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Tendencies of Young Adults to Receive Follow-Up Health Care

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Introduction

Health fairs have the ability to offer underserved populations the preventative screening services necessary to improve and maintain their health (Dulin et al. 2006). The health fair venue supplies many different aspects of preventative care in one spot, which decreases barriers to receiving health care. Healthy People 2020 supply guidelines for health care professionals to guide their practice ([Healthy People, 2013](#)). The main goal of these guidelines is to work to eliminate health disparities and to focus on the most important issues with regards to health. The goal of our health fair was to bring preventative health screening and health education to students attending [an Alternative High School in the local area](#). The goal of our health fair coincides with goals of Healthy People 2020; to decrease the number of individuals who are unable to obtain health care, dental care or prescription medications; to increase the number of individuals who receive appropriate, evidence-based preventative care; and to increase the number of adolescents who have received a wellness checkup in the past year. The students ranged in age from 16-35 years. Potential benefits of health fairs include providing education and services to an underserved population at no cost and eliminating the time conflict by attending the health fair at a time when the students would normally be in school. These two barriers are major difficulties that this population experiences, and explains why this population often does not seek or receive health care (Dulin et al., 2006).

Research suggests that disadvantaged populations use health fairs as a means to obtain health care (Smith et al., 2005; Macias & Morales, 2000). Dulin et al. ([2006](#)) suggest that preventative health care could cost anywhere from \$160-\$495 per person if obtained through the traditional health care system. Many people from the community would find this amount cost-prohibitive and would choose not to seek health care solely because of the cost. Health fairs

have the ability to focus on health disparities in a specific population. They also provide the necessary education to the underserved population. Research also indicates early diagnosis and treatment for many health concerns will result in a better outcome for the patient, which can also work to improve the health of the overall community (Baig et al., 2009). An additional benefit of health fairs includes the opportunity for members of the community to connect with local health care providers and coordinate needed health care (Dulin et al., 2006).

The health fair consisted of 12 stations, [which were planned](#) using the knowledge from Healthy People 2020 and the previous knowledge of the target population. Since this population was based in a rural community and the students were alternative high school students, [it was](#) felt that we needed a wide variety of health topics to reach our goals. The principal of the alternative high school informed us that his students lack education regarding basic health practices, they lack resources to obtain health care, and their learning styles were different from typical high school students in that they needed to be active in order to learn the information we were presenting.

Literature Review

The first two stations were designed around nutrition and body mass index (BMI). According to Caine-Bish & Scheule (2009) approximately 17 percent of adolescents are overweight as a result of too many calories being consumed and not enough calories being burned. There is a relationship between obesity and socioeconomic status; adolescents from low-income families may have twice the risk of becoming obese than other children (Veugelers & Fitzgerald, 2005). Many families are struggling to pay bills and keep food on the table necessitating a change in eating habits to save money as fresh fruits and vegetables are more costly than prepackaged foods, which contain higher fat and calories. Research indicates that

early intervention aimed at changing eating habits may stop or even reverse obesity, leading to a more healthful adulthood and an increase in overall community health status (Sharma, 2006).

The nutrition station provided information about serving size, healthy food choices, and “healthier” choices for energy drinks. The goal of the nutrition station was to show the students what appropriate portion sizes were and what healthier alternatives they could choose. For example, if the student wants an energy drink, suggestions for choosing the energy drinks with lower sugar were conveyed to the students by providing education on reading nutrition labels.

While it would be best to avoid energy drinks all together, that is not [a](#) realistic goal to set, so we aimed for helping them choose the healthier alternative.

The second station discussed Body Mass Index (BMI). This topic is important because in the past thirty years obesity in the adolescent population has increased three-fold, with this being especially true for adolescents in the low-income, minority population (Black et al., 2010). According to Tirosh et al. (2011), elevated BMI during adolescence is a significant risk factor for the development of heart disease and adult obesity is related to an increased risk of developing type II diabetes later on in life. Adolescents who are overweight increase their risk of being an overweight adult by 80 percent (Guo & Chumlea, 1999). Research also suggests one-on-one or small group [education](#) about health promotion, nutrition, and obesity prevention techniques can significantly impact adolescents by preventing an increase in body mass index (Black et al., 2010). At this station each student had their BMI calculated using current height and weight figures. Those numbers were then plugged in to a BMI wheel, and the student was given the results. The purpose of the BMI station at the health fair was to educate the students about BMI and what it measures. This station also made the students aware of their BMI and its relationship

to overall health status. If education is provided there may actually be a long-term, sustainable change in eating and health habits in those adolescents that receive the education.

The third station at the health fair was vision screening. Vision problems can have a significant impact on academic performance (Krumholtz, 2000); this information is strongly related to our population because the students attended an alternative high school. It is possible that some of the students had no choice but to attend the alternative high school because they could not perform academically due to unknown or uncorrected vision issues. According to Ethan and Basch (2008), one in five children aged one to seventeen has a vision problem. A surprising piece of information was seventeen of the fifty states do not have any policies requiring vision screening before the start of school (Ethan & Basch, 2008). If the state does not require screening and parents are not aware of the vision difficulty, they are not going to have their children screened. School-based vision programs are a way to reach those children and can lead to better academic performance for those students affected (Ethan & Basch, 2008). One study found that after students' vision was corrected they improved twenty percentile points in their class ranking, going from the bottom quartile to around the fiftieth percentile (Krumholtz, 2000). The local health department supplied a volunteer and the equipment needed to perform vision screening tests for the students.

Hearing screening was the fourth station at the health fair. Recent technology, such as the MP3 player has put young adults at an increased risk for hearing loss. MP3 players use headphones that focus the sound directly into the ear, which can damage the hair cells of the inner ear responsible for conducting sound waves (Vogel et al., 2010). There are several risk factors that affect hearing ability and some are modifiable. Such risk factors that can be modified included smoking, diet, exercise, use of ear protection, and co-morbid health conditions.

Smoking brings toxins into the body and when they are combined with loud noises it can have a synergistic effect on hearing loss (Vogel et al., 2010). Some researchers think that when loud noises damage the hair cells free radicals are released and that is what causes damage to the inner ear. By incorporating antioxidants into your diet you may be able to prevent damage by free radicals (Daniel, 2007). Exercise promotes oxygen-rich blood to flow through the ear, which can increase hearing ability. Research has found teens and young adults are reluctant to use hearing protection because they do not feel it is necessary and also because of peer pressure (Daniel, 2007). By educating students about hearing loss and testing their hearing, they will develop a better idea of where their hearing ability is currently and what they can do to improve or keep their hearing. The goal of the hearing station was to educate the students about changes they can make to their lifestyle that will protect their hearing ability. Audiology students from Western Michigan University and a faculty member completed the hearing tests.

Sleep was the fifth station in the health fair. Sleep is necessary for proper cognitive functioning and physical development. Adolescents face sleep problems daily; they want to stay up later, but have to get up early to attend school. On average, adolescents get about seven hours of sleep per night during the week, and around nine hours of sleep on the weekends (Teufel et al., 2007). It is a common misconception that sleeping in during the weekends will make up for missed sleep during the week. Research suggests it is better to create a sleep schedule and stick to it all the time, instead of varying bedtimes and wake times (Teufel et al., 2007). Additionally, parents should be more educated about the sleep needs of their adolescents in order to enforce the sleep schedule. Another issue regarding sleep is some adolescents do not know the recommended amount of sleep they need; they consistently underestimate their sleep needs (Teufel et al., 2007). The goal of the sleep station was to educate the adolescents about

their bodies' needs and why sleep is so important to meet those needs. Adolescence is a time when the body is growing significantly; physically, mentally, and emotionally, sleep is needed to fuel these processes (Yilmaz et al., 2011).

Relaxation was the sixth station at the health fair, and at this station the students received information on the importance of relaxation and a five-minute back massage by a professional massage therapist. The unique population of alternative high school students experiences stress differently than traditional high school students (May & Copeland, 1998). Alternative students often have children and family to care for outside of school. They may also have a job during the day while attending night classes. Additionally, students without a high school degree often live in a lower socioeconomic class, which can contribute to higher stress levels (May & Copeland, 1998). These differences between traditional and alternative high school students may result in increased stress levels for alternative non-traditional students. For some alternative students learning disabilities may hinder their ability to focus and concentrate in school, forcing them to take the alternative track because of the different learning structure (Khilnani et al., 2003). Khilnani et al., (2003) completed a study on the effects of massage therapy for adolescents with attention deficit hyperactivity disorder (ADHD). The [authors](#) looked at thirty students who attended a learning center for adolescents with learning and behavioral disabilities; each student must have a confirmed diagnosis of ADHD without any other complicating diagnoses. The results indicated massage therapy for adolescents with ADHD can increase self rated happiness, decrease fidgeting, and possibly even decrease the amount of the stress hormone, cortisol (Khilnani et al., 2003). Teachers and parents noticed a difference in the hyperactivity of the participants that received the massage therapy (Khilani et al., 2003). Increased stress and worrying can negatively affect focus and concentration, making learning in school very difficult

(Suldo et al., 2009); by providing relaxation education, students learn the importance of taking time for them, to relax.

The next station included blood pressure, blood sugar, and cholesterol screening. There were three posters that provided education about each topic, and the screening tests were available at no cost to all participants. Obesity correlates with many health conditions, for example hypertension, hyperlipidemia, type II diabetes, and cardiovascular disease ([Bibbins-Domingo et al., 2007](#); [Giannini et al., 2011](#); Newmark & Anhalt, 2007). It has been well established that blood pressure screening at health fairs is beneficial (NIHNHLBI, 2004), because one in three people are unaware of their high blood pressure and by identifying the disease the patient is more likely to seek follow-up care to manage their hypertension (Clark, 2007; Mess et al., 2000). Blood sugar screening is important because early detection and treatment can delay disease progress and prevent complications (Newmark & Anhalt, 2007). Diabetes is also a risk factor for developing coronary heart disease (Bibbins-Domingo et al., 2007). Cholesterol testing is another important screening test because high cholesterol can contribute to hypertension, diabetes, and heart disease, among others (Giannini et al., 2011). Measurement of triglyceride to HDL cholesterol (TG/HDL-C) is related to the measurement of insulin resistance (Giannini et al., 2011). In order to measure insulin resistance the test is complicated and requires a special testing center. By realizing that TG/HDL-C is so similar to insulin resistance, we can now measure cholesterol and gain insight into a person's resistance to insulin, which is an indicator of diabetes. The purpose of this station was to provide screening tests for cardiovascular and endocrine health, and to provide education for students about the importance of health in these specific areas.

The eighth station at the health fair was immunizations, where we provided education about the importance of immunizations and flu shots were offered. Research suggests school-based clinics do improve rates of immunization for children and adolescents (Allison et al., 2007; Deuson et al., 1999). Students who used school-based health clinics were more likely to be up to date on their hepatitis B, Tdap, varicella, MMR, HPV, and meningitis vaccines, and they were more likely to have completed full vaccine series (Federico et al., 2010). School-based clinics are uniquely able to overcome some barriers to receiving care, such as language, insurance coverage, and time constraints (Fedrico et al., 2010). Adolescents are more likely to be missing immunizations because of their age; most parents understand the importance of getting their baby and young children vaccinated, but when it comes to older children many do not think it is necessary (Bennett & Domachowske, 2007). Our goal was to inform the students that it is still important that they keep up to date on immunizations and provide flu shots to them at no cost. By keeping up to date on immunizations the students can therefore reduce their risk and cost of disease for themselves and their community.

The ninth station was skin health, where the students received information regarding skin health and were provided skin checks by a licensed healthcare professional. It is more beneficial for adolescents and young adults to learn good skin practices because it will help them develop good skin hygiene that will continue throughout their lifetime (Andreeva et al., 2008). Sun safety is a major component of skin health and can have a significant impact on health in the future. Much of the sun damage that leads to skin cancer is done during adolescence and young adulthood (Godar et al., 2003; Houghton & Viola, 1981). [Protecting one's skin during this time](#) period can reduce their risk of developing skin cancer (Andreeva et al., 2008). At the health fair, our findings suggested that many adolescents and young adults do not have good skin care

practices because they had many moles and lesions that were suspicious, for which we recommended follow-up care.

The next station included information on oral health. According to the National Institute of Health [\(NIH\)](#), oral hygiene disparities affect members of low socioeconomic classes and racial minorities disproportionately (NIH, 2000). Adults with less than a high school education, which is the population we included, were 1.5 times more likely to report fair or poor oral health than those with higher education (Finlayson et al., 2010). This study also found that adults with higher chronic stress levels and material hardships were twice as likely to report fair or poor oral health. Our goal was to identify any obvious oral health concerns and then recommend follow-up for those concerns as soon as possible. Kalamazoo Valley Community College dental hygiene students participated in the screening and education of students on oral hygiene. Students were identified who had cavities, missing teeth, and gum disease, which supports what has been found in the literature for this student population.

The eleventh station was smoking; our goal was to provide education on why smoking is disastrous for health and also information on how to stop smoking. It is well documented that smoking causes an array of health concerns (US DHHS, 2004). The longer one smokes, the more likely they are to experience health problems because of smoking (Schaefer et al., 2012). Although our population was mostly adolescents and young adults, there were many who were current smokers, and had been smoking for years. Research suggests smoking habits can be influenced by friendships and that adolescents may choose friends who reinforce their smoking habits (Schaefer et al., 2012). At the station we provided a list of hotlines and a website that the students could visit to help them stop smoking. We also had many props at this station such as pig lungs affected by tar and many of the harmful products that cigarettes contain. Our ultimate

goal is to get some adolescents to stop smoking and realize how detrimental smoking can be to their health.

The last station at the health fair was sexual health. Adolescents that are sexually active have the highest rate of sexually transmitted diseases, and adolescents have the lowest rate for seeking health care (CDC, 2013). Research suggests community-based organizations can be successful in educating young adults about the importance of overall preventative health measures, with emphasis on sexual health (VanDevanter et al., 2005). At this station we aimed to provide the students with education regarding what sexually transmitted diseases there are and how they are treated. We also wanted to stress the importance of receiving and completing treatment for any sexually transmitted diseases in order to prevent them from being passed on to another person. By educating this population about sexual health we hope that they will seek health care when needed, therefore preventing complications and preventing the transmission of the disease. At this station we provided a list of places the students could go to receive health care for any sexual health concerns, such as Planned Parenthood and the local health department.

Methods

For the research portion of the health fair we recruited students from the [alternative high school in the local area](#). [The aim of the study was to determine the barriers that these students face in receiving follow up health care](#). The inclusion criteria included participation in the health fair and having an abnormal test result or assessment finding. If the student was under 18 years of age, parental consent and participant assent was obtained, and if the student was 18 years or older consent was obtained from the participant. Before the health fair took place, flyers were posted at the school and sent home with all of the students. At the end of the health fair, each student participated in the follow-up care table. At this table nursing students and faculty went

over the results with the student, answered questions, and recruited participants that met the inclusion criteria. [Data collected from the](#) Health Fair Assessment Tool were blood pressure, blood sugar, cholesterol, body mass index (BMI), vision, hearing, skin, and dental health. The Health Fair Assessment Tool [was also used to determine](#) whether or not the participant received follow-up care at one and/or three months. The student investigators contacted participants at one month and three months after the health fair took place [to determine if follow up care had occurred and if not, what the barriers were that prevented them from seeking care. If the](#) participant had not received follow-up care, the student investigator encouraged the participant to do so.

Results

Overall, 32 students participated in the health fair, and of those thirteen had abnormal results or findings, and seven students agreed to participate in the research portion of the health fair. Dental issues [\(37%\)](#) were the most common health problem encountered. Vision problems [\(26%\)](#) were the next most common. Skin, BMI, and cholesterol were other widespread health problems with 16%, 11%, and 10% respectively. At the one-month mark, no participants had received follow-up care, but the investigators were only able to contact two participants. At three months, one participant had received follow-up care for her vision problems, and one other participant confirmed that they had not received follow-up care. The other participants were unable to be contacted.

Participants listed a number of barriers to receiving follow-up care such as transportation, lack of time, incarceration, and parent's availability. These barriers are consistent with other research on barriers to receiving health [care](#) (Hoffman et al, 2008; Perac-Lima [et al.](#), 2010).

Comment [V1]: Any sources that say this?

Comment [AS2]: Yes these sources for this sentence are other research studies that list some of the same barriers to care.

Limitations

One limitation of this study is the use of a small sample size. [This was a convenience sample of students who attended an alternative high school.](#) Because there [were](#) a small number of participants, the research findings may not be generalizable to the entire population. Another limitation was the use of email as the contact method. Many participants only gave an email address, and that made it difficult to actually get in contact with the participants to determine if they had received follow-up care.

Nursing Implications

The [health fair](#) has many nursing implications. First, it achieved our goal of helping a rural community gain access to much needed health care. [This rural community](#) is a small farming town between Battle Creek and Kalamazoo and transportation to health care services can be an issue for some members of the community. By bringing the health care to [the rural area](#), we alleviated that barrier to care. Another nursing implication that resulted from the health fair was the provision of health education and health awareness to a population that has very little health resources. By making this community aware of their health needs and providing them with information about where to seek follow-up care, we hope that they will understand the importance of their health and pursue preventative and needed health care. Also, we provided the students with resources they could use to obtain health care. Such resources include health departments, Planned Parenthood, nursing clinics, physician offices, and other health clinics, which are open to people with little or no insurance coverage. Additional nursing implications include [that](#) barriers to receiving health care [still exist](#) even when referral resources are provided and [participants were educated on the importance of](#) health promotion and prevention to minimize health risks. Lastly, participation in this health fair allowed nursing students the

opportunity to interact with members of a rural, underserved community, which will increase their awareness of these issues in regards to their nursing practice. We hope that the members of the community will continue to utilize the resources we provided them and we hope to go back and do more health fairs in this community.

Conclusion

In conclusion, health fairs are a useful way to bring necessary resources to underserved populations. Health fairs can be altered to meet many of the Healthy People 2020 goals, which serves to better our nation's health. A major benefit of health fairs is providing many different services in one location; this eliminates many time conflicts that patients report is a barrier to receiving health care. More research is needed on ways to eliminate additional barriers to care that health fair participants experience in order to increase the prevalence of follow up care. Education about preventative care services is also an important part of health education that took place at this health fair. By participating in preventative care, patients can decrease the incidence of chronic disease and prevent complications, which in turn leads to decreased cost of health care and better health outcomes.

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