CAREGIVER KNOWLEDGE ABOUT NUTRITIONAL EDUCATION NEEDS FOR
ADOLESCENTS TAKING ANTIPSYCHOTIC MEDICATION

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DNP Project Approval Form

This is to certify that Hannah Forysinski

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successfully defended their DNP research project entitled:

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Abstract

**Background:** Little is known about caregiver preferences and attitudes towards nutritional education modalities for caretakers of high-risk for obesity adolescents on anti-psychotic medications. Historically, after weight gain is established in an adolescent, the antipsychotic is switched to a more weight neutral medication that may not control symptoms as well.

**Purpose:** To explore caregivers’ preferences towards nutritional education modalities and identify caregivers’ perceptions regarding their adolescent’s current eating habits and weight.

**Framework:** “Plan, Do, Study, Act” or the PDSA framework, was used.

**Method/Design:** A mixed methods design was used for this needs assessment conducted in a high-volume, adolescent, psychiatric outpatient urban clinic. Twenty-five caregivers of at high-risk for obesity adolescents were identified via chart review and administered a paper survey to identify educational needs and weight perceptions. Four of these participants completed an interview to provide anecdotal information to supplement survey data.

**Results:** Most caregivers preferred education in the form of a pamphlet compared to other modalities. Data analysis with SPSS showed no significant correlation with client demographics and actual BMI, household income and weight perception, as well as income and education modality. Education themes identified in interviews included a main theme of reinforcing conscious awareness with multiple subthemes regarding individualized education.

**Conclusion:** Caregivers preferred pamphlets for education regarding nutrition. This is information they can refer to after the provider appointment. Trends were discovered between ethnicity and weight perception, with Hispanic caregivers often underestimating their adolescent’s weight, which may contribute to obesity.

**Keywords:** nutritional education, adolescent psychiatric patients, obesity, antipsychotics
Weight gain resulting in overweight and more particularly, obesity, is a growing problem worldwide (Bak et al., 2014). Being overweight or obese predicts cardiovascular risk, metabolic syndrome, diabetes mellitus type 2, and an increased risk for cancer (Bak et al., 2014). Not only does weight gain cause significant physical issues, it can also affect the adolescent’s mental health, including self-esteem and body image. In the United States, healthcare spending on conditions associated with obesity has doubled in the past decade and could reach $147 billion a year (Maayan & Correll, 2010). Most antipsychotics (AP), specifically atypical medications, cause weight gain among children and adolescents (McDougle, 2016). These are the medications that are prescribed for not only psychosis, but also behavioral problems and irritability in those less than 18 years of age. These medications induce changes in appetite and food intake, most likely because of the interaction between neurotransmitter systems (Bak et al., 2014). Research examining the differential effects of various AP medications has shown that both the frequency, as well as the amount of weight-gained, is high in clients treated with olanzapine (average gain of 2.3 kg/month), clozapine (1.7 kg/month), and quetiapine (1.8 kg/month), all of which are Food and Drug Administration (FDA) approved for adolescent use (Shrivastava & Johnston, 2010).

Not only are pharmacokinetics to blame for weight gain, but lifestyle choices such as diet and exercise are also notorious contributors to obesity. Research reveals that only 44% of male adolescents and 27% of female adolescents meet the minimum average daily goal of at least five servings of vegetables and fruits (Silk et al., 2008). Individuals with lower incomes and less education are also more likely to have poorer diets than their counterparts (Silk et al., 2008). Although literature has shown that nutritional education may reduce the incidence of obesity in
high-risk clients, including those on AP, little has been done to understand caregiver preferences and attitudes towards this issue in order to better tailor interventions.

**Project question**

The project question is, “Within an urban outpatient mental health clinic, how do caregivers of adolescent psychiatric patients at high risk for obesity perceive the adolescent’s nutritional educational needs and options?” By understanding what type of nutritional education the caregivers need, the clinic will be able to deliver education directed at reducing childhood obesity as related to psychiatric illness and AP treatment. Furthermore, bridging this gap in clinical practice could help adolescents and their caregivers prepare for any possible weight gain associated with medication and encourage them to make lifestyle changes early in treatment to prevent weight gain. Since holistic, individualized client care is the gold standard in health care today, it is important to understand client preferences and attitudes while incorporating previous research in order to propose an educational intervention.

**Project purpose**

The purpose of this DNP project was to determine whether or not there is a need in this particular mental health outpatient setting for nutritional counseling based on responses obtained by caregivers of adolescents who are at risk for obesity. Objectives of this project include (a) to determine whether the caregivers of high-risk for obesity adolescents would be interested in nutritional education and what their preferred teaching method is; and (b) to identify caregiver’s perceptions regarding their children’s current eating habits and weight as related to the national body mass index (BMI) standard. Future implications will include the clinic initiating a permanent nutritional intervention based on the data collected in this study.
Background and justification

Historically, urban children often do not have access to fresh fruits and vegetables due to lack of resources, transportation, and varying health perceptions (Adams et al., 2012). Assessing the need for nutrition education among caregivers of urban adolescents should be a priority among providers working in adolescent psychiatric clinical settings. It is not only the pediatricians “job,” but also one of the basic duties as a nurse, acting as an advocate for the client. Seeing how the client’s BMI relates to national standards compared to their caregiver’s perception would also be an interesting concept to evaluate, as few literary works have researched this in a similar setting.

Once weight gain is established in a client who is on an AP, a switch is often made to a different AP, preferably to one that is less likely to cause weight gain (Cerovecki et al., 2013). Many of these weight neutral APs are newer, only having been on the market for less than a decade (Kane, 2011). As a result, few long-term studies have been done to show the effects of these medications, such as Lurasidone, on children and adolescents (Stahl, 2017). Aside from weight gain, many clients do well on APs as they help make symptoms of irritability and behavioral issues more manageable for both the adolescent and their caregiver. Switching to a different AP may exacerbate an adolescent’s symptoms and/or may result in poor symptom management. Instead of switching an AP due to weight gain, conservative measures such as nutrition and physical activity counseling should first be tried through a multidisciplinary approach (Hoffmann et al., 2005). Studies have also shown that how a professional explains side effects of a medication may affect the interpretations of information received as well as compliance among clients (Dyck, Deschamps, & Taylor, 2005). Adolescence is a time where body image and acceptance among peers is very common, so medication compliance may be
further deferred if they know that a medication has the potential for weight gain (Duarte, Steen, & Fujimori, 2017). If side effects such as weight gain are explained upfront and in detail prior to starting an AP, the client can better prepare how to manage side effects in advance.

Significance

Since the 1980 National Health and Nutrition Examination Survey, the rate of childhood obesity among adolescents aged 12-19 has quadrupled from 5% to 20.6% (State of Obesity, 2018). Instead of waiting until weight gain has already become an issue for adolescents, early interventions in the form of nutritional education should be given in depth to caregivers prior to the AP being administered. Educational interventions such as this may help minimize the chances of the AP getting switched, therefore decreasing the associated risks that come with childhood obesity.

In the busy, urban adolescent mental health outpatient clinic utilized for the purpose of this DNP project, the importance of proper nutrition is routinely and briefly discussed both in counseling sessions and in provider appointments. After conducting an informal interview with a child and adolescent psychiatrist working in the clinic, it was determined by the DNP project student and psychiatrist that current nutritional education offered in this setting to adolescents and their caregivers could be improved. The psychiatrist reported that currently, she is unable to give her adolescent clients and/or their caregivers thorough information regarding nutrition due to time constraints within the appointment. The psychiatrist also reported observing what appeared to be a lack of knowledge in the adolescent caregivers regarding nutritional foods and an associated weight gain with AP prescriptions. Clients accessing the mental health outpatient clinic utilized as the site for this Doctor of Nursing Practice (DNP) QI project, live in inner cities surrounding Buffalo, New York (NY). Because they are underage, clients accessing the clinical
setting for psychiatric care are still living with caregivers who perform grocery shopping duties. This identified clinical gap in practice supported the need to evaluate current nutritional educational needs and perceptions among caregivers of high-risk adolescents accessing the outpatient clinic.

**Advanced practice nursing role**

Roles of the advanced practicing nurse (APN) include being an educator and patient advocate (American Nurses Association [ANA], 2018). The Doctorate of Nursing Practice [DNP] Essentials that this quality improvement (QI) project will address include essentials I, II, VII, and VIII. In particular, this project encompasses essential VII which is the clinical prevention and population health for improving the nation's health. In addition, this project may provide insight regarding how to better improve our nation's adolescent health and how to promote access to different healthcare modalities as set forth by the American Association of Nurse Practitioner’s Association [AANP] (2018). Understanding client preferences for nutritional education is important to improve health outcomes for adolescent populations with psychiatric issues who are placed on medications that cause weight gain. The Institute of Medicine (IOM) (2001) has six aims for healthcare which include safety, effectiveness, timeliness, efficiency, equitability, and patient-centeredness. This proposed QI project will encompass all six of these aims since using educational methods clients and caregivers prefer will undoubtedly promote engagement.

**Conceptual framework**

Because the project consisted of a needs assessment within a particular clinic, the first step in a QI study, the conceptual framework was the Plan, Do, Study, Act (PDSA) cycle which is depicted in Figure 1. The PDSA cycle is shorthand for testing a change by developing a plan to test the change (plan), carrying out the test (do), observing and learning from the
consequences (study), and determining what modifications should be made to the test (act) (Institute for Healthcare Improvement [IHI], 2018). Using PDSA cycles enables the researcher to test changes on a small scale, building on the learning from these test cycles in a structured way before complete implementation (ACT Academy, 2017). This gives stakeholders the opportunity to see if the proposed change will succeed and is a powerful tool for learning from ideas that do and don’t work (ACT Academy, 2017).

[Insert Figure 1 about here]

**Review of the literature**

Despite conflicting research on whether or not educational material alone decreases the rate of obesity among adolescents, gaps in literature exist in regards to caregiver preferences and attitudes towards nutritional education. In order to increase client and caregiver compliance and engagement, it is necessary to collect and analyze data provided by both new and existing research. There are three traditional modes for nutritional education in various outpatient settings in which nutrition may not be the main focus: group classes, printed material, and digital material (United States Department of Agriculture, 2018).

Ha et al. (2009) analyzed three-day food diaries from 80 college students who were enrolled in a basic nutrition class to see if they made healthier choices during and after this intervention. The authors also administered pre and posttests to participants to see how their eating habits had changed. In addition to analyzing nutritional records, they also provided the students with interactive classroom activities in supplementation to lectures. Lectures provided were focused on the prevention of chronic diseases by getting proper nutrition. Class-based nutrition intervention combining traditional lecture and interactive activities was shown to be successful in decreasing soft drink consumption.
In a cluster-randomized control trial by Nyberg et al. (2016), a class was offered to 354 caregivers of six-year-old children who lived in disadvantaged cities surrounding Stockholm to educate them about the importance of proper nutrition. The results were significant in that 74% of all caregivers involved in this pilot program reported that they were able to incorporate small, healthy changes into their child’s meals. However, there was no significant change in the child’s BMI although the length of classroom course may have been a factor in this. Nutrition programs in schools proved to be expensive, but it also had many benefits that included: reduced breakfast-skipping among adolescents, and increase in the consumption of fiber rich foods, water, healthier snacks, milk, fruit, and vegetables despite also being offered soda and processed foods in the cafeteria (Wang & Stewart, 2013). These examples illustrate that classes seem to be effective for delivering information to clients. However, much of the existing literature states that these programs have been implemented in schools, which may be bias.

Printed materials, such as pamphlets or informational hand-outs, are another modality that may be used to give nutritional information to caregivers of high-risk adolescents. The Forbes et al. (2017) study set out to discover what education was available in printed form to Canadian pregnant women who were seeking nutritional guidance at an Alberta, Canada community health center. Nearly a quarter of all pregnant women being seen there were overweight. After analyzing the six written materials available, the authors found that all were very “general” and often referred the client back to their physician for weight gain guidelines. Four out of the six pamphlets emphasized “consuming enough calories” but two of the four did not specify how many that actually was. Although women should be referring back to their obstetrician for guidance, the pamphlets analyzed provided very vague information (Forbes et al., 2017).
A randomized field study in four Missouri primary care clinics compared the effectiveness of three types of printed educational materials designed to increase nutrition label reading (Kreuter et al., 2002). The 951 participants completed a baseline assessment and were randomly assigned to one of three intervention groups or to a control group. Printed materials were either tailored and personalized, general and personalized, or general and non-personalized. A three-month follow-up questionnaire was mailed to participants’ homes to assess the effectiveness of teaching them on how to read nutrition labels. It was found that the client’s ability to read nutrition labels increased across the board, but those with tailored and personalized materials had increased their baseline knowledge the most. However, other existing research shows that printed educational material alone is not effective in increasing primary care physician knowledge, patient outcomes, and behavior when applied to a variety of topics (Grudniewicz et al., 2015). Printed educational material is more effective when it is specialized in a certain area such as diabetes nutritional information in an endocrinologist office (Guadagnoli et al., 2002). These examples show that printed educational material can be effective if it is targeting the right audience in a specific setting and is personalized.

Digital material such as websites, social media outlets, and video games are increasing in popularity due to rapidly increasing technological advancements and the easy accessibility of information on the internet. The Silk et al. (2008) study showed that 84% of women surveyed preferred interactive websites compared to tri-fold pamphlets or online video games. Sixty-five percent of these women had computers in their homes, while 75% of participants had access to the internet. Both website and video game modalities were rated significantly higher on keeping the participant’s attention; the video game was rated significantly lower than the website on ease of understanding; and the website was significantly higher than the pamphlet on intention to use
in the future. Duncan et al. (2012) found that middle-aged males aged 35-54-years-old (n= 317) are less likely to use a website designed in conjunction with a mobile application as compared to a pamphlet. The participants stated that in this two-arm randomized controlled trial, written material had easier readability regarding nutrition literacy (Duncan et al., 2012). There were no significant demographic discrepancies among the two groups. Women may however, prefer online material.

The Emerson et al. (2015) study, found that website nutritional intervention was effective in educating mothers who were on women, infant and children (WIC) food and nutrition services. The website, children eating well, (CHEW), was effective in educating mothers on how to get the most nutritious food for the amount of money that they were given to spend on groceries. In addition, it also displayed healthy recipes that were culturally based. When the participants were surveyed on their attitudes towards the website, they stated that it had improved knowledge of nutrition concepts related to chronic diseases achieved among third year medical students for topics related to dietary recommendations for diabetics (p<0.0001), screening for hyperlipidemia (p<0.007), indications for lifestyle modification (p<0.008), and dietary recommendations for the implementation of lifestyle modifications (p<0.0001) (Emerson et al., 2015). Cultural preferences regarding food and nutrition makes a huge impact in applicable nutritional education. These studies portray the importance of focusing on area demographics when developing a website or other means of digital outlets in order to increase patient participation and outcomes.

Because the target population that this study is focusing on is under the age of 18, caregivers undoubtedly play a big role in providing food within the household and preparing meals for adolescents. Giving adolescents written education alone does not appear to be
effective in changing their nutritional habits (Toral & Slater, 2012). In a randomized trial, 7th and 8th grade middle school adolescents (n=771) from 10 different schools in Brazil were split into control (n=487) and intervention groups (n=373) (Toral & Slater, 2012). Both groups received pre and post assessments regarding their eating habits including daily servings of fresh fruits and vegetables, sugar, and red-meat intake. Those in the intervention group received colorful printed magazines every month that promoted healthy eating and information newsletters directed toward the participants’ stages of change that had been identified at the beginning of the study, with the aim of promoting fruit and vegetable consumption. The magazines were handed out at the schools and the newsletters were mailed home for a six-month period (Toral & Slater, 2012). There was no significant change in nutritional practices between the control and intervention group. Demographics were also collected and analyzed, in which the authors looked for trends. As expected, those adolescents who lived in families with low socioeconomic status, family income at the poverty line or below, and poor family education were determinants of the decreased intake of fresh fruits and vegetables (Toral & Slater, 2012). Although adolescents should certainly be aware of a well-balanced diet and proper nutrition, their caregivers also need to be largely involved since it is typically their finances that are being used to purchase groceries for use in the home. By knowing how the clinic’s population of low-income urban caregivers would like to receive information, this could theoretically increase nutritional foods present in the household and increase the adolescent’s compliance with consuming them.

It has been shown that caregivers can vary considerably in what they personally consider healthy and often hold inaccurate perceptions of their own child's weight (Miller et al., 2006). These misperceptions tend to vary by ethnicity, with some ethnic minority populations
misperceiving their children as lighter than measured (Miller et al., 2006). Ethnicity moderated the association between income and caregiver BMI and weight perceptions in the Miller et al. (2006) study. For girls in general, African Americans with lower incomes perceived heavier girls with higher BMIs as healthier, whereas African Americans with higher incomes perceived girls similarly to white caregivers, which is that thinner is healthier (Miller et al., 2006). Likewise, African American caregivers with higher BMI perceived both girls and boys who were heavier as healthier, whereas caregiver BMI was unrelated to weight perceptions at lower BMIs (Miller et al., 2006).

Ackerman et al. (2007) also compared the adolescent’s actual BMI compared to the caregiver’s paper-and-pencil reports. The authors used a sample population from 17 cities that were nationally representative of the general population in regards to ethnicity, geographic region, and household income (n=1177). While caregivers of overweight and at risk children had a tendency to underreport their children’s weight status, caregivers of underweight children tended to over report their children’s weight status (Ackerman et al., 2007). Although this study reported the demographics of the sample population, it did not break down how each of the demographics and their perceptions compared to each other.

Methodology

Study design

This needs assessment is a mixed methods, descriptive study focusing on the beginning phase of the PDSA cycle for quality improvement framework. It involved a mixed methods paper survey that was administered to qualifying caregivers to get feedback on what types of nutritional education they wanted and how to receive it. In addition to the paper survey, content analysis was utilized to look for salient themes within open-ended questions presented in the participant caregiver survey and randomized one-on-one interviews. The caregivers of selected
high-risk for obesity adolescents were first asked to participate via verbal recruitment by the DNP project student. Written consent was obtained from the caregiver in order for the DNP project student to conduct a record review of the client in which certain information including actual BMI, psychiatric diagnosis, and medication was collected. The paper survey focused on the nutritional needs, if any, for the caregivers as related to their adolescent, and the method in which they would like to receive the information. A survey is designed to obtain information about the prevalence, distribution, and interrelations of a phenomenon within a population (Polit, 2010). The survey developed is shown in Appendix B. The survey also collected demographic data including ethnicity, gender, socioeconomic status of the household as determined by self-reported annual income, and age of the client to explore how the caregiver perceived their adolescent’s weight (over, under, average) as related to the above mentioned factors. The researcher then compared caregiver perceptions to actual client recorded BMI as it is updated and recorded every time they come into the office for a prescriber visit.

Four random caregivers who consented to the survey were asked by the DNP project student to participate in a brief, ten-minute interview. Verbal consent was obtained for the interviews. Interviewing caregivers allowed the project student to divulge deeper into questions such as what specific information the caregiver is looking for, what physical activity the adolescent currently has, and what types of foods the adolescent typically eats. This qualitative data in the interviews was then analyzed for salient themes.

Data collection

Survey participants were chosen based on the adolescent clients that were being seen throughout the regular appointment day at an urban, outpatient adolescent mental health and substance abuse clinic near Buffalo, NY. The clients were selected if they proved to be at high-
risk for obesity as discussed above in the inclusion criteria. If these flagged clients showed up to
their appointment with a caregiver, who was identified verbally to the DNP Project student,
verbal recruitment was then discussed and written consent obtained. The participants who were
chosen to do interviews following their returned survey gave verbal consent to the DNP Project
student so that notes could be taken during the session.

Sample and setting

For the purpose of this project, an adolescent is defined as a client who is between the
ages of 12 and 17 years. High-risk for obesity adolescents were identified in the following ways:
they were currently on an atypical AP in which weight gain is a side effect, and currently have a
psychiatric diagnosis to warrant that medication. A caregiver is defined as someone who has
legal custody of the client. The caregivers of qualifying clients were then asked to complete a
paper survey after written consent was obtained. Four caregivers who completed the survey also
completed an anecdotal open-ended question interview with the DNP project student. All
participants were assigned a unique number to allow the researcher to follow them throughout
the project while making them unidentifiable. A target sample size of 25 participants were
chosen to accommodate the timeline available for the study.

Instruments

The mixed methods survey was completed on paper, developed by the DNP Project
student, and focused on questions regarding if previous nutritional knowledge was received, if
any new knowledge was desired, preference on the method of delivery, and perceptions of their
adolescent’s current weight as compared to the national average using a BMI chart (Appendix C-
D). The survey was offered to the caregiver during halfway through the appointment when the
adolescent is interviewed without the caregiver present after written consent was obtained. The
caregiver was easily able to complete this paper survey when asked to step out in the waiting room during this time. It was collected at the end of the adolescent’s appointment and took approximately 10 minutes to complete. Demographic information was also collected on the adolescent as reported by the caregiver. The client’s actual BMI was recorded by the researcher from a chart review and placed on the survey when received from the caregiver.

In order to establish face validity of the survey developed, the DNP project student administered the paper survey to 10 nurse practitioner students to gather feedback on the questions and to change the format or word structure if needed. No changes were suggested or needed. No formal reliability testing took place. All participants were able to complete the survey in this time frame and returned it back to the DNP project student at the end of the appointment. The survey contained ranking, true false, Likert-scale, and open-ended questions.

The interviews were open-ended questions asked by the DNP project to the participant and were completed in fifteen minutes or less in a used group room in which only the participant and the DNP project student were present. The questions were also developed by the DNP Project student in an effort to better understand what specific type of information, if any, caregivers wanted to receive regarding nutrition. The open-ended questions were asked to gain better understanding regarding the adolescent’s current level of activity and eating habits, how much previous knowledge caregivers had regarding a side effect of weight gain, and whether or not this information changed any shopping/eating/cooking habits. Four of the 25 survey participants were randomly asked by the DNP project student to complete the interview. Verbal consent was obtained if they opted to participate. Responses to the questions were handwritten by the DNP project student utilizing direct participant quotes. The DNP project student read each question response back to the participants to ensure the answer was heard and recorded correctly.
The interview responses were de-identified by the DNP project student in the same technique the paper surveys were. Interview responses used the same unique numerical coding system, and were matched to the participant’s survey responses.

Variables

The independent variables in this needs assessment are found in the survey only. They are the type of educational modality preferred (group classes, internet, or typed pamphlet), and race of the client. The dependent variables are the attitudes towards educational modalities and BMI of the client. Some descriptive variables were used to determine relationships between caregiver characteristics and preferences.

Statistical analysis

Quantitative survey data was analyzed using the IBM SPSS version 25 and Microsoft Office Excel 2016. Descriptive statistics was used to express results of survey questions in frequency and percentage. Cross tabulations and chi square tests were used to investigate relationships between ethnicity/demographics and perception of their adolescent’s BMI and educational modality. They were also used to described relationships between other variables based on survey answers. A significance level of 0.05 was used. An adjusted one-way ANOVA was also used to describe the relationship between the ethnicity of the adolescent and their actual BMI.

All open ended anecdotal questions were examined for content and salient topics by using thematic analysis. This gives insight on whether or not certain topics resonate with the caregivers more than others, and whether participants have similar recommendations for improvement in the future. Participate responses were color-coded to a similar theme or subtheme, then supporting quotes were matched to the theme identified. The Braun and Clarke
(2006) article guided the thematic analysis process, but because the sample size was too small in this study, the project student was unable to utilize all six steps outlined.

**Ethical considerations**

Ethical considerations for this needs assessment included obtaining the University at Buffalo’s International Review Board (IRB) approval and written and/or verbal consent obtained from all participating caregivers. Participants were offered to opt of the survey without penalty. Caregiver participation was completely voluntary and they were not given any compensation to complete it, nor were they refused regularly scheduled psychiatric services if they opted out. There are no conflict of interests with the primary researcher. Surveys and interview responses were kept in a locked file cabinet in which only the researcher can access in the adolescent psychiatrist’s office. Surveys and interviews were assigned a unique numerical code so that the privacy of the caregiver and adolescent were maintained. In the event that a caregiver changed their mind and no longer wanted to participate in this study, they were given the researcher’s contact information and would have been removed immediately, with all information shredded and removed from SPSS data. This however, did not happen.

**Results**

**Survey**

A total of 25 participants were surveyed over the course of approximately six weeks. The participants were predominately caregivers of Caucasian (56%) males (52%). Descriptive statistics were also ran to explain the sample population the project student has used in this study. They are shown for the average age, sex, and race of the adolescents, number of biological parents in the household, annual household income, if caregivers wanted more education, the
order of preference for education modality, and caregiver’s weight perception of their adolescent. These statistics are shown in frequency and percent in Tables 1-7.

[Insert Tables 1-7 about here]

The purpose of the study was to see if caregivers wanted more nutritional education in this clinic. Surprisingly, 52% of participants actually did not want more education. Regardless of their response however, they still ranked their order of preference for the education modality. The preferred modality was in the form of a pamphlet (68%). The most popular ranking combination (16%) of modalities were pamphlet, website, then lastly, classroom.

An objective of this research was to explore the relationship between the adolescent’s ethnicities and the caregiver’s perception of their weights. A chi square test was used to describe this relationship (Polit, 2010). When ran on SPSS version 25, the result is: 

\( \chi^2(6) = 8.749, p = .188 \). The relationship between these two variables were insignificant as shown in Table 8.

[Insert Table 8 about here]

The relationship between annual household income and education modality preference were also insignificant. When a chi square test was performed for to describe this relationship, the result was \( \chi^2(15) = 7.487, p = 9.43 \) as described in Table 9.

[Insert Table 9 about here]

Annual household income was not correlated with the caregivers’ perceived weight of the adolescent. When ran in SPSS, \( \chi^2(6) = 4.963, p = 0.549 \). As a result, the \( p \) value was not accepted as significant as shown in Table 10.

[Insert Table 10 about here]
The actual BMI of adolescents ranged from 16-32. The average for Caucasians (n = 14) was 22.6. The other three categories of ethnicity (African American, biracial, and Hispanic) were grouped together in an effort to make two groups more comparable in sample size. Because of this, an adjusted ANOVA was used as the DNP Project student did not have three or more groups of ethnicities anymore. In an adjusted one-way ANOVA, the F statistic is equal to the t in a t-test. The average BMI of the other three ethnicities were 19.8 (n = 11). When an adjusted one-way ANOVA was ran to show the relationship between actual client BMI and ethnicity in SPSS, it did not represent a bell curve, which would mean significance, but the clusters found by the project student in the surveys suggested a trend in regards to actual adolescent BMI and race by caregivers perception as shown in Tables 11-12. Caucasians were slightly more overweight than other ethnicities, but these caregivers may be more perceptive to this than the other races they were tested against. However, the p value in the ANOVA was not significant: [F(1, 23) = 2.771, p = .110].

[Insert Tables 11-12 about here]

Supplemental Open-ended Interview Questions

Seven open-ended interview questions were created as a means to further illicit information regarding caregivers’ understanding of nutritional needs for the adolescents in their care (Appendix E). Findings resulting from a simple content analysis included the following. Many caregivers stated that they were aware that the AP medication their adolescent was on caused weight gain, however, they did not change their household habits. The first question asked about caregivers’ perceptions of what nutritional education was needed. This elicited the most information from participants. Participant 6, responded that she wanted to learn how to make “healthy food more appetizing” for her daughter. She reported that her daughter was a
“picky eater” and was “very specific” in terms of what she liked to eat. After looking through a self-reported food diary for the past 24 hours, Cheeze-Its were noted as the adolescent’s snack of choice. It was further noted that she also had two servings of tuna casserole for dinner which was calorie dense. Participant six had an above average BMI at 21. Participant nine had a similar request. This caregiver wanted to know more about “healthy swaps” for a “picky eater.” Participant 10 inquired about organic shopping, and whether or not it was “worth the money.” Participant seven wanted to know how to prepare foods in a healthy way. For example, she wanted to know how to “reduce the amount of butter in cooking” while still making it flavorful. Table 13 shows supporting participant quotes to sustain the main and subthemes identified.

[Insert Table 13 about here]

Regarding nutritional education, participants seven and 10 wanted to learn more about the recommended U.S. government guidelines, specifically MyPlate which was asked about the in survey. Out of caregivers who took the survey and participated in the interview, participant six was the only one who reported that she didn’t know the recommended guidelines. The other three caregivers reported that they knew the guidelines, but that their adolescent does not follow them. However, the participants were not asked to demonstrate their knowledge of the U.S. guidelines.

Having conversations

The caregivers were then asked if they were aware of the APs causing weight gain and if their or the adolescent’s eating habits changed after learning this information. The majority of the participants stated that they were informed, but didn’t make any changes following this knowledge. Caregivers usually still shopped the same way, although some stated that they were more “in tune” with their adolescent’s weight. Participant nine stated that they noticed weight
gain in the adolescent, however, did not know how to approach this sensitive subject with them. Participant 10 reported wishing they knew "how much is too much" in regards to weight gain making the argument that they expect their adolescent to gain weight because "he is a growing teenage boy." Participant six stated that although the household shopping/cooking habits in the house haven’t changed, the adolescent was taking control of her weight and making healthier choices on her own out of "fear of getting fat." An example they gave was that the adolescent would order a salad when they went out to eat, with a side of pasta instead of vice versa which was previously what she would’ve done. Body image proved to be an important topic among some teenagers with need for further exploration.

Other recommendations

At the end of the survey, participants were asked about any other information they would like to share with the DNP Project student, or anything else that they would like more information on. Participant nine wanted recommendations for screen time, TV and phone, stating that "I think he’s on it a lot.” This caregiver also wanted to know about family exercise classes or programs in the area that were being offered in hopes of the family getting fit together. Participant seven wanted to learn more about physical activity recommendations for adolescents. No other information was gathered from the remaining participants. A model was created based on participant responses.

[Insert Figure 2 about here]

Discussion

Based on a literature review and the sampling of caregivers of adolescents being treated in this busy, outpatient, mental health and substance abuse clinic, a pamphlet could be a viable resource. This of course, should be combined with counseling, weight monitoring and self-
awareness by the caregiver, client, and provider. As the literature review proved, written materials combined with counseling or regular check-ins with the client appeared to yield the greatest success rates of decreasing BMI and increasing knowledge. Surprisingly, only 48% of caregivers surveyed wanted more nutritional education, although a slightly above average BMI was seen in this sampling of clients. Because the DNP project student observed what appeared to be an issue of overweight adolescents and their caregivers who seemed to be concerned, the DNP Project student believed that more caregivers would want information regarding this very important topic.

Most caregivers preferred a pamphlet as their first choice of education modality, followed by a website, and lastly a classroom-type setting. This makes sense based on the survey data collected. The majority of participants (40%) had an annual household income of $30,000-$60,000 a year. The second most common income average was less than $30,000 a year (n=8). More than half (60%) of all adolescents were primarily living in a one biological parent household. This may mean that there are less sources of income and therefore less opportunities for “free time,” in which the caregiver could attend a class on nutrition. Based on clients and caregivers that the DNP Project student has interacted with in the past two years in this clinic, many of these individuals rely on a Medicaid cab service. Many clients and caregivers do not have the income to own a vehicle and may rely on public transportation or cabs at the assistance of the social workers in order to get to their appointments. A lower socioeconomic status (SES) may also mean that there are less opportunities for clients and caregivers to get internet access. Again from previous discussions with clients in the last couple years, many have to go to the public library or somewhere where they can get free Wi-Fi in order to access information online. Keeping this information in mind, it makes sense that most caregivers would prefer written
material over the other two modalities for future reference. It is easy to grab at the beginning of an appointment, discuss any concerns with the providers briefly, and then move forward with the rest of the assessment. They have a "hard-copy" of information in their hands and do not have to return to the clinic or go somewhere where internet is available to get it.

Information from the survey elicited that Hispanics viewed their adolescents of average or underweight. Although there was only three Hispanics that participated in the survey, two of the three reported that their adolescent was underweight, when based on actual BMI, this was not the case, concluding that their perception may have been distorted. Caregivers of biracial adolescents all stated that their adolescent's weight was average, while Caucasians were split, with two-thirds of caregivers stating that they were average, and one-third of caregivers reporting underweight or overweight. There was a lack of conscious awareness for the adolescent's actual weight, which is why it is so important to maintain open conversation and provide continuing reinforcement for this population and their caregivers.

Conclusion

The results of this DNP project indicate that written educational material regarding adolescent nutrition is a viable and in many cases, the preferred education modality in this particular clinic. Because of the diversity of ethnicities of these clients, pamphlets should also be culturally sensitive in nature. The pamphlets should also be printed in various languages, most primarily English and Spanish to allow for better understanding. Although non-English speaking individuals were excluded from this study, nutritional information given in Spanish could help increase the understanding of information given as it is one of the most popular languages spoken near Buffalo, NY.
Providing culturally sensitive information could help increase compliance in regards to healthy cooking and healthy swaps in food choices. For instance, one Hispanic adolescent caregiver surveyed stated that they eat a diet high in rice, salsa, and beans in their household. These foods can be nutritious but are also calorie-dense, so they must remember to eat these in moderation. Swaps such as cauliflower rice may also serve as a serving of vegetables while allowing the client to prepare the food, such as adding spices and seasonings, similar to their cultural preference. As the literature review suggests, a personalized, tailored plan to the individual yields the greatest success rates.

Perhaps introducing a dietician into the clinic could also help answer some questions regarding nutrition that the providers cannot answer themselves. A referral from the provider to a resource such as this can also decrease the amount of time spent talking about nutrition in the appointment and allow providers to focus more on management of symptoms and other side effects, as one provider stated time constraints of appointments were a limitation in fully addressing nutrition.

As the data gathered in surveys and interviews show, this need assessment shows that clients and caregivers may be aware of weight gain as a side effect, but they need continuous awareness reinforcement regarding this from professionals. As the adolescent’s BMI shows, there is room for improvement to get most adolescent’s BMI lowered and within their target range. Without all the information outlined for them in front of them, it may be hard for individuals to develop their own plan for change. This is where written material can come in handy as it can serve as a quick reference guide to them after they leave the office.

The DNP Project student plans on disseminating the findings of this needs assessment to the adolescent provider will take place over the summer of 2019. After sharing this information
with the adolescent provider of this clinic, the DNP Project student will attempt to find a staff meeting in which the results can disseminated with the rest of the clinic including counselors, social workers, and the program director. This project was completely innovative for this clinic in the sense that they have never asked caregivers what type of nutritional education they specifically wanted and traditionally spend the first couple minutes when prescribing an AP to discuss the side effects, specifically weight gain. This information could allow for a more open and honest communication line between the client, caregiver, and provider.

**Limitations**

This needs assessment did have a number of limitations which could have contributed to the insignificant results of much of the data gathered. The sample size was relatively small, only 25, in comparison to the high-volume of adolescents that are treated in this specific clinic. The sample size also did not accurately reflect the break-down of ethnicities of the clients being seen in this clinic. For example, the sample only included three Hispanic adolescents out of 25 participants. This reflects only a 12% total population of Hispanics seen in the child and adolescent clinic. The DNP Project student could have gathered a more accurate sample size based on the total number of each ethnicity seen in the clinic. Although the DNP Project student does not know the exact percentage of Hispanic clients seen in the clinic, gathering this information prior to the needs assessment could have allowed for a more accurate sampling of participants.

The ethnicity of the caregiver was also not identified in this project. Some of the caregivers surveyed were not even a biological parent, but perhaps a foster, in which their ethnicity may have been different from the clients. This could have affected the perception of weight related to ethnicity correlation.
Some cell counts in the SPSS tests also had a cell value less than five. When performing chi square tests, this could affect the accuracy. Perhaps the fisher’s test could have yielded a more accurate representation of some correlations that were ran. One-way ANOVA tests are also typically ran on greater than three groups. Because the sample size was small and did not accurately represent the percentage of each ethnicity seen in the clinic, the DNP Project student had to regroup the ethnicities into only two categories: Caucasians and all other. As a result, the adjusted one-way ANOVA results could have also seen skewed.

**Future implications and strengths**

As mentioned before, there is room to improve this needs assessment by accurately selecting a larger sample population of ethnicities seen in the clinic truer to actual representation. In the paper survey, participants were not aware that this study was being compared to previous literature comparing the three educational modalities together which helped to eliminate bias. The fact that confidentially of responses were explained in detail and maintained by the DNP Project student may also encourage participants to be more truthful when answering. Face to face interviews with open-ended response questions also allowed the DNP Project student to explore more in depth topics that supplemented the paper survey response answers in an attempt to make a stronger correlation.

Implications for future study should also include another needs assessment performed with a larger sample size which is more accurate in terms of the ethnicity of clients seen in this adolescent clinic. Since a pamphlet was the preferred modality, it would be interesting to see if this result can be duplicated with a larger and more accurate sample size. Additionally, the PDSA cycle should be completed for this project. This would mean that the pamphlet should be developed, implemented, and outcomes identified and measured. A figure of what should be
included in the pamphlets is included in Figure 2 based on answers received in the surveys. If the outcomes are met successfully, a clinic-wide implementation can take place. Perhaps similar information tailored to other age groups would be helpful in other clinics who deal with adults only. Translating this information to those in other specialties, such as substance use departments, may also be able to tailor this information to their population. Finally, since a pamphlet is a source of written material, perhaps other written materials, even unconventional resources such as a refrigerator magnet, could serve as an easy reminder and reference guide to help change eating habits in the home.
References


Figure 1. Depiction of the PDSA cycle as a method to perform a quality improvement study. From NATIONAL ARCHIVES ©2012. Reprinted by permission of NHS, Institute for Innovation and Improvement.
Table 1

*Age of adolescents*

<table>
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Table 2

*Race of adolescents*

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<td>African American</td>
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<td>Hispanic</td>
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Table 4

*Number of biological parents present in adolescents’ households*

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<th>Biological parents</th>
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Table 5

*Annual household income in adolescents’ home*

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<td>$60,000 - $90,000</td>
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<td>&gt; $90,000</td>
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<td>Total</td>
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Table 6

*Caregivers’ responses when asked if they would like more nutritional education*

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<th>Response</th>
<th>Frequency</th>
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Table 7

Caregivers’ ranking of preferences for education modality

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<th>Modality</th>
<th>Frequency</th>
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<td>1,3,2</td>
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<td>2,1,3</td>
<td>1</td>
<td>4.0</td>
</tr>
<tr>
<td>2,3,1</td>
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</tr>
<tr>
<td>3,1,2</td>
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<td>3,2,1</td>
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*Note. 1 = Pamphlet, 2 = website, 3 = classroom*
Table 8

*Cross-tabulation of caregivers’ weight perception towards adolescents based on ethnicity*

<table>
<thead>
<tr>
<th>Weight perception</th>
<th>Caucasian</th>
<th>African American</th>
<th>Hispanic</th>
<th>Biracial</th>
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<td>Overweight</td>
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<td>2</td>
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<td>0</td>
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</tr>
<tr>
<td>Underweight</td>
<td>3</td>
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<td>2</td>
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<tr>
<td>Average</td>
<td>7</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>13</td>
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<tr>
<td>Total</td>
<td>14</td>
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<td>3</td>
<td>4</td>
<td>25</td>
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</table>

\[ \chi^2 = 6 \, \text{df} = 8.749, \, p = .188 \]
Table 9

Cross-tabulation of annual household income by caregivers’ order of preference for education modality

<table>
<thead>
<tr>
<th>Household income</th>
<th>Modality of Education Categories</th>
<th>1,2,3</th>
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<th>2,3,1</th>
<th>3,1,2</th>
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<td>6</td>
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<tr>
<td>&gt; $90,000</td>
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<td>25</td>
</tr>
</tbody>
</table>

Note. 1= Pamphlet, 2= website, 3= classroom

χ² = 15 df = 7.487, p = 9.43
### Table 10

**Cross-tabulation of annual household income by caregiver’s weight perception of adolescent**

<table>
<thead>
<tr>
<th>Household income</th>
<th>Overweight</th>
<th>Underweight</th>
<th>Average</th>
<th>Total</th>
</tr>
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<tr>
<td>&lt; $30,000</td>
<td>1</td>
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<td>8</td>
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<td>$30k - $60,000</td>
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<td>2</td>
<td>5</td>
<td>10</td>
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<tr>
<td>$60k - $90,000</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>&gt; $90,000</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>6</strong></td>
<td><strong>6</strong></td>
<td><strong>13</strong></td>
<td><strong>25</strong></td>
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χ² = 6 = 4.963, p = 0.549
Table 11

*Adolescents’ ethnicity*

<table>
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<th>Race</th>
<th>Frequency</th>
<th>Percent</th>
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*Note.* 1 = Caucasians, 2 = African Americans, Hispanics, and Biracial
Table 12

*Adjusted one-way ANOVA of adolescents’ ethnicity by actual body mass index (BMI)*

<table>
<thead>
<tr>
<th>Actual BMI</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
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</thead>
<tbody>
<tr>
<td>Between Groups</td>
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<td>1</td>
<td>48.653</td>
<td>2.771</td>
<td>.110</td>
</tr>
<tr>
<td>Within Groups</td>
<td>403.905</td>
<td>23</td>
<td>17.561</td>
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<td></td>
</tr>
<tr>
<td>Total</td>
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Table 13

Main theme, subthemes, and supporting quotes for caregiver responses to anecdotal open-ended questions

<table>
<thead>
<tr>
<th>Theme</th>
<th>Supporting participant quotes</th>
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<tbody>
<tr>
<td>Main theme: Reinforcing conscious awareness</td>
<td>“It was explained to me when I signed the consent… I wouldn’t say my habits changed.”</td>
</tr>
<tr>
<td></td>
<td>“… no, no change from me.”</td>
</tr>
<tr>
<td></td>
<td>“No changes from us, he has been making better changes though.”</td>
</tr>
<tr>
<td></td>
<td>“… how much weight gain is too much? … he’s a growing boy!”</td>
</tr>
<tr>
<td></td>
<td>“… healthy swaps and substitutes!”</td>
</tr>
<tr>
<td>Subtheme: Nutritional education</td>
<td>“… organic shopping.”</td>
</tr>
<tr>
<td></td>
<td>“I don’t know how to approach the topic with him.”</td>
</tr>
<tr>
<td></td>
<td>“All of his friends are thinner and into sports.”</td>
</tr>
<tr>
<td>Subtheme: Other recommendations</td>
<td>“It’s a sensitive subject with a teenager.”</td>
</tr>
<tr>
<td></td>
<td>“… Recommended TV and screen time for his phone, I think he’s on it a lot.”</td>
</tr>
<tr>
<td></td>
<td>“… Do you know where family exercise classes are held?”</td>
</tr>
<tr>
<td></td>
<td>“… how much play time is recommended?</td>
</tr>
<tr>
<td></td>
<td>Same with screen time…”</td>
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</table>
Figure 2

Nutritional Education

- Organic foods
- Food swaps
  - Home cooking/prepping
- Incorporating favorite foods
  - Healthy restaurant choices

Reinforcing conscious awareness

Having conversations

Assessing medication side effects

Monitoring weight gain

Other recommendations

- Recommended physical activity minutes each week
- Family exercise classes
- Recommended phone/screen time

Figure 2. Caregiver Educational Needs Model
Appendix A

University at Buffalo International Review Board Approval (UBIRB)
February 7, 2019

Dear Hannah Forysinski:

On 1/2/2019, the IRB reviewed the following submission:

<table>
<thead>
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<th>Type of Review:</th>
<th>Initial Study</th>
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<tr>
<td>Title of Study:</td>
<td>Caregiver Attitudes for Nutritional Education in Psychiatric Adolescents</td>
</tr>
<tr>
<td>Investigator:</td>
<td>Hannah Forysinski</td>
</tr>
<tr>
<td>IRB ID:</td>
<td>STUDY00003041</td>
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<tr>
<td>Funding:</td>
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<td>Grant ID:</td>
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<tr>
<td>IND, IDE, or HDE:</td>
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<tr>
<td>Documents Reviewed:</td>
<td>* Forysinski_HRP-611, Category: Other; * Forysinski_recruit, Category: Recruitment Materials; * Forysinski_consent, Category: Consent Form; * Forysinski_HRP503, Category: IRB Protocol; * Forysinski_instruments, Category: Surveys/Questionnaires;</td>
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<td>Personnel Changes:</td>
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</table>

The IRB approved the study from 1/2/2019 to 1/1/2020 inclusive. Before 1/1/2020 or within 30 days of study closure, whichever is earlier, you are to submit a continuing review with required explanations. You can submit a continuing review by navigating to the active study and clicking Create Modification / CR.

If continuing review approval is not granted before the expiration date of 1/1/2020, approval of this study expires on that date. The initial study materials for the project referenced above were reviewed and approved by the SUNY University at Buffalo IRB (UBIRB) by Initial Study Review. The IRB has determined that the study is no greater than minimal risk. Before 1/2/2019 or within 30 days of study closure, whichever is earlier, you are to submit a continuing review application with required explanations. In order to avoid a lapse in IRB approval, it is recommended that you submit your continuing review at least 30 days for an expedited study and at least 45-60 days for a full board study, prior to the approval end date of the study. You can submit a continuing review application by navigating to the active study in Click IRB and selecting ‘Create Modification / CR’. Studies cannot be conducted beyond the expiration date without re-approval by the UBIRB.
HIPAA Partial Waiver granted for Recruitment

The UBIRB has approved the HIPAA Partial Waiver to permit you to receive personal health information as specified in section (1). The Partial Waiver Form has met the required elements of the federal regulations of HIPAA.

UBIRB approval is given with the understanding that the most recently approved procedures will be followed and the most recently approved consent documents will be used. If modifications are needed, those changes may not be initiated until such modifications have been submitted to the UBIRB for review and have been granted approval.

As principal investigator for this study involving human participants, you have responsibilities to the SUNY University at Buffalo IRB (UBIRB) as follows:

1. Ensuring that no subjects are enrolled prior to the IRB approval date.
2. Ensuring that the study is not conducted beyond the expiration date without re-approval by the UBIRB.
3. Ensuring that the UBIRB is notified of:
   - All reportable information in accordance with the New Information SOP (HRP-024).
   - Project closure/completion by submitting a Continuing Review/Modification submission.
4. Ensuring that the protocol is followed as approved by UBIRB unless a protocol amendment is prospectively approved.
5. Ensuring that changes in research procedures, recruitment or consent processes are not initiated without prior UBIRB review and approval, except where necessary to eliminate apparent immediate hazards to subjects.
6. Ensuring that the study is conducted in compliance with all UBIRB decisions, conditions, and requirements.
7. Bearing responsibility for all actions of the staff and sub-investigators with regard to the protocol.
8. Bearing responsibility for securing any other required approvals before research begins.
If you have any questions, please contact the UBIRB at 716-888-4888 or ubirb@buffalo.edu. Please include the project title and number in all correspondence with the UBIRB.
Appendix B

Forysinski Nutritional Education Attitudes and Perception Needs Assessment Survey
Appendix B

Forysinski Nutritional Education Attitudes and Perception Needs Assessment Survey

Thank you for your time and participation in this needs assessment survey. Please answer as many questions as you can, but you may leave blank if you feel uncomfortable answering.

Your child’s age ______
Your child’s race ______
Your child’s sex ______

Please circle one: Does your child live in a 0 1 or 2 biological parental household?
Please circle one: The total annual income in my child’s home is:

< $30,000  Between $30,000-$60,000  Between $60,000-$90,000  >$90,000

PART A

1. I feel like I have already received adequate nutritional education regarding my child, either from this clinic or elsewhere, and do not want further information. True or False

2. I would like to learn more about managing the side effect of weight gain with certain medications my child is taking. True or False

3. If nutritional education was to be provided in this clinic in the form of a website, classroom setting, or pamphlet, and you had to choose the modality of information, what would your first, second, and third choice be to receive the information?

   1. ___________  2. ___________  3. ___________

PART B

4. Most of the time (four days a week or more), I feel like my child eats the recommended nutritional guidelines as set by the United States Choose my Plate Guidelines. True or False or I don’t know the guidelines

5. I think my child is: overweight underweight or average compared to other children his/her age and sex.

6. Please think about what your child ate in the last 24 hours. Write down what they had to eat. If you were not present for their meal, or unsure of what they ate, please respond “I don’t know.”

Breakfast __________________________________________________________
Lunch _____________________________________________________________
Dinner _____________________________________________________________
Snacks

For researchers use only:

Actual BMI of child_____

ID# ________________
Appendix C

Body Mass Index - Boys 2-20 years
Appendix C

Body Mass Index - Boys 2-20 years

CDC Growth Charts: United States

Body mass index-for-age percentiles:
Boys, 2 to 20 years

Appendix B. A chart depicting the body mass index-for-age percentiles for boys aged 2-20 years. From the CENTER FOR DISEASE CONTROL ©2000. No permission needed for reprint.
Appendix D

Body Mass Index- Girls 2-20 years
Figure 3. A chart depicting the body mass index-for-age percentiles for girls aged 2-20 years. From the CENTER FOR DISEASE CONTROL ©2000. No permission needed for reprint.
Appendix E

Forysinski Nutritional Education and Attitudes Tool: Interview Questions
Appendix E

Forysinski Nutritional Education and Attitudes Tool: Interview Questions

1. Specifically, what type of nutritional information do you think that you and your child could benefit from?

2. Were you aware that your child is on a medication that has a side effect of weight gain?
   If so, did your child’s eating habits change after learning this information?
   What about your grocery shopping/cooking habits after learning this information?

3. What foods do you spend the most money on when grocery shopping?

4. Do you feel that the provider adequately discussed the risk of weight gain with you and your child?

5. How many minutes of physical activity does your child have per week?
   Are they involved in any physical extra-curricular activities?
   If so, what are they involved in? How often do they participate in this? Did you suggest this, or was it their idea to play/join _______?

6. How many times a week does your family go out to eat?
   Where is your favorite place to go?
   What meal does your child usually order?
   What time does your family usually eat dinner?
   Does your family eat dinner together?
   If not, why not?

7. Is there anything else you would like to discuss with me concerning your education needs?
   Your information could help develop a future educational program for caregivers with adolescents who are at high-risk for obesity.
CAREGIVER KNOWLEDGE ABOUT NUTRITIONAL EDUCATION NEEDS FOR ADOLESCENTS TAKING ANTIPSYCHOTIC MEDICATION

DNP Project Defense

Presented by: Hannah Fosiniak, BSN, RN, DNP

Spring 2019

JUSTIFICATION

1. Current setting practice:
   - Poor nutritional counseling
   - Consent signed, approved
   - Weight management if BMI increases (subjective) or at caregiver request
   - Education topics in mind

BACKGROUND/LITERATURE REVIEW

1. Obesity is a global problem (Bakker et al., 2014)
   - Rate quadrupled since 1980; 5% to 20% (State of Obesity, 2016)
2. Atypical APs cause weight gain (McDougle, 2006)
   - Perphenazine (1.5 - 3 g/week), chlorpromazine (3 g/week), thioridazine (2.5 g/week)
3. Pharmacokinetics vs. lifestyle changes (Silk et al., 2008)

PURPOSE, QUESTION & OBJECTIVES

1. How do caregivers of adolescent psychiatric clients who are at high risk for obesity perceive nutritional education options within an urban, outpatient mental health clinic?
THEORETICAL FRAMEWORK

THEORETICAL APPLICATION

- Plan
  - ID a problem
  - Find e stakeholder
- Do
  - Action plan; talk to stakeholders
  - Conduct observation
  - Test viability of survey developed

THEORETICAL APPLICATION

- Study
  - Analytical analysis of survey data
  - Open-ended anecdotal questions
- Act
  - Dissemination of results
  - Deploying, modifying, and information based on caregiver responses

METHODOLOGY

- Mixed methods, needs assessment
- Setting
  - School, high volume, outpatient
  - 1 adolescent provider
- Sample population
  - Caucasian, high risk adolescents
  - Adolescents
  - Black/African American
  - Multiracial
  - Underserved, intervention
  - English
  - Caregiver
  - What's "upo" ed?
**INSTRUMENTS**
- Formosida: Nutritional Education Attitudes and Knowledge Study Assessment Survey
- Formosida: Nutritional Education and Attitudes Tool: Interview Questions

**PROTECTION OF HUMAN SUBJECTS**
- UBIRB
- Limited risk
- Written & verbal consent
- Approved
- Nonparticipants
- No details of service
- De-identified data
- False name, unique ID number
- Locked file cabinet
- No contracts of interest

**DATA COLLECTION & ANALYSIS**
- Survey
  - $p < 0.05$
  - Descriptive statistics
  - Frequency & percentage
  - Cross tabulation & chi square
  - Adjusted odds ratio
  - Coded as nominal data
  - Microsoft Excel Data input
  - IBM SPSS version 23
DATA COLLECTION & ANALYSIS

- Anecdotal questions:
  - Main theme identified, y adolescents color-coded to question
  - Open-ended question
  - Open and pain rating, entire cohort
  - Matched quotes with identified themes
  - Issue of Ethics (point)

RESULTS

- Client demographics
  - Congenital history of adolescent
  - Congenital rate of adolescent

- More education?
- How do you want it?

RESULTS

- Weight perception x age: Chi-square
  - Congenital weight perception for adolescents

DISTRIBUTIVE SCHOOL OF NURSING

1846
RESULTS

Annual household income x medality of preferred education: Chi-square

- χ²(1) = 7.45; p = 0.006

Table 7
Annual household income and category of preferred education for adherence mobility

<table>
<thead>
<tr>
<th>Income (Ink)</th>
<th>Category</th>
<th>Adherence</th>
<th>N</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>1</td>
<td>0</td>
<td>20</td>
<td>0.051</td>
</tr>
<tr>
<td>Medium</td>
<td>1</td>
<td>2</td>
<td>30</td>
<td>0.034</td>
</tr>
<tr>
<td>High</td>
<td>1</td>
<td>3</td>
<td>10</td>
<td>0.023</td>
</tr>
</tbody>
</table>

- χ²(1) = 4.675; p = 0.034

Table 8
Annual household income compared to caregiver's weight perception: Chi-square

<table>
<thead>
<tr>
<th>Income (Ink)</th>
<th>Category</th>
<th>Weight Perception</th>
<th>N</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>1</td>
<td>Underweight</td>
<td>20</td>
<td>0.045</td>
</tr>
<tr>
<td>Medium</td>
<td>1</td>
<td>Overweight</td>
<td>30</td>
<td>0.021</td>
</tr>
<tr>
<td>High</td>
<td>1</td>
<td>Normal</td>
<td>10</td>
<td>0.032</td>
</tr>
</tbody>
</table>

- χ²(1) = 2.56; p = 0.11

RESULTS

Race (2 groups) x actual BMI
Adjusted one-way ANOVA
- F(1, 40) = 6.77; p = 0.01

Table 9
Adolescents' BMI by race and gender

<table>
<thead>
<tr>
<th>Race</th>
<th>Gender</th>
<th>BMI</th>
<th>N</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>Male</td>
<td>1</td>
<td>10</td>
<td>0.058</td>
</tr>
<tr>
<td>Black</td>
<td>Female</td>
<td>2</td>
<td>20</td>
<td>0.023</td>
</tr>
</tbody>
</table>

RESULTS
CONCLUSION
- No relationships, but some trends:
  - Female, female
  - White, white
  - Pseudomonas isolated
- Challenges:
  - Limited sample size
  - Different demographics
  - Ethical considerations
  - Future research
- Recommendations:
  - Further study
  - Professional development

STRENGTHS & LIMITATIONS
- Limitations:
  - Sample size
  - Small sample
  - Limited representation
  - Reliability/validity
- Strengths:
  - Participants not aware of literature review
  - Not much previously known

SIGNIFICANCE
- APN roles (ANA, 2016):
  - Educator
  - Client advocate
- DNP essentials (AACN, 2006):
  - LID, VHC, YTH
- AANP (2008):
- IDM (2002):
  - Safety, effectiveness, timeliness, efficiency, equality, patient-centered

IMPLICATIONS & RECOMMENDATIONS
- Implications:
  - Improved care assessment
  - Larger sample size
  - Different context
  - Complete IDA cycle
  - Protocol developed
  - Ethical
  - Financial
  - Expensive
  - Other health-related issues
  - Other resource materials
- Recommendations:
  - Improve...