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Efficacy of Utilizing a Novel Education-Entertainment Strategy to Increase Health Information Seeking Behaviors among African-American Patients and the Feasibility of its Incorporation into Healthcare Settings

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Abstract

Health disparities in chronic diseases have a significant negative effect on the public health of African-Americans. In view of the extent to which lifestyle behaviors can influence the risk for certain chronic diseases, there is a corresponding need for engaging health education materials within this population. Education-entertainment (E-E), an education strategy in which entertainment media is used as the context for presenting relevant health information, has previously shown success in affecting health-related behavior changes within distinct demographic populations. In this study, we present a novel E-E health intervention strategy tailored towards adult African-Americans. This strategy utilizes an animated 'soap-opera' miniseries, entitled *Keeping Up With the Walkers*® (KUWW), as the context for presenting relevant health information to the target population of African-American adults. KUWW addresses six chronic health disorders that are particularly prevalent in the African-American population; obesity, diabetes, high blood pressure, heart disease, glaucoma and breast cancer. We demonstrate that KUWW was well received by the target population as an informative and entertaining health education tool and that KUWW increased health information seeking behaviors within that target population. We also found that healthcare providers had a positive response to implementing KUWW as a patient education source. We contend that KUWW is an effective health education intervention tool that could be implemented in a manner that utilizes the patient waiting room experience. The strategies used in creating KUWW may be an effective model for increasing health education among additional populations.

Keywords: Lifestyle behaviors; Demographic populations; African-American population

Introduction

Health disparities in chronic health disorders such as obesity, cancer, cardiovascular disease, and hypertension/stroke have a substantial negative effect on the public health of African-Americans [1-4]. The disproportionately high prevalence of these disorders within the African-American population suggests a need to re-evaluate current health intervention strategies. As lifestyle and behavior influence the risk for certain health disorders, patient education is a key goal in reducing the incidence of these disorders [5,6].

The Education-Entertainment health intervention strategy uses entertainment media as the context for presenting educational material [7-9]. According to this strategy, the viewer is engaged in the presentation of health information and is therefore more likely to both internalize educational messages and seek out additional E-E materials. The success of the E-E strategy as a health intervention tool has been demonstrated in past studies targeting distinct gender, socio-demographic, and ethnic populations [8,10-13]. E-E health intervention techniques have successfully increased breast cancer and mammography awareness among Hispanic women, increased cervical cancer screening in the UK, increased awareness of teen obesity, and has been efficacious in HIV/AIDS prevention among African sub-populations [12,14,15]. The extension of E-E to radio and television has been refined through the well-known Sabido method, a methodology that emphasizes character change and growth in order to engage the audience while simultaneously imparting pro-social values [16]. In this manuscript, we present a novel, and highly effective, E-E strategy crafted around the Sabido method.

This study was designed with the goal of increasing awareness of certain chronic health problems among African-American adults. An animated mini-series was created as the context for presenting health information in an engaging and entertaining format. The mini-series, *Keeping Up With the Walkers*® (KUWW), features African-American

characters in culturally familiar situations designed to appeal to the target audience in short, 'soap-opera' style episodes. KUWW addresses six chronic health disorders with increased prevalence and/or related morbidity/mortality among African-Americans (obesity, diabetes, high blood pressure, heart disease, glaucoma, and breast cancer), each topic addressed in four short (5-minute) episodes. Consistent with the soap-opera structure of the series, each episode features dual dramatic story lines, and concludes with an open-ended 'cliff-hanger.' To emphasize the key medical information presented in each episode, each cliff-hanger is followed by a brief animated epilogue featuring a biomedical researcher that summarizes the salient medical points addressed and offers practical advice to the viewer.

Utilizing E-E as a health intervention strategy is a complex task, and as such, is composed of many intermediate goals. Our first goal was to qualitatively assess viewer reception to KUWW. More specifically, this encompassed whether the target audience identified with the characters and situations, and whether they found the diseases discussed to be relevant. The second goal was to determine if viewing KUWW correlated with increased health information seeking behavior. Finally, we wanted to ascertain the opinion of health care professionals in using KUWW as a tool for patient education.

We found that the target viewing population had an overall

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positive reception to KUWW, and that watching the series correlated with increased health information seeking behaviors. Additionally, healthcare professionals indicated an interest in using KUWW as an educational tool that utilizes the waiting room experience. Accordingly, this study presents a promising strategy for enhancing health education and increasing awareness of chronic diseases among adult African-Americans.

Materials

Study design

Patients were approached in the waiting room of pre-determined healthcare facilities while they were waiting to see the doctor, informed of the nature of the study, and asked to participate. Participants completed a 10-15 minute questionnaire surveying their lifestyle behaviors, health information seeking behaviors, perceptions of personal risk for chronic disease, and their personal health related information and demographics. Participants then watched eight consecutive 5-minute episodes of the KUWW series that covered two entire health topics from the KUWW series (40 minutes total viewing time). Participants then went for their scheduled physician visit. Immediately after the physician visit, a post-viewing interview took place that addressed the same health related questions outlined in the pre-viewing survey, as well as questions regarding viewer reactions to KUWW. Study participants were informed they would be contacted in two weeks for a follow-up interview and provided a website where they could watch additional KUWW episodes if they were interested. After two weeks, the participants were contacted for a 20-minute follow-up telephone interview. The interview covered many of the same questions as the initial pre and post-viewing surveys, and also included additional questions regarding health information seeking behaviors and whether the participants had watched additional episodes of KUWW after the initial viewing.

Recruitment of study participants

All study participants were self-identifying African-Americans between 30 and 65 years of age. Additionally, all participants were screened to ensure they had access to the Internet. Participants were offered an honorarium for their time and were informed that their participation was entirely voluntary; all participants signed an informed consent form. In total, 115 patients participated in the study. A variety of healthcare facilities were utilized as patient recruitment locations in order to obtain a heterogeneous socio-demographic participant pool; there were 10 recruitment locations and these included community health centers, a rural health center, and private physicians' offices. All participating healthcare facilities were located in the state of Georgia and the majority of these facilities were in DeKalb County. Facilities in areas with a high density of African-American individuals were chosen to increase the size of the participant pool.

Survey of healthcare providers

Healthcare providers included health educators and healthcare facility administrators that were recruited from the same facilities from which the patients were recruited. In total, 16 healthcare providers were interviewed (7 healthcare facility administrators and 9 health educators). Healthcare providers were initially questioned regarding the healthcare challenges and educational needs of patients. Healthcare providers were then either supplied with copies of KUWW on DVD or directed to a website where they could watch KUWW. A follow-up interview was scheduled, and on the appointed follow-up date, healthcare providers were contacted by telephone and questioned

regarding their impressions of the series as an educational tool and the feasibility of incorporating it into the patient waiting room experience.

Generation of 'Word Cloud'

In order to obtain a visual qualitative representation of viewers' responses to the series, a word cloud was generated from participant interview transcripts. The software used to generate the word cloud was NVIVO 10 (QSR International).

Results

Participant response to KUWW

In order to qualitatively assess reception of the series, study participants were asked what thoughts or feelings they associated with viewing KUWW. These responses were charted in a 'word cloud,' with the size of each word corresponding to how frequently it was mentioned (i.e. larger words were mentioned more frequently by viewing participants than were smaller words when they described the series). As demonstrated in figure 1, the overall response to KUWW was positive ('like' and 'interesting' are words prominently featured in the participant response). Study participants also made personal connections with the series ('relate' and 'family' were frequent responses) and found KUWW to be educational ('think' and 'informative' were commonly used descriptors). Further questioning indicated that the majority of study participants formed an affective connection with the characters, with many participants stating that the characters reminded them of themselves or of individuals they interact with in their daily lives. Study participants also commonly stated that they identified with the situations and personal experiences presented. When asked which aspects of the series they found appealing (Figure 2), the most frequent responses were the characters, the animation, the epilogues featuring advice from a biomedical researcher, and the provided health information.



Figure 1: Participant response to KUWW A word cloud encompassing the most common participant reactions to KUWW reveals an overall positive response to the series. Word size corresponds to how frequently a particular word was mentioned in post-viewing interviews. Study participants indicated enjoyment ('like'), relevance ('relate'), and the educational merit ('informative') of the series.

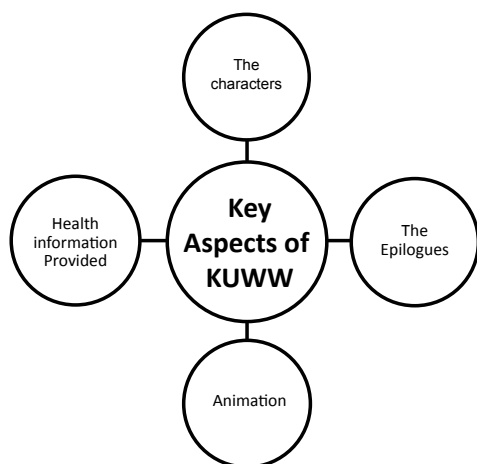


Figure 2: Study participant identified key aspects of KUWW Study participants indicated that the characters (roles and personality), animation, health information provided, and the epilogues were highly appealing components of the series.

Health information seeking behaviors

Watching KUWW increased motivation for study participants to seek additional health information. Alterations in the health information seeking behaviors of participants were reflected both in their personal behavior and their behavior with their physician. In terms of personal behavior, study participants reported that watching KUWW increased their motivation to address health concerns within the context of their social networks (i.e. family, friends, and social media such as Facebook and Twitter), as opposed to struggling with these concerns in isolation. In terms of behavior with physicians, participants reported that watching KUWW motivated them to directly question their physician regarding health concerns and to ask their physician for health screenings. Health screenings were not a measured outcome of our study, so we do not have data reporting the frequency of screenings after watching KUWW; however, study participants commented in follow-up interviews that watching the series motivated them to monitor their health through screenings and to request screenings regarding health concerns rather than being passive about their healthcare. Notably, references to health screenings were voluntarily supplied by study participants; we did not question study participants regarding their intentions to get screened and also did not follow them for a sufficient time period to observe how many patients actually got screened. Frequent comments in the two-week follow-up interviews were that the series increased motivation to get regular check-ups, increased motivation to speak with a health provider about health concerns, and provided talking and reference points to search for additional information.

As KUWW is itself a source of health information, watching additional episodes (i.e. episodes other than those assigned as the viewing task) of the series was also classified as a health information seeking behavior. Over one-third of the initial viewing audience chose to watch additional episodes of KUWW on their own and of those who watched additional episodes, over 80% of viewers then shared that information with others (manuscript under review). Those who did not view additional episodes of KUWW cited time constraints as the primary reason for not watching. When viewership of those watching additional episodes was stratified (obese, overweight, healthy weight), according to Body Mass Index (BMI), a greater percentage of obese study participants chose to watch additional episodes than did study

participants in other weight classifications (Figure 3). When stratified according to diagnosis of chronic disease (Figure 4), participants who had previously been diagnosed with a chronic disease were more likely to watch additional KUWW episodes than those not diagnosed with a chronic disease. Of those participants diagnosed with a chronic disease, participants diagnosed with high blood pressure had a greater likelihood of watching additional episodes than did participants with any other diagnosis (notably, high blood pressure was the most common diagnosis and represented slightly over half of patients diagnosed with a health disorder). Study participants also indicated an interest in future KUWW episodes, and in fact, actually suggested additional health topics to be covered. The health topics suggested span a range of health concerns and are outlined in table 1.

Waiting room experience

Study participants were questioned as to the impact of watching the series on their perception of the time spent in the physician waiting room. There was overall agreement that KUWW enhanced the waiting room experience. Study participants indicated that KUWW

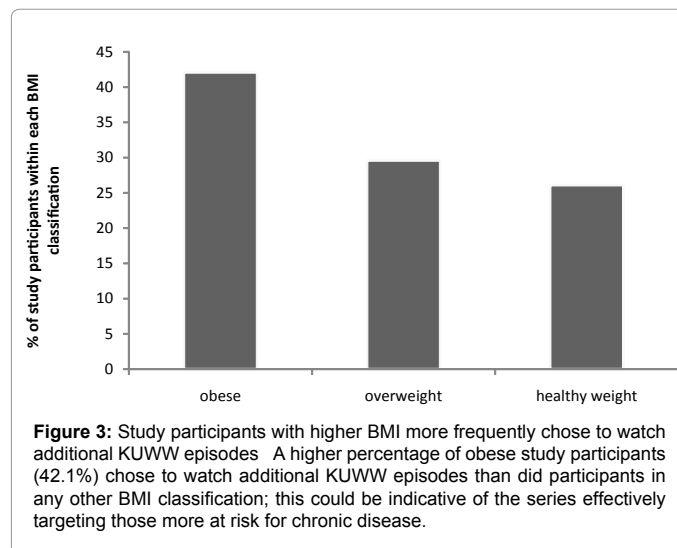


Figure 3: Study participants with higher BMI more frequently chose to watch additional KUWW episodes. A higher percentage of obese study participants (42.1%) chose to watch additional KUWW episodes than did participants in any other BMI classification; this could be indicative of the series effectively targeting those more at risk for chronic disease.

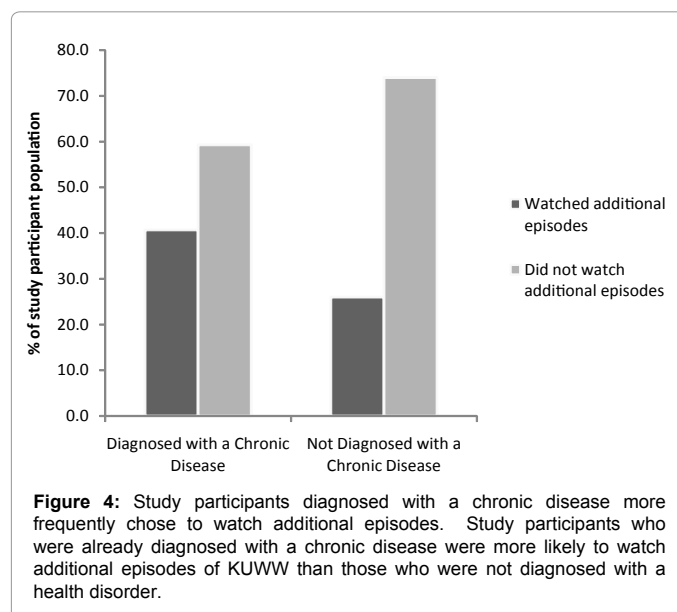


Figure 4: Study participants diagnosed with a chronic disease more frequently chose to watch additional episodes. Study participants who were already diagnosed with a chronic disease were more likely to watch additional episodes of KUWW than those who were not diagnosed with a health disorder.

Women's Issues	Men's Issues	General Issues
Weight loss/control options	Prostate health	Healthy tasty recipes
Healthy tasty recipes	Weight loss/control options	Risk factors associated with medication
Alternative to surgery for female reproductive system problems		Homeopathic treatment options, nature remedies
Menopause		Teen pregnancy, safe sex, and abstinence
Fibroids and hysterectomies		HIV and AIDS
HPV vaccine		Arthritis
		Chronic pain management
		Heart disease and cholesterol
		Kidney and liver diseases
		Stress relief
		Colon cancer
		Thyroid
		Alzheimer's/aging
		Joint health
		Understanding/treating high blood pressure
		Understanding/treating diabetes

Table 1: Additional requested health topics. Study participants indicated an interest in the above health topics and requested that they be addressed in future KUWW episodes. Some of the listed topics are related to topics covered in the original six health topics addressed; the reason for this overlap is that some participants may not have watched all of the original KUWW health topics, and thus were not aware that these topics were already addressed.

was a good use of time spent in the waiting room and was preferable to both watching TV and reading health brochures or magazines. Participants further reported that KUWW was a good source of health-related information in the waiting room, was entertaining, held their attention, and reduced stress associated with visiting the doctor. They also indicated that, if given the option, they would watch KUWW in the waiting room in the future. Figure 5 outlines the identified elements of the series that encouraged patient viewership.

Healthcare provider response to KUWW

Health educators in each location were asked what problems they currently encounter when trying to educate patients to make healthier decisions. Their answers revealed three categories of patient education challenges: 1) patients who are knowledgeable about health risks but are resistant to change their behavior, 2) patients who have difficulty understanding the impact of their lifestyle choices, and 3) limited educational and financial resources. Educators expressed an overall sentiment that patients' health education needs in their respective healthcare settings are not currently being met. More specifically, they indicated difficulty in finding material that selectively targets African-American patients, despite the fact that 100% of polled healthcare administrators indicated that their healthcare facility would benefit from material tailored towards African-Americans (Figure 6a), and most administrators indicated they would buy such material if it were available (Figure 6b). Moreover, the majority of healthcare administrators polled indicated that their facility either already has or has current plans to incorporate the capability to play DVDs within the patient waiting room, thus making an E-E health intervention mini-series a feasible option for patient education within the waiting room (Figure 7).

Discussion

The KUWW series was well received by both participating patients and healthcare providers. A qualitative analysis of participating patients' and healthcare providers' responses to KUWW indicated that the animated series successfully achieved the goals of being accessible and relatable to the patient, increasing patient health information seeking behavior, and appealing to healthcare providers as a tool for patient education. To our knowledge, KUWW provides the first education-entertainment, animated mini-series tailored specifically towards adult African-American health education.

A key aspect of the success of KUWW was the patients' response to the characters and situations depicted. The series was created in accordance with Sabido methodology, an E-E strategy that emphasizes character change and growth as the context for imparting pro-social values [16]. Accordingly, participants' personal identification with the characters and situations depicted in the series enhanced the efficacy of the series. The participants indicated an affective connection with the KUWW characters, reporting the characters reminded them of either themselves or those in their family or social circles. Similarly, the situations and diseases depicted were reported as relatable and relevant to the target audience. Study participants also indicated a proclivity towards watching additional KUWW episodes in response to the soap-opera format of the show; this format utilizes two dual dramatic storylines and an open-ended cliff-hanger at the end of every episode. Study participants reported a desire to know how dramatic situations were resolved as contributing to them watching additional KUWW episodes.

All major aspects of the series were reported by study participants to be appealing; these included the characters, the animation, the health information provided, and the epilogues. The appeal of the characters (specifically, their personality and situational roles) in combination with the animation supports the assertion that KUWW appeals to study participants partially on the basis of entertainment value, while the appeal of the health information provided and the epilogues supports the assertion that KUWW appeals to study participants on the basis of health education. The reported appeal of the epilogues is especially notable, as they served as an effective and engaging strategy to distill the most salient medical points addressed and also provided practical medical advice and commentary to the viewing audience. In this manner, the essential medical knowledge imparted in each episode is reinforced for the viewer, making it easier for him or her to seek out additional health information. Therefore, not only were the epilogues appealing and entertaining to study participants, they were also highly utilitarian.

When questioned about the effect of watching KUWW on the waiting room experience, study participants reported that watching the series enhanced wait time and was a preferable alternative to brochures, pamphlets and television. The fact that participants indicated a positive response to watch KUWW while waiting to see their physicians presents healthcare providers with an opportunity to utilize the waiting room experience in order to enhance patient education.

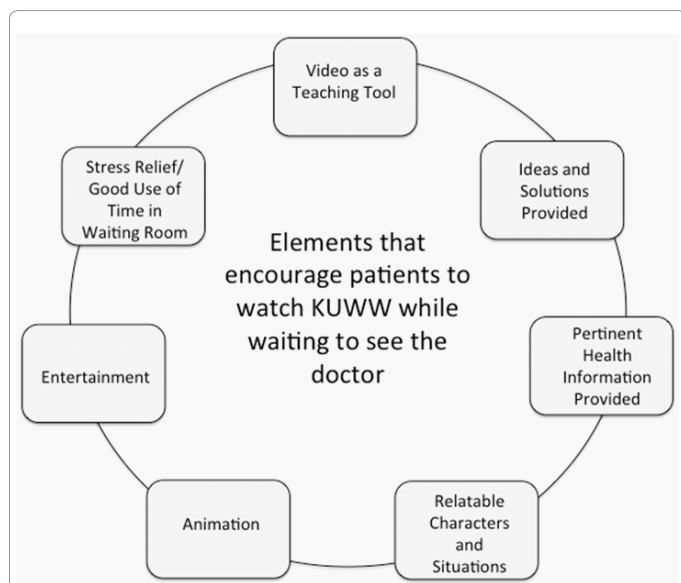


Figure 5: Elements of KUWW that encourage patient viewing while waiting to see a physician. Participating patients indicated watching KUWW was a good use of time in the physician waiting room. Reasons for viewing interest in KUWW span both health education and entertainment.

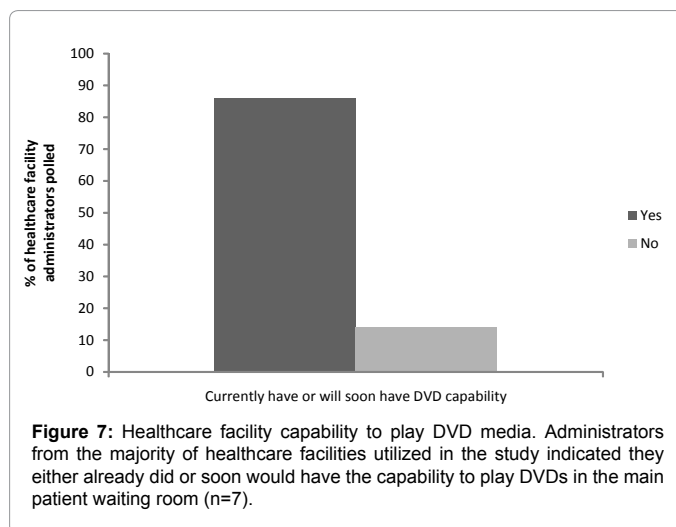


Figure 7: Healthcare facility capability to play DVD media. Administrators from the majority of healthcare facilities utilized in the study indicated they either already did or soon would have the capability to play DVDs in the main patient waiting room (n=7).

questioning their physicians regarding individual health concerns and requesting health screenings. The increased interest in health screenings is especially important as health screenings are crucial to preventative healthcare, and can contribute to decreasing disease prevalence and health disparities [17,18]. Because KUWW is a health education tool, watching additional episodes of the series was also classified as a health information seeking behavior. Over one-third of study participants who watched the initial waiting room episodes went on to watch additional episodes, and of those, over 80% shared the health information obtained with others (manuscript under review). Therefore, watching KUWW created a ‘ripple’ effect in disseminating relevant health information to persons within the social network of the initial viewer, thus expanding the impact of the KUWW series within the target population. Given how much participants indicated that they liked the KUWW series, we anticipated that a greater percentage of study participants would have watched additional episodes than actually did. It is of interest that the primary reason participants cited for not watching KUWW after the initial viewing was time constraints. Therefore it was not that KUWW itself did not appeal to those participants who did not view additional episodes, but rather that they simply did not have the time to watch KUWW within the two-week call-back period.

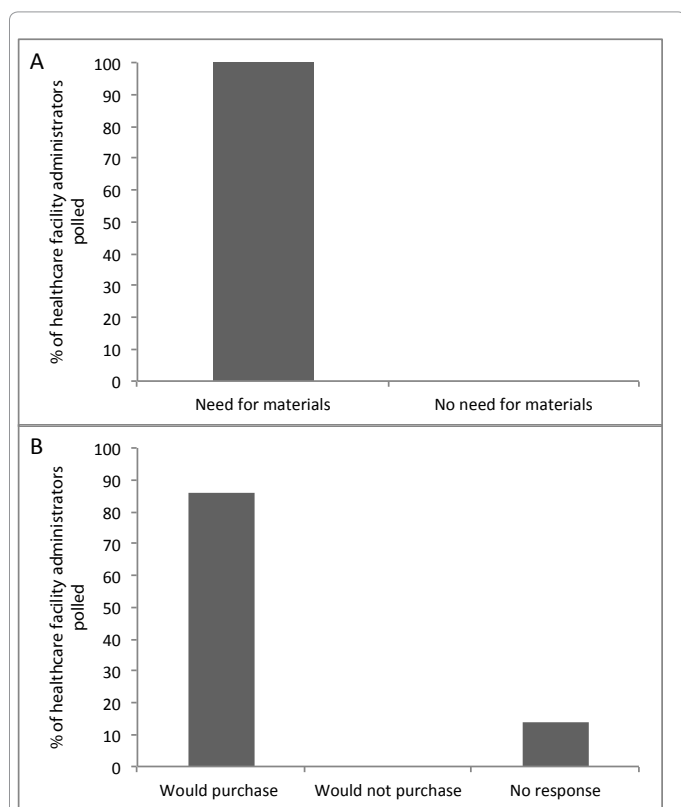


Figure 6: Healthcare facility administrators have a positive interest in health education materials tailored towards African-Americans. Healthcare facility administrators indicated both (A) a need for, and (B) that they would buy, health education materials targeted at African-American patients (n=7).

Analysis of BMI classification and chronic disease diagnosis among study participants who chose to watch additional KUWW episodes revealed an association between the presence of health disorders and watching additional episodes. Study participants who were classified as ‘obese’ were more likely to watch additional episodes of KUWW than participants in other BMI classifications and similarly, participants diagnosed with a chronic disease were more likely to watch additional episodes than their ‘healthy’ counterparts. It may be that these ‘at risk’ individuals felt the series was more relevant to them, and therefore were more motivated to watch additional episodes. This further indicates the success of KUWW at targeting specific subgroups that are especially at risk for chronic disease.

A major indicator of the success of KUWW in increasing health information seeking behaviors was that study participants asked for additional health topics to be addressed. This is indicative both that study participants found the current episodes to be educational and enjoyable, and that watching KUWW increased their interest in obtaining further health information using this format. This is significant because we know that when patients actively seek out additional health information, they: 1) are more likely to talk to a

Increasing health information seeking behavior was a key goal of the KUWW series. Participants who watched KUWW showed increased interest in health information seeking behaviors such as

doctor or health professional, 2) report that the information changes their overall approach to maintaining health, and 3) report that the information helps them understand how to treat health disorders [19]. Notably, some of the additional health topics requested were related to those that were already addressed in the original KUWW episodes. This resulted because participants were assigned only 8 (out of the total 24) 5-minute episodes as their viewing task. Therefore, they were only assigned to watch two topics to completion, and unless they voluntarily watched additional episodes, would have no way of knowing the subject matter of the other topics in the series. The fact that patients requested topics related to those already addressed in the series emphasizes that the six health topics covered in KUWW are especially relevant to the target population.

Focusing on the feasibility of incorporating KUWW as an educational tool into healthcare settings, we also investigated KUWW from the perspective of the healthcare providers (i.e. clinic administrators or health educators). Healthcare providers indicated a need for increasing patient health education in order to impact patients' lifestyle decisions. Providers also indicated a dearth of multi-media health education materials specifically targeting African-American patients, and further indicated that, if such materials (e.g. KUWW) were available, they would provide them to their patients. We also wanted to determine the feasibility of showing a mini-series in the healthcare facility waiting room and determine what logistical barriers there might be to making KUWW available for patient viewing in the patient waiting area. While not all healthcare facilities were currently equipped with the ability to show DVD media in the waiting room, the majority indicated that they have current plans to incorporate this capability within the near future. Of note, our sample pool of healthcare facilities and healthcare providers was quite small. While the number of healthcare facilities utilized and the number of healthcare providers polled was suitable for the scale of our study, we cannot state with certainty that the data regarding the feasibility of incorporating a mini-series into the waiting room is indicative of the majority of healthcare facilities across the country. However, if facilities do possess the technical capability (i.e., DVD player, digital signage, Internet) to incorporate an E-E health intervention mini-series into the waiting room, our data suggests patients would greatly benefit from viewing such a series. Therefore, an E-E mini-series such as KUWW offers a means to utilize the waiting room experience to educate and entertain patients and also appears to be logistically feasible for incorporation into the healthcare setting.

Conclusions

KUWW is an example of a novel E-E strategy that effectively increases health education within a target patient population. The series was well received by the target African-American viewing population, and also motivated an increase in health information seeking behaviors within that population. KUWW was found to be highly applicable to healthcare settings; healthcare providers indicated a need for health education media specifically targeting African-American patients and affirmed the feasibility of incorporating KUWW into the waiting room. Watching KUWW was reported as an enjoyable and informative use of time in the waiting room, and indeed, study participants even requested the creation of new KUWW episodes exploring additional health concerns. Thus, the KUWW series offers an attractive E-E model for utilizing the waiting room experience to provide effective health education to targeted patient populations.

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