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## Recommended Citation

Imani Ma'at, K.A. Harris, G.A. Harris & P. Rodney, *Y.E.S. 4 Health: A Peer Education Approach to Prevention of Diabetes in African American Adolescents*, 10 DePaul J. Health Care L. (2015)

Available at: <https://via.library.depaul.edu/jhcl/vol10/iss1/10>

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# **Y.E.S. 4 HEALTH: A PEER EDUCATION APPROACH TO PREVENTION OF DIABETES IN AFRICAN AMERICAN ADOLESCENTS**

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## **I. INTRODUCTION**

Youth Educational Services 4 Health, Inc. (Y.E.S.) was created in 2002 in response to a need in Atlanta, Georgia where, as in many other cities in the country, chronic diseases are disproportionately impacting African American communities. Major health risks for urban youth and youth of color include: obesity, diabetes (the first Y.E.S. health issue), HIV and other sexually transmitted diseases, teen pregnancy, poor nutrition, substance abuse, smoking, and poor health choices in general. These risks are in part due to lack of information, poor self-esteem, and inadequate community-based health education programs focusing on these important issues (Healthy People 2010). Y.E.S. is a youth-motivated program that seeks to implement and evaluate the effectiveness of teen theater and peer education approaches that inform adolescents about health risk and protective behaviors.

As the rate of preventable disease steadily increases, it is critical to find innovative and effective ways to target adolescents and provide them with information and knowledge that lead to healthy lifestyle choices. One approach that has been successfully utilized globally to engage and educate youth is teen theater and entertainment education. Y.E.S. performs plays on important issues that affect communities of color, such as diabetes. The short-term plan is to perform plays for the greater Atlanta Metropolitan area. Future plans are to take the performances to other states and other countries around the globe.

The leading health indicators and ten major public health issues include several topics that are central to this program: physical activity, overweight and obesity, tobacco use, substance abuse, and responsible sexual behavior. The evolving role of Y.E.S. is tied to addressing the health objectives of the nation with a concentrated look at local youth in the Atlanta Metropolitan Area. Y.E.S. employs new and unique youth-driven approaches to persistent health challenges. Highlighted is the

diabetes project developed by Y.E.S.; however, many health issues will be addressed by Y.E.S. over the continuance of the program.

Diabetes is the sixth leading cause of death in the United States. As of 1999, approximately 16 million Americans – 5.9 percent of the total population – have been diagnosed with diabetes and that number is steadily increasing (AHRQ Fact Sheet, 2001). The disproportionate burden of diabetes on racial and ethnic minorities has been well-documented. Minorities have a higher prevalence of diabetes than whites, and some minorities have higher rates of diabetes-related complications and even death. For example, 10.8 percent of African Americans, 10.6 percent of Mexican Americans, and 9 percent of American Indians have diabetes compared with 6.2 percent of whites (AHRQ Fact Sheet, 2001). In 2001, the diabetes age-adjusted death rate for African Americans was more than twice that for white Americans (49.2 vs. 23.0 per 100,000 population) (CDC, 2004). The rates among most Hispanic Americans are even worse. Among Hispanics/Latinos, the diabetes death rate in 2000 was highest among Puerto Ricans (172 per 100,000), followed by Mexican Americans (122 per 100,000), and Cuban Americans (47 per 100,000) (CDC, 2004).

According to the American Diabetes Association (2005), about 176,500 people less than 20 years of age have diabetes. This represents 0.22 percent of all people in this age group. Obesity and diabetes together cost \$100 billion dollars per year, which is more than the cost of the AIDS epidemic (CDC, 2003). Diabetes is also one of the most common chronic diseases among children in the U.S. About 150,000 young people under the age of 18 – or about one in every 400 -- 500 have diabetes.

There are three main types of diabetes. Type 1 diabetes develops when the body's immune system destroys pancreatic cells that make the hormone insulin, which regulates blood sugar. It normally strikes children and young adults. People with type 1 diabetes must have daily insulin injections to survive. Each year, more than 13,000 young people are diagnosed with type 1 diabetes. Type 2 diabetes begins when the body develops a resistance to insulin and no longer uses the insulin properly. When the body is unable to use the insulin that it makes; the cells of the body cannot use the glucose for energy or fuel (Coleman & Gavin, 2004). As the need for insulin rises, the pancreas gradually loses its ability to produce sufficient amounts of insulin to regulate blood sugar. Previously, type 2 was considered a disease of adults (aged 40 and over) that accounted for 90 -- 95 percent of all diagnosed cases. Now, type 2 is frequently diagnosed among youth of all racial and ethnic groups. Girls are more commonly diagnosed with type 2 diabetes than boys (Fagot-

Campagna, 2000; CDC, 2002). Gestational diabetes, the third type of diabetes, is a form of glucose intolerance diagnosed during pregnancy (Ma'at et al. 2002).

The lack of physical fitness activities for youth is another contributing factor that places teens at increased risk for obesity and diabetes. The level of exercise recommended by the Surgeon General of the U.S. is 30 minutes per day. Recess has been deleted from many school programs in Georgia due to increased violence, safety issues, and the desire to decrease “unstructured time” as a means to increase academic learning (Metzler, 2002). Physical education is no longer a requirement in the public school curriculum in Georgia under House Bill 1187 for grades 6-12 (Metzler, 2002).

Compelling scientific evidence indicates, however, that lifestyle change can prevent or delay the occurrence of type 2 diabetes in high risk groups. This body of evidence from randomized, controlled trials conducted in three countries has definitely established that the maintenance of modest weight loss through diet and physical activity reduces the incidence of type 2 diabetes in high risk persons by about 40 to 60 percent over three to four years (Williamson, et al, 2004).

## II. THE Y.E.S. APPROACH

Launched in Dekalb County, Georgia by two friends, Imani Ma'at, Ed.D. and Garry Ogden, Sr., J.D., the mission of Y.E.S is “To provide quality education programs for youth that build self-esteem, knowledge, attitudes, and skills that lead to safe and healthy lifestyle choices.” The five components of Y.E.S include: a Teen Theater Program, a Peer Education Program, an International Exchange Program, a Mentoring Program, and a Parents of Teens Program. The first component launched by Y.E.S. was the Teen Theater Program, which aimed to stimulate the talents and heighten the self-esteem of the youth in the program.

The student performers of Y.E.S range in age from 10-18 years. There have been over 50 students involved with Y.E.S since its inception. On average, there are usually 2025 students involved at any given time. There are an equal number of males and females. Students are recruited by friends and word of mouth from local schools and churches.

Y.E.S. has an all-volunteer staff of concerned parents, teachers and public health professionals who embrace the mission and goals of this important program. A sub-set of volunteers have been labeled the Young Adult Mentors (YAMS). These are young African American women; most of them are graduate public health students in Morehouse School of

Medicine's Master of Public Health Program where Imani Ma'at is an Adjunct Assistant Professor. One is a recent graduate of the New York University Master of Public Health Program. All are extremely dedicated and have been valuable assets to the Program. The first choreographer and one of the main characters of the first play, is a very talented young adult male on the maintenance staff of Morehouse School of Medicine.

### **A. Rehearsals and Performances**

Y.E.S. holds rehearsals most Sundays from 2 P.M. to 5 P.M. in donated theatre space at the Horizons High School in Atlanta, Georgia – a high school attended by several Y.E.S. performers. All practice sessions start with warm-up exercises to reinforce the importance of physical fitness. During rehearsals, students work on vocal and acting skills, socialize, and make new friends. Healthy snacks are shared during a ten minute break. Snacks include such items as fruits, nuts, grains, and water. With an open-door policy, guest lectures and performers from the community come to these sessions to provide training and skills that are essential to the students.

## **III. HISTORY OF PEER-LED HEALTH EDUCATION APPROACHES**

Research indicates that peer-driven programs can be more effective in reducing health risk behaviors than teachers or adult-led interventions (Story et. al, 2002). An evaluation of a TEENS study, a peer led nutrition education program, demonstrated that the program was feasible and well-received by youth as an effective way to educate adolescents about appropriate nutrition habits. The TEENS intervention was delivered to a cohort of seventh graders, and again in their eighth year, in which peer leaders assisted in teaching the nutrition curriculum. All sessions involved trained peer educators who assisted teachers and led classroom discussions. The evaluation also revealed that the teens enjoyed the experience and would volunteer to be a peer leader again (Story et. al, 2002). The Y.E.S. experience has shown that teen audiences respond more favorably to their performances than to adult educators providing the same information content using more conventional approaches, such as PowerPoint presentations.

### **A. Teen Theater/ Entertainment-Education: A Growing Phenomenon in the U.S.**

Entertainment education is also known as “edutainment.” Entertainment education uses programs for the radio, theater, music, or television as vehicles to feature socially responsible messages (Glick et. al, 2002). It is the process of purposely designing and implementing a media message both to entertain and educate in order to increase audience members’ knowledge about an educational issue, create favorable attitudes, and change overt behavior. Entertainment education uses the appeal of popular media. The objective is to combine entertainment and education to obtain the best that both have to offer (Singhal & Rogers, 1999).

A current pioneer in this field, Ivan Juzang, founder of MEE (Motivational Educational Entertainment) Productions Inc., uses entertainment education and research-based communication to address health and social issues that impact urban youth. All of the MEE productions have been evaluated using qualitative research methods, primarily focus groups, to measure the impact of the play on targeted audiences. MEE was incorporated in 1990 with the goal of developing research-based, market-driven solutions for issues facing urban and low-income populations living in at-risk environments. MEE is an internationally-recognized communications firm that develops socially-responsible, research-based communication strategies targeting urban and ethnic populations of all ages. Dynamic growth has led to offices in Philadelphia, Washington D.C., Baltimore, and Los Angeles ([www.meeproductions.com](http://www.meeproductions.com), 2005).

Besides the work of Juzang of MEE, few evaluations have been conducted on teen theater programs and behavior change in the U.S. (Glick et. al, 2002), which explains that the challenge in effective evaluation in the U.S. is the competition with advanced, highly developed mass media systems. Unlike with many developing countries, the U.S. has to take into account exposure to competing or complementing media messages. Nonetheless, some evaluations on teen theater programs directed at HIV/AIDS and the increase in knowledge regarding HIV/AIDS demonstrate successful results.

Teen theater can have a reciprocal effect as illustrated in the evaluation of the STAR teen theater program in New York City. While research failed to find that the play increased the preventative or health protective behaviors of the cast members, it did increase their knowledge

and awareness about health concerns that were presented in the play (Glick et. al, 2002).

In an evaluation of the New Image Teen Theater in California, researchers found that there was a 21 percent increase in knowledge about contraception from students who saw the play (Glick et. al, 2002).

Teen theater programs and peer-education have been well recognized in the developing world as a creative and effective way to promote behavior change, especially in resource-poor geographic locations. Entertainment-education and peer-led prevention programs have flourished in the U.S. over the past decade (Glick et. al., 2002). Peer-driven initiatives have demonstrated promising results in improving knowledge regarding certain health issues, increasing self-efficacy, and changing attitudes and behaviors. (Story et. al, 2002). This method of prevention is especially popular and effective when targeting adolescents.

The literature successfully documents the effectiveness of peer led interventions and teen theater programs as the best practices for increasing knowledge in adolescent youth. However, in order to mitigate the effects of preventable disease, it is critical to progress from an increase in knowledge to behavior change. More comprehensive research and evaluation methods should measure results in initiating effective behavior change strategies amongst adolescent youth.

In addition, most of teen theater strategies in the U.S. and across the world have focused on sexual and reproductive health issues. The Y.E.S. program is embarking upon fairly new territory in teen theater by focusing on the importance of nutrition and chronic diseases for youth. Y.E.S. can begin to build upon best practices and make sure that research and evaluation techniques effectively measure behavior change. Y.E.S. will bring a new and greatly needed focus to teen theater by concentrating on issues such as chronic diseases that not only affect people of color in the U.S., but also all communities domestically and globally.

#### **IV. THEORETICAL APPROACH**

Social Cognitive Theory (SCT) and specifically the tenant of self efficacy are used by Y.E.S in developing the peer education and theater components of its program. According to Bandura (1977), SCT holds that behavior is determined by expectancies and incentives as explained below:

(1) Expectancies:

- Expectancies about environmental clues (that is belief about how events are connected – about what leads to what).
- Expectancies about the consequences of one's own actions (that is, opinions about how individual behavior is likely to influence outcomes). This is termed outcome expectation.
- Expectancies about one's own competence to perform the behavior needed to influence outcomes. This is termed efficacy expectation (i.e., self-efficacy).

(2) Incentives:

- Incentive (or reinforcement) is defined as the value of a particular object or outcome. The outcome may be health status, physical appearance, approval of others, economic gain, or other consequences. Behavior is regulated by its consequences (reinforcements), but only as those consequences are interpreted and understood by the individual (Rosenstock et al., 1988).

Perceived self-efficacy is defined as an individual's perception of his or her ability to demonstrate a particular task based on skill or practice. According to Bandura (1977), self-efficacy (belief in one's ability to perform a behavior) is an important component of SCT. Other concepts include, but are not limited to, the importance of the physical environment, behavioral capability, expectations or anticipatory outcomes of a behavior, and observational learning (Baranowski et al., 2002).

Y.E.S. combines SCT and self-efficacy development with a social determinant of a health approach to change. It is clear that individually-based approaches for health behaviors, such as obesity prevention and treatment, are often viewed as ineffective by themselves because they do not address community, environmental, and systems issues, such as racism, that impact health. Y.E.S. exposes youth to multiple levels of health factors within the community and society in order for them to understand the complexity of influences on health and health outcomes.



## V. INTERVENTION/METHOD

### A. The Play: A Description

*Drive-Thru Justice*, an original play written by Imani Ma'at and modified by the group, is about a radical approach created by a small group of concerned African Americans in one community to inform their members about preventable diseases such as diabetes, heart disease, and cancer. This play is an example of the Y.E.S. approach of developing youth-driven intervention strategies that use theater to educate youth about important health issues. Innovative interventions that address the escalating problems of obesity and diabetes among youth of color are critical in mitigating the high incidence rates of diabetes among adolescent youth of color.

Likened to the planning of the Civil Rights Movement launched in the 1960s, the characters purposely purchase a fast-food franchise in order to raise awareness among African Americans, encourage African Americans to take a closer look at poor diet and lifestyle choices, and inspire them to recognize the link between their choices and chronic diseases. The characters denied a randomly selected African American, which happened to be a woman, the fast-food items that she attempted to order for herself and her daughter. The customer sued the franchise, bringing media attention to this very provocative and controversial issue. The media, members of whom were part of the planning committee for the movement, interviewed community members from Brenda's Beauty Salon, a local high school gym class – which just happened to be working on an aerobic dance routine that “rocked the house,” and a Congressional Representative who is later instrumental in securing billions of dollars to increase nutrition and fitness programs nationally.

The characters' plans to raise awareness are ultimately successful, and the community begins to talk about the lawsuit, diabetes, and the risk and protective factors related to this preventable disease. In addition, the play explores the franchise owner's personal struggle and ultimate demise with diabetes. This dramatic play is filled with important educational dialogue about diabetes, (and) laced with humor, music, and dance.

Y.E.S. performed *Drive-Thru Justice* for adolescent and adult audiences at middle schools, churches, and for a Diabetes Awareness Program at the Morehouse School of Medicine. The first performance was for the DeKalb County Schools Food Service Staff at the Lithonia High School. The teens reported anecdotally that they really enjoyed performing

and that it increased their self-confidence and self-esteem. The audience also reported that the play was well-received and individual viewers stated that they would reevaluate the food that they serve in their county's public schools.

### **B. Research Question**

Does the play *Drive-Thru Justice* promote change in knowledge and raise awareness about diabetes among adolescent youth?

This research question was designed to measure the impact that the program has on its audiences, specifically whether the play helps to increase knowledge about diabetes, including the primary risk and protective behaviors related to diabetes. The goal of this intervention is to eventually transform and increase knowledge about diabetes and the importance of a healthy lifestyle into behavior change of audience participants.

## **VI. RESULTS**

The program piloted a pre- and post-test assessment (April 2004) with an audience at the Brown Middle School in Atlanta, Georgia. Results from the five question pre- and post-test survey revealed that prior to the play, 20 out of 46 or 43.5 percent of the audience correctly answered three or more of the questions and eight out of 46 or 17.4 percent correctly answered four or more questions. After viewing the play (two additional participants took the post test) 32 out of 48 or 67 percent correctly answered three or more questions and 17 out of 48 or 35.4 percent correctly answered four or more questions (Table 1). Also, through informal discussions, many Y.E.S. participants indicated that after they had participated for several months, the program increased their self-esteem and self-confidence, some shared information on health with family and friends, and most indicated that they really enjoyed the program. Modest dietary changes were also self-reported by the participants, such as less candy consumption.

**Table 1. Change in Diabetes Knowledge after Viewing *Drive-Thru Justice*\***

#Correct Answers	Pre-Test (n = 46)	Post-Test (n = 48)	% Change
≥3	20 (43.5%)	32 (67%)	+64.9%
≥4	8 (17.4%)	17 (35%)	+49.7%

\*These are crude percentages. Demographics were not collected. While most audience members were middle school students, some adults were present and completed surveys.

## VII. DISCUSSION

The pilot test evaluation of the play, though rudimentary, was encouraging. Almost immediately after the performance, the Y.E.S. teens soon departed for summer vacation, summer jobs, and were otherwise unavailable during the summer. When they returned in the fall, the group elected to develop a new play on HIV/AIDS issues. There have been numerous requests from the community, however, to perform *Drive-Thru Justice*, so there will be an opportunity to continue the evaluation of the play and its impact on audiences and cast alike. Also, while the youth had expressed a desire to do something new, the untimely and unfortunate death of an adult volunteer/mentor due to complications of diabetes sparked new interest on the part of the teens in revisiting the diabetes play. His passing also reinforced the seriousness of the messages imbedded in the play.

### A. Lessons Learned

Countless lessons have been learned. The most significant lesson learned was that programs serving youth have to establish a partnership with parents. Many youth came to Y.E.S. meetings with friends and the organization made the mistake of not contacting parents once their children started attending. While phone calls were made and announcements sent home, many parents did not have knowledge of the vision and mission of the program. This error surfaced as Y.E.S. prepared for its first performance. When scheduling additional rehearsals, one

parent indicated that her son had chores to do and homework and that he was not available for the rehearsals or for the performance. After that experience, which could have crippled the first performance had the organization not had understudies for most of the modules, Y.E.S. held a mandatory meeting of parents to reinforce the goals of the program. Following that meeting, parent participation, cooperation, and flexibility increased substantially.

Also, until recently, participation in Y.E.S. was free of charge. Recently, Y.E.S. management ascertained that a small registration fee (\$50) would be charged in order to add value to the services provided. There was concern that offering the services for free lessened the value of the program. Registration also includes a contract, which delineates membership responsibilities that must be signed by both parents and adolescents.

Another important lesson was the importance of continuing education and training of the youth pertaining to the health issues of concern. Y.E.S. is in the process of developing a curriculum that will be evaluated for effectiveness and for replication if deemed effective. When it first commenced, Y.E.S. held a training retreat in preparation for the performances of *Drive Thru-Justice* at Kennesaw State University. A component of the retreat was a coaching session by a visiting Fulbright Professor of Acting from the Philippines, a Qi Gong instructor, a meditation/self-hypnosis specialist, and others. Due to an open door policy, specialists often visit the rehearsals to enhance the training and skills development of the youth.

Y.E.S. meets on Sundays from 2-5 at the Horizons School in Atlanta. Consistency of the rehearsal schedule has been very important for the youth and parents. Due to travel concerns (students come from all over the Atlanta Metropolitan Area and the public transportation system is not accessible in some areas) problems have arisen on occasion when changes have been made to the schedule.

Y.E.S. has several routine practices; however the program has been able to hold the attention of the teens with special guests, community volunteer work – such as meals on wheels for home-bound residents, and special outings. The attempt has been to make Y.E.S 4 Health a “club” for its students, through which they can sharpen their peer education skills and have fun in the process. Concerning competing interests, it has been the experience of Y.E.S. that the students who join are overcommitted in other activities such as sports, music, student government and theater programs in their schools. We still encourage their participation, but hope that in the future, Y.E.S 4 Health can serve multiple foci for its participants.

Ideally, programs that work with youth to the extent of the Y.E.S. program should provide stipends to support retention. Some of the older students have had to get jobs and eventually stop coming to rehearsals. The payment of stipends will reduce the need to seek outside employment. One of the primary sources of employment for teens is fast-food restaurants. Working in these establishments can potentially reduce the impact of education provided by Y.E.S. on the health benefits of proper nutrition.

Behavior change is a slow process. Anecdotal feedback from the youth of Y.E.S. is encouraging. The youth make small steps in improving their own lifestyle choices while the messages are reinforced consistently through the play rehearsals, training, and discussions. This approach is consistent with Bandura's self-efficacy development theory (1977).

Finally, having a sense of humor, a lot of patience, and as the youth say "keeping it real!" goes a long way when working with youth. Their warmth, laughter, and commitment make it all worthwhile – not to mention their stellar performances and the standing ovations!

There are admittedly days when the generation gap between the adults of the program and the youth seems impracticable. When we reach those thresholds, the YAMs step in and bridge the gap. To them we are grateful. The program exists and persists as a result of the dedication of all involved. It is a long journey, through which we know that we are planting seeds for the future!

## VIII. LIMITATIONS

The intervention has not been fully evaluated. The pilot did not include coding of pre- and post-test responses in order to assess change at the individual level. Impact measured by an increase in correct responses was only computed at the group level. There should have also been more questions included in the survey. Five questions are inadequate to assess changes in knowledge with an issue as complex as diabetes. Also, the evaluation would be strengthened if measurements were taken at three and six month intervals after the intervention in order to assess retention of the change in knowledge.

A more in-depth evaluation that measures the impact of the performances on knowledge and attitudes, as well as a process which captures change in knowledge, attitudes, and behaviors of the peer educators of Y.E.S. is needed.

## IX. CONCLUSION

The human and economic factors of obesity and diabetes have been astronomical, costing the country billions of dollars per year. This includes direct cost to preventative, diagnostic, and treatment services. The Y.E.S. program is a very economical and feasible intervention, which can reach hundreds of youth at a time. Prevention strategies to educate the public about chronic diseases are primarily focused on adults and not adolescents. They are often in the realm of secondary and tertiary prevention (screening for and managing of disease). Y.E.S. provides an opportunity to invest in youth in the spirit of true primary prevention (preventing diseases from occurring). Y.E.S. builds self-esteem and self-efficacy of the participants by exposing them to training, coaching on important health issues, and having the lessons reinforced through rehearsals and performances. Reinforcement of messages is one of the components of the social cognitive theory to increase self-efficacy. The program also educates teen audiences on those same health issues in a language (that we refer to as “teen-speak”) and format (drama, music, and dance) that is appealing to them. Y.E.S. provides an opportunity for youth to engage in a healthy, informative, and potentially life changing activity, instead of hanging out on the street, watching television, or engaging in premature sexual or other risky health behaviors. This intervention is one way to assist Healthy People 2010 and the Nation in reaching the goal of addressing and eventually controlling this emerging diabetes epidemic among increasing numbers of children and adolescents.

This intervention and evaluation research will greatly benefit the public health and behavioral science community. Y.E.S is an intervention and prevention strategy that is needed to combat the high prevalence and incidence rates of diabetes and other preventable illnesses, and to teach youth important protective behaviors against chronic diseases that they can begin to apply in their daily lives. In addition, this program provides an excellent opportunity to evaluate and document behavior change, particularly in the context of a teen theater approach to this important issue.

The eulogy delivered at the funeral of the Sweet Burger Restaurant in *Drive-Thru Justice* contains the overall message that is conveyed to audiences through this powerful play. Started by the preacher and delivered by the ghost of the character in his own words, the message is that

*“Black folks have to have a new relationship with food. Food has always been used to comfort and heal us emotionally while in many cases harming us physically. Diabetes and heart disease are not normal occurrences in life. We continue to develop them through unhealthy lifestyles. We eat poorly and make excuses about exercise. We need to find other ways to show love other than through the cooking of fatty, starchy, sweet, sugary and salty foods. What are we teaching our youth? We have the information and we have the technology – Turn off those televisions! Turn off those video games! Get out and play and run and dance! Eat more vegetables, fruits and grains for a healthier life. Take time to start a garden – even in your apartment if you have to. Live life to the fullest and have fun.”*

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