed to suggest a need for resources for health care professionals on the topic of sugary drinks. Providing health care professionals with resources for themselves and for their patients would address two of the significant barriers that were reported by health care professionals in Part III of the survey, lack of provider resources and a lack of patient resources.

Conclusion

The results of this survey of health care professionals in Washoe County who are likely to accept payment from Medicaid and/or Nevada Check-Up indicate concern about children's consumption of sugary drinks. In addition, many were addressing this issue in their practice. If made available, health care professionals would reportedly use a number of resources to aid them in reducing children's consumption of sugary drinks. Knowing that health care professionals are counseling patients about sugary drinks is a positive finding, as health care professionals play an important role in changing health behaviors (Halm & Amoako, 2008; Patrick et al., 2006; Tyler & Horner, 2008).

As there were no previous studies on health care professionals' experiences and perceptions regarding sugary drinks and pediatric patients, the findings from this study are of great interest. Knowing that health care professionals in Washoe County address this topic gives dietetic professionals the opportunity to work with those professionals who would like to increase the awareness of sugary drinks. Future studies should be conducted on a larger population of health care professionals, in order to determine if a broader range of health care professionals, such as all health care professionals in Nevada, regardless of the insurance plan their patients have, are following similar practices regarding sugary drink intake.

This study has several limitations that should be noted. The study has limited generalizability because the results only represent 30 percent of the original sample. The sample was also limited to Washoe County, and the health professionals we surveyed were chosen specifically because they see patients with Medicaid and Nevada Check-up health insurance. Also, the nature of the survey is self-report. Lastly, there is a potential

for response bias because those who returned their surveys may be different in some way, they may have different opinions than those who did not return their surveys.

The results from this study will be used to develop additional strategies for the *Rethink Your Drink* campaign, an ongoing public health campaign in Northern Nevada with the goal of increasing the overall health of those participating in the Supplemental Nutrition Assistance Program by reducing sugary drink consumption. These strategies will likely involve collaboration with health care professionals who treat children from low-income households; as these children are more likely to consume sugary drinks and are at an increased risk for overweight and obesity (O'Dea et al., 2006; Rehm et al., 2008; Singh et al., 2010; Wang et al., 2008).

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Table 1**The Respondents' Profession (n=65)**

Health Profession	Percent (n)
Dentist	22 (n=14)
Nurse Practitioner	9 (n=6)
Physician Assistant	6 (n=4)
Family Practice Physician	40 (n=26)
Pediatric Physician	20 (n=13)
Other	2 (n=1)

Table 2
Practice Characteristics of Respondents (n=65)

Years of Practice	Percent (n)
0-5 years	25 (n=16)
6-10 years	21 (n=14)
11-15 years	17 (n=11)
16-20 years	5 (n=3)
20+ years	31 (n=20)
Practice Setting	
Private Practice	66 (n=43)
Community Clinic	23 (n=15)
Other	8 (n=5)

Table 3**Characteristics of Respondents' Patients (n=65)**

	Proportion of Patients Who are <18 years-old (n)	Proportion of Patients Insured through Medicaid (n)	Proportion of Patients Insured through Nevada Check-Up (n)
None	0 (n=0)	28 (n=18)	31 (n=20)
1-25%	51 (n=33)	26 (n=17)	26 (n=17)
26-50%	11 (n=7)	18 (n=12)	12 (n=8)
50-75%	8 (n=5)	14 (n=9)	5 (n=3)
>75%	29 (n=19)	6 (n=4)	5 (n=3)

Table 4
The Extent to Which Health Care Professionals Address Sugary
Drinks with their Pediatric Patients (n=64)

Percent Endorsing the Response (n)	Regularly/ Sometimes	Rarely/Never	Don't Know	Missing Data
Assess Consumption:				
Ask	99 (n=64)	1 (n=1)		
Follow-up	92 (n=60)	8 (n=5)		
Record	71 (n=46)	29 (n=19)		
Educate:				
Verbally	92 (n=60)	8 (n=5)		
Written Materials	23 (n=15)	76 (n=49)	1 (n=1)	
Online Resources	20 (n=13)	76 (n=49)	3 (n=2)	1 (n=1)
Counsel:				
Set Goals	88 (n=57)	12 (n=8)		
Discuss Barriers	63 (n=41)	35 (n=23)	1 (n=1)	
Follow-up	72 (n=47)	28 (n=18)		
Refer:				
Registered Dietitian (R.D.)	34 (n=22)	65 (n=42)	1 (n=1)	
Professional, not R.D.	20 (n=13)	77 (n=50)	3 (n=2)	

Figure 1

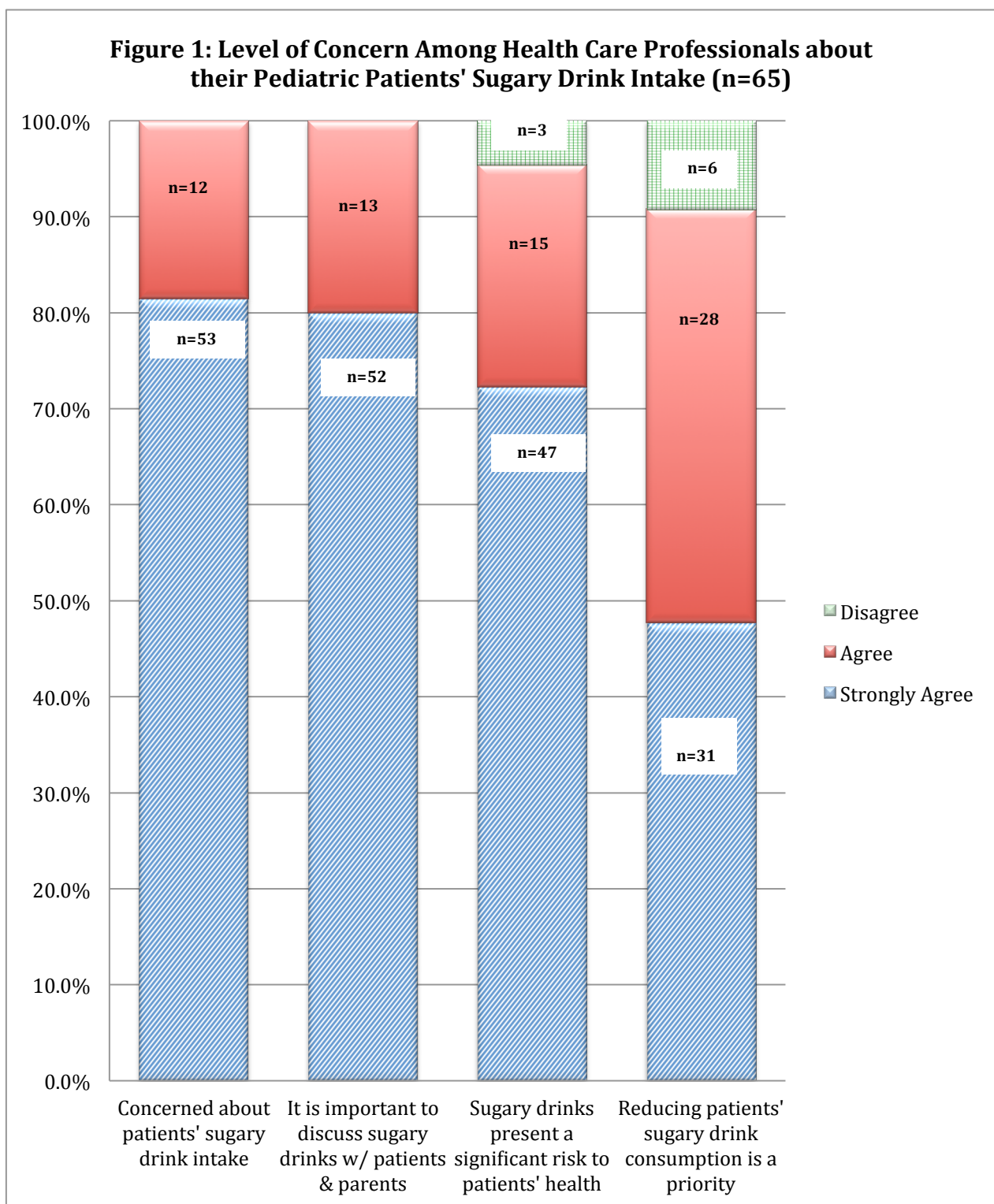


Figure 2

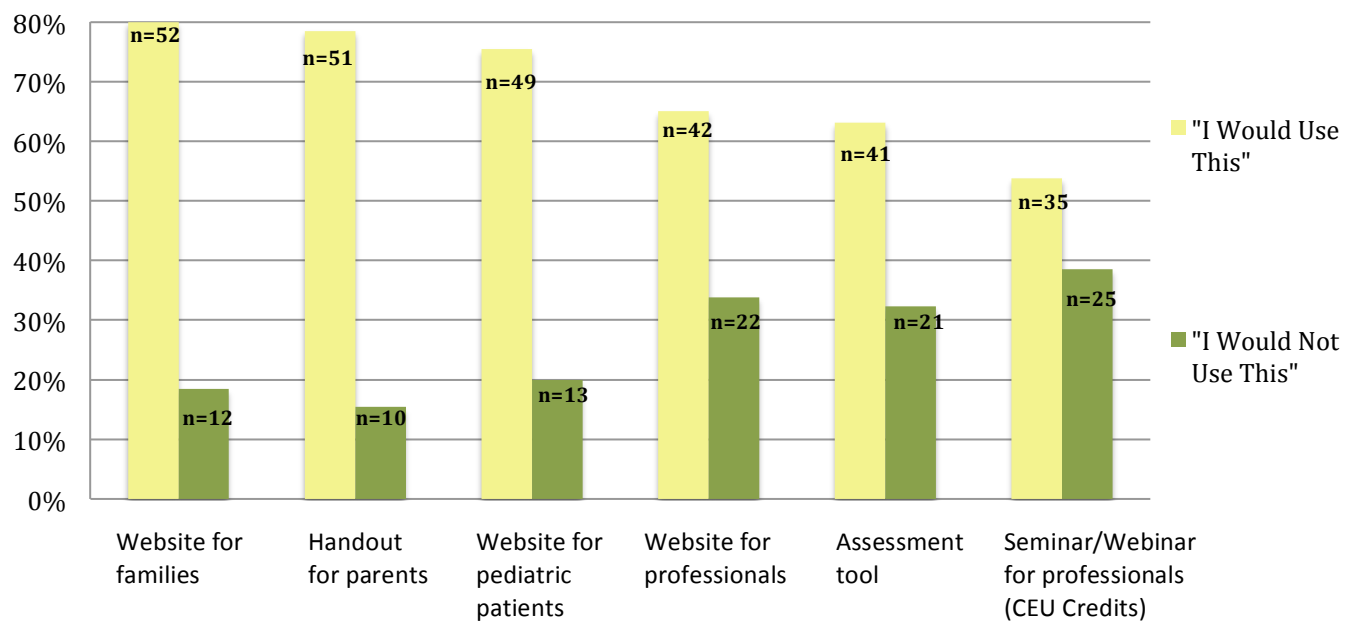
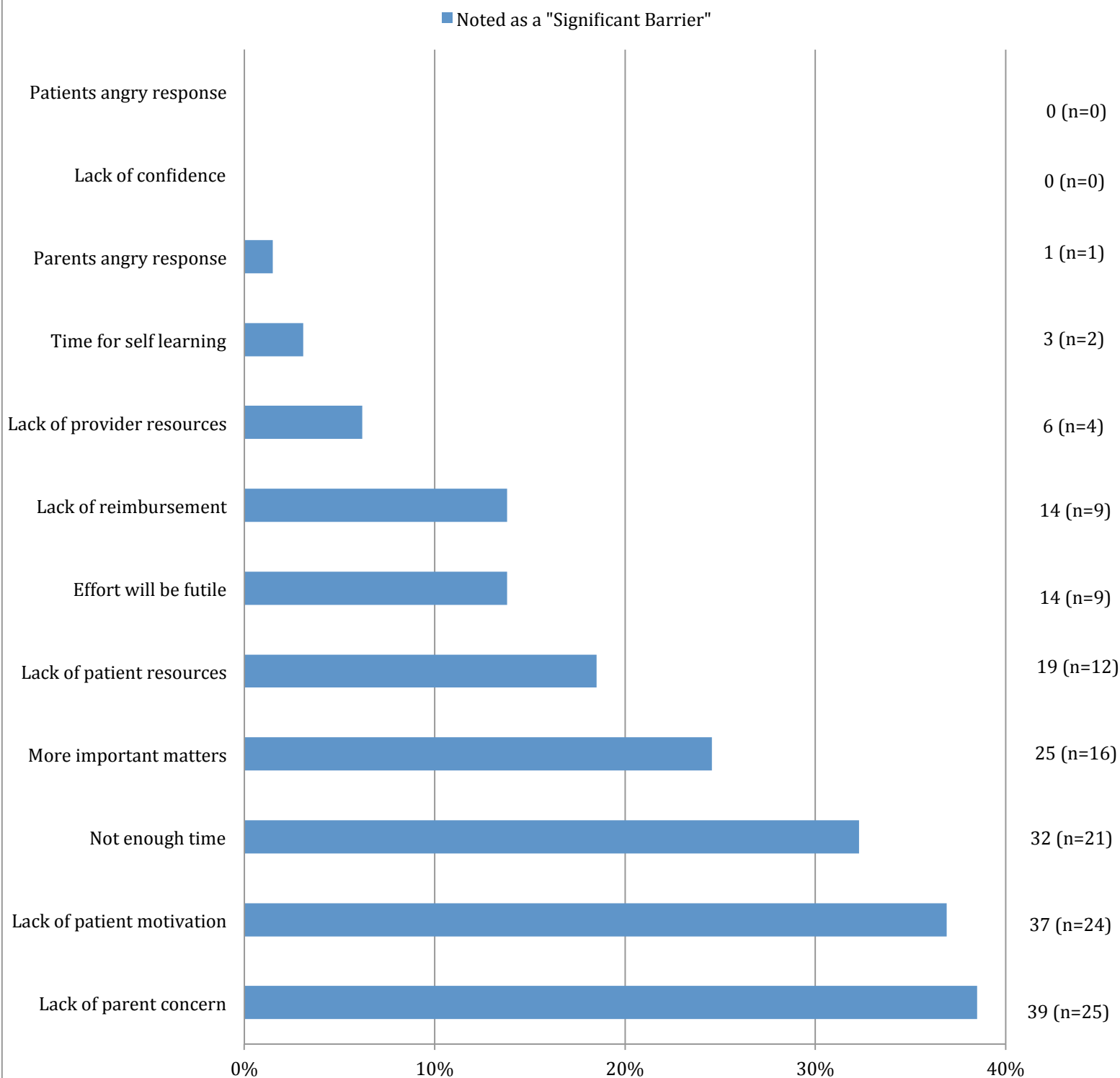
Figure 2: Resources for Health Care Professionals to Assist in Reducing Sugary Drink Consumption (n=65)

Figure 3

Figure 3: Perceived Barriers of Health Care Professionals to Addressing Sugary Drinks (n=65)



Appendix A

Survey Script

Thank you again for agreeing to help us. So that I don't miss anything important, I am going to ask you a set of questions for each part of the survey. After that, I have some general issues that I would like to talk about with you...

Part I

1. Part I of the survey was about your opinions of sugary drinks and the care of your pediatric patients. For this part of the survey...

- a) What, if any, items were confusing or unclear?

If yes: What suggestions do you have for making item # more clear?

- b) What, if any, items were difficult to find an answer to that matched your experience or opinion?

If yes: Can you tell me more about this item #?

- c) What, if any, items did you answer, "no opinion"?

Please tell me more about what went into this decision for item #.

2. In your opinion, are there any questions missing from this section?

Part II

3. Part II of the survey was about your experiences as a practitioner related to sugary drinks. For this part of the survey...
 - a) What, if any, questions were confusing or unclear?

If yes: What suggestions do you have for making question # more clear?

- b) What, if any, questions were difficult to find an answer to that matched your experience or opinion?

If yes: Can you tell me more about this question?

- c) What, if any, questions did you answer, "don't know"?

Please tell me more about what went into this decision for question #.

4. In your opinion, are there any questions missing from this section?

Part III

5. Part III of the survey was about potential barriers you may have experienced in your efforts to reduce sugary drink consumption among your pediatric patients. For this part of the survey we used a new format...

- a) What did you think about this change in format?

- b) What, if any, items were confusing or unclear?

If yes: What suggestions do you have for making item # more clear?

- c) What, if any, items were difficult to find an answer to that matched your experience or opinion?

If yes: Can you tell me more about this item?

- d) What, if any, items did you answer, “not applicable”?

Please tell me more about what went into this decision for item #.

6. In your opinion, are there any items missing from this section?

Part IV

7. Part IV of the survey was about resources you may currently use or be interested in using in your practice. For this part of the survey...
 - a) What, if any, items were confusing or unclear?

If yes: What suggestions do you have for making item # more clear?

- b) What, if any, items did you answer, "I would not use this"?

Please tell me more about what went into this decision for item #.

8. In your opinion, are there any items missing from this section?

Part V

9. Part V of the survey was about your information. For this part of the survey...

a. What, if any, questions were confusing or unclear?

If yes: What suggestions do you have for making item # more clear?

b. What, if any, questions were difficult to find an answer to?

If yes: Can you tell me more about this question?

c. What, if any, questions did you answer, "don't know"?

Please tell me more about what went into this decision for item #.

- c. We included reminders about what sugary drinks are throughout the survey. Was this of any help to you as you completed the survey?

13. What do you think about the overall appearance of the survey?

- a. Is the font size appropriate?

- b. Is the cover appealing?

14. What do you think about the organization of the survey?

- a. Is the order of the parts appropriate?

15. What, if any, suggestions do you have about the instructions at the beginning of the survey?

16. We don't have the resources to pay anyone to participate in this survey. What, if any, suggestions do you have to encourage health care professionals to participate? (i.e. drawing)

17. Do you have any other suggestions to help us improve the survey?

Sugary Drinks and Children:



Perceptions of Health Professionals



Survey Sponsored by:
Department of Agriculture, Nutrition, & Veterinary Sciences
University of Nevada, Reno
Reno, NV 89557

ID# _____

Instructions

The purpose of this survey is to gain a better understanding of health professionals' opinions and practices regarding sugary drink consumption by pediatric patients. The survey consists of five parts:

- Your opinions about sugary drinks
- Your experiences related to pediatric patients and sugary drinks
- Barriers you may have encountered in your practice
- Resources related to sugary drinks
- Information about you

The survey should take no longer than 10 minutes to complete. When you have finished, please return the survey in the enclosed postage-paid return envelope.

Please note that you have been assigned an ID number (above). This is to let us know that your survey has been returned. However, the results of this study will never include the names of those who returned a survey.

For the purpose of this survey, **sugary drinks are:**

- Beverages with added caloric sweetener(s) such as sugar, honey, and/or high fructose corn syrup.** Examples include regular soft drinks; juice drinks, cocktails and punches; flavored milks; sports drinks; and sweetened water, coffee or teas.
 - Not beverages with artificial sweetener(s).** Examples include diet soft drinks; and “calorie-free” sweet water, coffee and teas.
 - Not beverages with naturally-occurring sugar.** Examples include 100% fruit juice and unflavored milk.



Please turn the page to begin.

Part I.

This part is about your opinions of sugary drinks. For each statement, please check the response that best matches your opinion.

1. I am concerned about the consumption of sugary drinks by my pediatric patients.

- Strongly agree
- Agree
- Disagree
- Strongly disagree
- No opinion

2. It is important to discuss sugary drinks with my pediatric patients and their parents/guardians.

- Strongly agree
- Agree
- Disagree
- Strongly disagree
- No opinion

3. Sugary drinks present a significant risk to the health of my pediatric patients.

- Strongly agree
- Agree
- Disagree
- Strongly disagree
- No opinion

4. Reducing sugary drink consumption by pediatric patients is a priority in my practice.

- Strongly agree
- Agree
- Disagree
- Strongly disagree
- No opinion

*Sugary drinks are
beverages with added sweeteners.*

Part II.

This part is about your experience as a practitioner. For each question, please check the response that best matches your experience.

5. How often do you ask your pediatric patients about their consumption of sugary drinks?

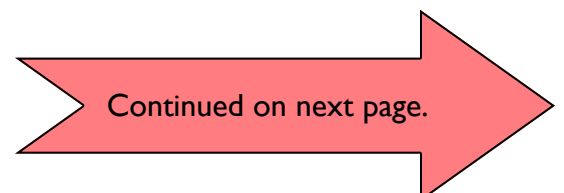
- Regularly
- Sometimes
- Rarely
- Never
- Don't know

6. How often do you follow-up with your patients about their consumption of sugary drinks?

- Regularly
- Sometimes
- Rarely
- Never
- Don't know

7. How often is your pediatric patients' consumption of sugary drinks recorded in their medical record?

- Regularly
- Sometimes
- Rarely
- Never
- Don't know



8. How often do you teach your pediatric patients or their parents/guardians about sugary drinks?

- Regularly
- Sometimes
- Rarely
- Never
- Don't know

9. How often do you provide written materials about sugary drinks to your pediatric patients or their parents/guardians?

- Regularly
- Sometimes
- Rarely
- Never
- Don't know

10. How often do you recommend an online resource about sugary drinks (e.g., Website) to your pediatric patients or their parents/guardians?

- Regularly
- Sometimes
- Rarely
- Never
- Don't know

11. How often do you work with your pediatric patients or their parents/guardians to set goals for reducing consumption of sugary drinks?

- Regularly
- Sometimes
- Rarely
- Never
- Don't know

*Sugary drinks are
beverages with added sweeteners.*

12. How often do you discuss barriers to reducing sugary drinks with your pediatric patients or their parents/guardians?

- Regularly
- Sometimes
- Rarely
- Never
- Don't know

13. How often do you follow up with your pediatric patients or their parents/guardians, about the progress toward meeting a goal to reduce consumption of sugary drinks?

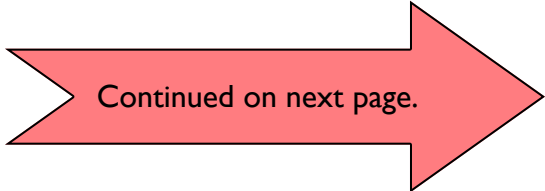
- Regularly
- Sometimes
- Rarely
- Never
- Don't know

14. How often do you refer your pediatric patients or their parents/guardians to a registered dietitian/nutritionist because of their consumption of sugary drinks?

- Regularly
- Sometimes
- Rarely
- Never
- Don't know

15. How often do you refer your pediatric patients or their parents/guardians to another health professional (not a registered dietitian/nutritionist) because of their consumption of sugary drinks?

- Regularly
- Sometimes
- Rarely
- Never
- Don't know



Continued on next page.

Part III.

This part is about potential barriers you might have experienced in your efforts to reduce sugary drink consumption among your pediatric patients. For each barrier, please check the box that best matches your experience.

Potential barriers to reducing pediatric patients' sugary drink consumption:	Not a barrier	Somewhat of a barrier	Significant barrier	Not Applicable
16. Not enough time with my patients	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Not enough time for me to learn about reducing sugary drinks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Lack confidence in my ability to effectively discuss reducing sugary drinks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. Concerns about patients' angry response	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Concerns about parents'/guardians' angry response	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. Concern that my effort will be futile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. Lack of reimbursement for my counseling time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23. More important matters to address during patients' appointment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. Lack of resources to distribute to patients (e.g. handouts on sugary drinks)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25. Lack of resources to enhance my knowledge of sugary drinks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26. Lack of patient willingness to reduce sugary drink consumption	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27. Lack of parent/guardian concern about child's consumption of sugary drinks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part IV.

This part is about resources to assist in reducing sugary drinks consumption. For each resource, please check the response that best matches your practice.

28. Tool to assess sugary drink intake (e.g., patient questionnaire):

- I would use this if made available
 - I would not use this
 - I already use this (if yes, please write the name of the tool below)
-

29. Handout on sugary drinks for parents/guardians:

- I would use this if made available
 - I would not use this
 - I already use this (if yes, please write the name of the handout below)
-

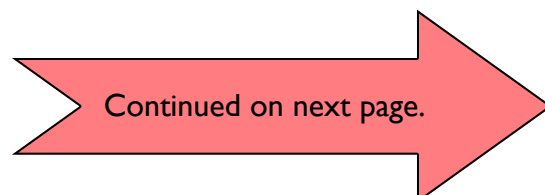
30. Handout on sugary drinks for children:

- I would use this if made available
 - I would not use this
 - I already use this (if yes, please write the name of the handout below)
-

31. Seminar/Webinar on sugary drinks for professionals (with continuing education credits):

- I would use this if made available
 - I would not use this
 - I already use this (if yes, please write the name of the Seminar/Webinar below)
-

*Sugary drinks are
beverages with added sweeteners.*



32. Website on sugary drinks for professionals:

- I would use this if made available
 - I would not use this
 - I already use this (if yes, please write the name of the website below)
-

33. Website on sugary drinks for families:

- I would use this if made available
 - I would not use this
 - I already use this (if yes, please write the name of the website below)
-

Part V.

This part of the survey is about you. Please check the correct response or provide the information requested.

34. What is your gender?

- Male
- Female
- Prefer not to answer

35. What is your area of practice?

- Dentist
- Nurse Practitioner
- Physician Assistant
- Physician – Family practice
- Physician – Pediatrics
- Other (if yes, please note area of practice) _____

36. How long have you been practicing as a health professional?

- 0-5 years
- 6-10 years
- 11-15 years
- 16-20 years
- More than 20 years

*Sugary drinks are
beverages with added sweeteners.*

37. What best describes your practice?

- Community clinic
- Private practice
- Other (if yes, please note practice setting) _____

38. Approximately what percentage of your patients are under 18 years old (i.e., are pediatric patients)?

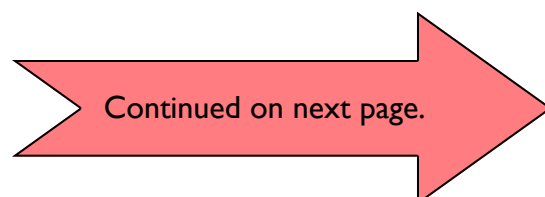
- 0%
- 1-25%
- 26-50%
- 50-75%
- >75%
- Don't know

39. Approximately what percentage of your pediatric patients, in general, are insured by Medicaid through Health Plan of Nevada, Amerigroup, and/or Scion?

- 0%
- 1-25%
- 26-50%
- 50-75%
- >75%
- Don't know

40. Approximately what percentage of your pediatric patients, in general, are insured by Nevada Check-Up through Health Plan of Nevada, Amerigroup and/or Scion?

- 0%
- 1-25%
- 26-50%
- 50-75%
- >75%
- Don't know



41. Please use the space below for any additional comments you wish to share about sugary drinks.

Thank you for completing this survey!
Please return it in the postage-paid envelope.

Appendix CNotification Letter

March 28, 2012,

First & Last Name, Credentials
Practice Name
Address

Dear _____,

We are writing to tell you about a project underway at the University of Nevada, Reno. The overall purpose is to reduce children's intake of sugary drinks. As a health care professional, your opinions and experiences related to this topic are of great importance. In a week or so, you will receive an invitation to participate in this project by completing a survey about sugary drinks.

We understand that your schedule is very full. Therefore, we wanted to let you know about the survey ahead of time. If you choose to participate, the survey will take about 10 minutes of your time to complete. A self-addressed, postage-paid envelope will be included for your convenience.

There is no need for you to do anything now. The invitation and survey will arrive in about a week. If you would prefer not to receive these items, please let us know by calling 775-784-8076.

This project will only be successful with the generous help of professionals such as you. Thank you in advance for considering this opportunity.

Sincerely,

Jamie Benedict, Ph.D., R.D.
Associate Professor

Lisa Gilmore
Nutrition Student

Appendix D

Letter of Invitation for Health Professionals

April 3, 2012

First & Last Name, Credentials
Practice Name
Address

Dear _____,

We are writing to invite you to participate in a research study by completing the enclosed survey.

This research study relates to one component of a larger investigation aimed at reducing children's intake of sugary drinks. The purpose of this component is to learn about health professionals' opinions and experiences regarding sugary drinks and their pediatric patients. The findings will be useful in developing community-wide strategies to promote better nutrition for children in Northern Nevada.

In order to accurately portray your opinions and experiences, we invite you to complete and return the enclosed survey. The survey includes questions about sugary drinks and your pediatric patients; barriers you may have experienced in your efforts to reduce intake of sugary drinks; and resources that you have used or might use. The last part of the survey includes a few questions about you. It should take no more than 10 minutes to complete the survey. A postage-paid, addressed envelope is enclosed for your convenience.

You are being asked to participate because, according to Amerigroup, Health Plan of Nevada or Medicaid Dentistry websites, you treat patients under 18 years of age who are insured through Medicaid or Nevada Check-up (the State Children's Health Insurance Program). Your participation, however, is completely voluntary. There is no penalty for not participating. Anticipated risks associated with completing this survey are minimal. You may skip any questions you do not wish to answer and may withdraw at any time by not returning the survey.

Your response to the questions in the survey will be kept confidential. Your name will never be included in any resulting publications or reports. Please do not write your name on your survey. We have assigned each of our health professionals a unique identification number. This number is recorded on the front of your survey and will only be used for the purpose of identifying who returned their survey so we don't send you unnecessary reminders. The completed surveys will be secured in a locked file cabinet for a maximum of five years. During that time, only study staff, members of the University of Nevada, Reno Social Behavioral Institutional Review Board, and

representatives from our funding agency will have access. Once the surveys are no longer needed, they will be shredded and any computer files will be destroyed.

Page 2 of 2

We recognize that your time is limited and very valuable. Although we cannot pay you for participating in this study, we would like to show our appreciation by providing you with an opportunity to win an iPod touch valued at approximately \$200. On Friday, May 4th, we will draw one survey. If yours is drawn, we will send you the iPod, along with a "Receipt of Participant 'Thank You' Gift" form and a self-addressed/stamped envelope. Please note that your completed form will be provided to the UNR Controller's Office for accounting purposes only.

If you have further questions regarding the study please contact Dr. Benedict at (775) 784-6445 or Lisa Gilmore at (775) 784-8076. You may ask about your rights as a research subject or you may report (anonymously if you so choose) any comments, concerns, or complaints to the University of Nevada, Reno Social Behavioral Institutional Review Board by calling (775) 327-2368 or by addressing a letter to the Chair of the Board, c/o UNR Office of Human Research Protection, 218 Ross Hall/331, University of Nevada, Reno, Reno, NV 89557.

Sincerely,

Jamie Benedict, Ph.D., R.D.
Associate Professor

Lisa Gilmore
Nutrition Student

Appendix E

Post Card

April 9, 2012

Last week a survey about sugary drinks was mailed to you. If you have already completed and returned your survey, please accept our sincere thanks. If not, we hope you will do so today. The opinions and experiences of health professionals are very important to us.

If you did not receive a survey, or it was misplaced, please call us at 775-784-8076 and we will get another one in the mail right away.

Thank you very much for your help with this project.
We greatly appreciate it.

Sincerely,

Jamie Benedict, Ph.D., R.D.
Associate Professor

Lisa Gilmore
Nutrition Student

Appendix F

Follow-Up Letter for Non-Respondents

April 23, 2012

Dear _____,

About two weeks ago, we sent you a survey about sugary drinks. According to our records, it has not been returned.

The purpose of the study is to learn about health professionals' opinions and experiences regarding sugary drinks and their pediatric patients. The completed surveys we have received thus far have provided extremely helpful information and will be useful in developing community-wide strategies to promote better nutrition for children in Northern Nevada. If you have completed and returned your survey to us, please accept our sincere thanks and disregard this information.

Briefly, let me remind you about our survey procedures. Your responses to the survey are confidential. Your name will never be included in any publications or reports. Please do not write your name on the survey. Your participation in this study is completely voluntary. There is no penalty for not participating.

There is a number of the cover of the enclosed survey which is used to note who returned their survey so we don't send unnecessary reminders. Upon receipt of your completed survey, you will be entered in a drawing for an iPod Touch to be conducted on Friday, May 4th. Please note that the winner will be asked to sign a "Receipt of Participant 'Thank You' Gift" form which will be provided to the UNR Controller's Office for accounting purposes only.

If you haven't already done so, we hope that you complete and return the survey soon. It should take no more than ten minutes. We have included a postage-paid addressed envelope for your convenience.

If you have questions regarding the study please contact Jamie Benedict at (775) 784-6445 or Lisa Gilmore at (775) 784-8076. You may ask about your rights as a research subject or you may report (anonymously if you so choose) any comments, concerns, or complaints to the University of Nevada, Reno Social Behavioral Institutional Review Board by calling (775) 327-2368, or by addressing a letter to the Chair of the Board, c/o UNR Office of Human Research Protection, 218 Ross Hall/331, University of Nevada, Reno, Reno, NV 89557.

Sincerely,
Jamie Benedict, Ph.D., R.D.
Associate Professor

Lisa Gilmore
Nutrition Student)