

Impact of a theatre for development communication intervention on knowledge of childhood obesity among women in Nigeria

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Abstract

Background: Although researchers agree that women are essential in the fight against childhood obesity, very little attempts, from developing countries like Nigeria, have been made to examine how to educate women on childhood obesity prevention.

Objective: We attempted to fill this gap by testing the effectiveness of a theatre for development based communication approach.

Method: We carried out a quasi-experiment, exposing the treatment group to a 30 minute recorded drama with members of the community as part of the cast.

Results: We found that rural women who were exposed to recorded drama reported higher knowledge of childhood obesity than their counterparts who were not.

Conclusion: Theatre for development is an efficient communication tool for health promotion

Unique contribution: The study has provided empirical evidence on how to communicate obesity information to rural women in a less developed country like Nigeria.

Key recommendation: Theatre for development should be utilized as an instrument for public health education, especially among women.

Keywords: background colour; communication; childhood obesity; drama; theatre

Introduction

Childhood obesity is one of the public health problems that is facing the world. It affects people from low, middle, and high income countries. There are indications that the problem may continue to linger if desperate measures are not taken. The World Health Organization (2020) notes that cases of childhood obesity have continued to increase for the past decades. The world health body notes further that the situation is such that the number of cases of childhood obesity has increased nearly three times what it used to be. Specifically, WHO (2020) notes that in 2019, only estimated 38.2 million children who were within the age bracket of 5 years were obese.

Additionally, the world health body submits that the prevalence of obesity among children and adolescents who are within the ages of 5-19 has increased from only 4% in 1975 to more than 18% in 2016 (WHO, 2020). These figures point to the fact that obesity has continued to pose a serious threat to the world. Shams (2020) projects that if the increasing number of obesity is not halted, an estimate of 250 million children will be

obese by 2030 globally. In Africa, the burden of childhood obesity is equally felt. Klingberg *et al.*, (2019) carried out a literature review to ascertain the prevalence of childhood obesity in Africa and reported that obesity is on the increase on the continent of Africa. Danquah *et al.*, (2019) corroborate that childhood obesity is one of the serious public health issues confronting Africa. The World Health Organization (2020b) says the number of obese children in Africa under the age of 5 has nearly increased two times since 1990.

Nigeria also has its fare share of the global problem of childhood obesity. Izuora *et al.*, (2013) in their study reported that childhood obesity prevalence in the country ranges from 5-12%. On the other hand, Opara *et al.*, (2010) utilized the gold standard, BMI-for-age and found that the prevalence of childhood obesity in Nigeria is 11.1% . Oparaocha (2018) avers that childhood obesity is prevalent in Nigeria and urgent steps need to be taken to combat it.

Obesity has serious negative consequences on children. The World Health Organization (2016) categorizes obesity as the fifth leading causes of death in the world and it is equally one of the greatest health challenges that is linked to other serious health issues. Literature (Salman, 2018; Pinto *et al.*, 2018; Shams, 2020; World Health Organization, 2020; Naidoo, 2018; Dalle-Grave *et al.*, 2020; Wan *et al.*, 2020; Mbakwa *et al.*, 2016; Scott *et al.*, 2016; Ville, *et al.*, 2017) point to the fact that obesity reduces the capacity of a child to function as a productive member of the society. Obesity kills more than underweight. This means that children who are obese are experiencing conditions that may claim their lives. This is not the case with children who are underweight. Childhood obesity leads to different diseases that are linked to the metabolism of affected children. Such metabolic diseases may include, but not limited to: fatty liver disease, type 2 diabetes, as well as cardiovascular linked diseases. This means that even where obesity does not kill children; it constitutes a serious health challenge to their health. Obesity results to stigmatization of affected children. Such stigmatization has a negative impact on the self esteem of the affected children. This means, therefore, that the impact of childhood obesity is beyond diseases as it also includes mental health. Childhood obesity equally has a negative impact on the educational progress of children. This is because it negatively affects their academic achievement, therefore reducing their chances of favourably competing with their counterparts in the labour market. What this means also is that childhood obesity has a negative impact on the future economic status of children.

Obesity has its leading causes and knowledge of them could be beneficial in fighting the public health emergency. Ruiz *et al.*, (2020) ascertained the causes of childhood obesity in Europe. The result of the study showed that characteristics of mothers such as lower education lead to an increase in the risk of obesity among children. The implication of this result on the current study is that rural women are vulnerable to nursing obese children because they are mostly illiterate, less educated, and poorly informed. Rito *et al.*, (2019) did a study to ascertain if early-life factors such as birth weight, breastfeeding, and exclusive breastfeeding were associated with childhood

obesity. The assumption of the study was supported and the researcher concluded that children who weigh higher at birth were more prone to be obese than their counterparts with light weight at birth. Overall, studies (Miller *et al.*, 2018; Stark, 2018; Cox & Blaser, 2015) show that mothers play critical roles in determining childhood obesity. What this means is that the behaviour of mothers in areas like breastfeeding could increase the risk of childhood obesity. Evidence in literature (Heerman *et al.*, 2019; Chen *et al.*, 2017) also suggests that where there is a lack of balance between the calories that is taken into the body system and the calories that is utilized, it will also result to childhood obesity. This imbalance is attributed to certain factors. Examples of such factors include: (a) Where there is too much intake of food items that are energy-dense with high fat and sugars. Such a situation will likely create an imbalance between calories taken in and calories expended. (b) When there is growing lack of physical activities because of continuous sitting in one place. This situation is mostly associated with children within the ages of 5 to 7 years, but it is not common in children, it is a rare case. (c) Lack of information on the part of mothers is also responsible for childhood obesity. When mothers are less well educated on the causes of childhood obesity, it may also make it difficult for them to take precautions. Within this context, ignorance can also be regarded as a cause.

The implication of the above is that mothers are at the centre of prevention of childhood obesity. The behaviour of mothers can either assist in combating obesity or result to an increase in the public health emergency. Women spend more time with their children. They play greater roles in determining what the children eat. When they are pregnant, their behaviour as well as eating habit can contribute in making the newborn vulnerable to obesity. The issue with rural women is even of particular interest because these are areas with limited access to health facilities. Ezeah *et al.*, (2020) argue that rural areas in Nigeria are most susceptible to public health emergencies because of their low socio-economic status. It is against this background that the current study examined the effectiveness of a communication intervention using theatre for development approach on knowledge about childhood obesity among women. Additionally, the researchers tested the moderating effect of background colour used in such performance.

Literature Review

Theatre for development is an essential part of strategic communication aimed at changing behaviour. As a strategic communication, theatre for development identifies a social problem then packages a message that is communicated to the target group through theatrical technique. See also (Iyorza 2008; 2014; 2017; Iyorza, & Abu, 2020; Iyorza, & Ekwok, 2015) Okpadah (2017) says that through the instrumentality of the theatre, a social problem can be identified and addressed. Umenyilorah (2014) says that theatrical representation is one of the most utilized communication strategies in sub-Saharan Africa. Umenyilorah adds that messages that are aimed at reaching local dwellers can best be communicated to them through the utilization of the theatre. Dhar (2006) notes that the potency of the theatre as an instrument of development is not in doubt because it is capable of providing the general public with adequate information to raise their awareness on issues that are of importance to them. Dhar adds further that the theatre has

the capacity to change attitudes regarding an issue while at the same time addressing social problems. Baldwin (2009) conducted a study to ascertain the views of participants regarding the forms of theatre that can be applied for health promotion. A total of twelve persons were asked to reflect on the form of theatre that can be used for health promotion. The result showed that theatre is an important tool for health promotion. Additionally, the researcher reported that the participants were of the view that participant-oriented forms of theatre were more likely to be effective in health-related behaviour than performance-oriented forms, in their cultural context. Generally, evidence in literature point to the fact that the theatre is an important instrument for behaviour change communication. Based on the above, the researchers hypothesized:

H1: Rural women who are exposed to recorded drama on childhood obesity will report high mean scores on its knowledge than those who are not.

The Effect of Colour

Colour plays an important role in visual communication. This is because through colour combination, a person can manipulate message receivers. Colour has the potential to reveal hidden details of a message, thus contribute in the understanding of the message. Kuhbandner and Pekrun (2013) hold the view that colour is effective in enhancing communication, especially the visual aspect. Brown *et al.*, (2013) say that colour is essential in all visual communication because it does not contribute in telling a story, it is itself, a story. Bagchi and Cheema (2013) conducted a study to ascertain the impact of background colour on the readiness to pay in times of auctions and bargaining. Their result showed that colour plays a significant role in the bargaining process. According to Berens (2014), the perception that people have regarding colour, its combinations, together with colour memory are not general, but determined by cultural orientation. Guéguen and Jacob (2012) studied the manner in which colour is effective in manipulating how people view the appearance of female workers in the hospitality industry and found that colour significantly impacts on the beauty of waitresses. Based on the above literature, the researcher hypothesized:

H2: Background colour of recorded drama on childhood obesity will significantly moderate rural women's knowledge of the issue.

Theoretical Framework

We made use of social cognitive theory to carry out this study. Albert Bandura suggested the social cognitive theory in 1986 to explain the importance of adopting health behaviour based on observation of others demonstrating it. That is to say that when a person observes others demonstrate a health behaviour, he or she is very likely to adopt such a health behaviour. Within the context of this study, it can be argued that when rural women are exposed to recorded drama on childhood obesity; it is likely to have effect on their behaviour. Bandura (2001) avers that the theory is suitable for investigating health behaviour of people. The social cognitive theory has constructs that help in explaining it. These constructs are: self-efficacy, which explains the belief that a person has concerning his or her capacity to efficiently execute a defined behaviour and achieve the required outcome. Task efficacy is another important construct of the theory. Task efficacy

explains the confidence which a person possesses to implement an action. Another important construct of the theory is outcome expectancy. As a construct, it defines beliefs that are associated with certain behaviour which lead to definite outcome (Bandura, 1991, 1998). Therefore, we applied the three variables in this study to examine the effect of recorded drama on the health behaviour of rural women related to prevention of childhood obesity. Based on this theory, the researchers hypothesized:

H3: Self-efficacy, task efficacy, and outcome expectancy will significantly predict health behaviour of rural women who are exposed to recorded drama on childhood obesity.

Methods

To conduct this study, the researchers utilized a quasi experiment to detect the effect of theatre for development communication approach on knowledge of childhood obesity among rural women. We reasoned that a quasi experiment was suitable for the study to assist us to ascertain if there was a change in knowledge of childhood obesity among rural women who are exposed to a short drama on childhood obesity and those who were not exposed to it. We conducted the study in Enugu State, South- East Nigeria. We ascertained the adequacy of the sample size with the use of a priori power analysis with the G*power programme. We set the parameters with power $(1 - \beta)$ at 0.90, 0.30 effect size f , and $\alpha = .05$. The outcome revealed that a total sample size of 470 participants was needed to detect statistical differences at the .05.

Therefore, we categorized the respondents into 235 control group and 235 for treatment group. All the women were of reproductive age (< 44 years). In addition, all the women in the sample had no formal education.

Treatment Procedure

We conducted the study in Ede-Oballa, Nsukka Local Government Area of Enugu State. Ede-Oballa has two autonomous communities known as Ede-Enu and Ede-Ukwu. Both communities have a total of fifty two (52) villages. Ede-Enu has 22 villages while Ede-Ukwu has 32 villages. To conduct this experiment, we made use of Ede-Ukwu as a control community and Ede-Enu was the treatment community.

The treatment group was exposed to a 30 minute pre-recorded drama with 15 characters. The drama was acted in local language considering that the women were largely illiterate. The women watched the drama at the village square. The drama tells the story of two good friends. One is knowledgeable of the causes and prevention of childhood obesity, hence is taking precaution. The other is not knowledgeable about it, hence is not taking precautionary steps. The former did not have obese children, but the latter does. The drama goes on to show the negative impact of obesity on children like their health, social life, and productiveness. To test for the moderating effect of colour, the respondents watched the drama two times. In the first time, colour was less saturated and darker. In the second round of the drama, the colour was bright and saturated. The aim was to measure the moderating role of colour on their understanding of the message.

Sampling

We made use of simple random sampling approach to select the respondents for the study. We decided that simple random sampling was best suited for the study so that the

researcher will give equal opportunity to all the rural women within the study area. To implement the simple random sampling strategy, the research team visited the selected communities and selected the sample.

The researcher made use of a structured questionnaire. Recent studies (Ogbonne, 2019; Ezeah *et al.*, 2020) that have used the questionnaire showed that it is capable of generating sufficient data. We drafted the questionnaire in English, but it was read in the native language of the respondents. The total number of items on the questionnaire was 20 and these items were arranged in a likert scale format. The questionnaire sought to understand respondents' knowledge of the causes, impact, and prevention of obesity. A total of three experts ascertained the validity of the instrument. The researchers made use of test retest strategy to determine the reliability of the instrument and this resulted to a correlation coefficient of .81, an indication that the instrument was reliable.

Measuring Effect

We determined the effect of the treatment by measuring the knowledge level of respondents regarding the causes, impact, and prevention of childhood obesity at base line as well as after treatment. The researchers also determined the moderating effect of costume colour by exposing the treatment group to different background colour made up of short drama.

Data Analysis

Data for this study was analyzed with the use of descriptive statistics like mean, standard deviation, and simple percentages. Also, we used *t*-test to compare the mean scores of both groups. Additionally, the hierarchical multiple regression was used to test the moderating effect of colour while the multiple regression analysis was used to ascertain the predictors of health behaviour. We used SPSS for the analyses and presented results in tables.

Results

All the questionnaire copies that were administered to the respondents were filled and returned. This represents 100% return rate for the study. This was because the instrument was read out to the respondents. The results of the study were presented in the following tables:

Table 1: Mean and *t*-test results on knowledge of childhood obesity among participants at baseline (Time 1) according to group

Groups	Measure	N	Mean	SD	Df	Not Sig
Control group	Knowledge of childhood	235	1.4	1.6		

obesity

Treatment group	235	1.5	1.5	33	.72
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t-test statistics, SD standard deviation

We computed table one above to determine rural women’s knowledge of childhood obesity at baseline. The result revealed no significant statistical difference in the mean scores of rural women’s knowledge of childhood obesity at baseline because both groups scored low on knowledge of childhood obesity. This means that both groups did not significantly differ at pre-treatment stage. The implication is that the two groups did not significantly differ in their knowledge of childhood obesity before the treatment.

Table 2: Mean and t-test results on knowledge of childhood obesity among participants at post treatment (Time 2) according to group

Groups	Measure	N	Mean	SD	Df	Sig
Treatment group	Knowledge of childhood obesity	235	3.5	.99		
Control group		235	1.6	.82	12	.02

t-test statistics, SD standard deviation

The objective of computing the table above was to ascertain the impact of exposure to recorded drama on knowledge of childhood obesity among rural women (Time 2). It was found that a significant statistical difference exists between rural women who watched a recorded drama on childhood obesity and those who did not. Therefore, the result support the first hypothesis and it is concluded that there is a significant difference in the mean scores of rural women on knowledge of childhood obesity who are exposed to recorded drama on the health issue and those who are not. Rural women who watched the recorded drama scored higher than those who did not.

Table 3: Hierarchical Regression analysis of the moderating effect of background colour on the effect of recorded drama on knowledge of childhood obesity

Behaviour	R Square	R Square change	F.	F change	P. value
Model 1	.251	.251	2,410	2,333	.001
Model 2	.571	.507	8,761	11,172	.001

We did a hierarchical multiple regression model to examine the ability of theatre to influence knowledge of childhood obesity among rural women. At the first step, the effect of recorded drama was entered and this accounted for 25% of the variance in

knowledge of childhood obesity. After adding the scores of bright and saturated background colour at step 2, the total variance explained by the model as a whole was 57%. $F(2,333) = 11,172$, $p < 0.001$. Therefore, we conclude that background colour of recorded drama significantly moderates the effect of theatre on knowledge of childhood obesity. It should be noted that only the treatment group was examined for the effect of colour. The researcher then took another step to determine health behaviour of mothers within the context of childhood obesity. The result is presented in table three below:

Table 4: Regression analysis of self-efficacy, task self-efficacy, and outcome expectancy as predictors of health behaviour of rural women who are exposed to recorded drama on childhood obesity.

	Constant	β value	R square	F. value	P. value
Self-efficacy	4.082	.639	.588	12.201	.001
task self-efficacy		-.517			.003
outcome expectancy		.501			.001

In table four above, we conducted a multiple regression analysis to ascertain if three constructs from the social cognitive theory significantly predict the health behaviour of rural women who are exposed to recorded drama on childhood obesity. It was found that self-efficacy, task efficacy, and outcome expectancy are predictors of health behaviour of rural women who are exposed to recorded drama on childhood obesity. Self-efficacy ($\beta = .639$) contributes most in predicting health behaviour. The third assumption was also supported.

Discussion of Findings

In this study, we examined the effectiveness of theatre for development as a communication strategy for educating rural women on childhood obesity. We also ascertained the moderating role of background colour as contributing to enhance knowledge of childhood obesity among rural women. Additionally, we made use of three variables (self-efficacy, task efficacy, and outcome expectancy) from social cognitive theory to test how they predict health behaviour related to childhood obesity among rural women. We tested three assumptions and exposed rural women to a 30 minute recorded drama that had members of the rural areas as participants. We found that rural women who are exposed to theatrical messages on childhood obesity reported higher knowledge of the public health emergency in the area of causes of obesity, its impacts, as well as preventive measures. Among the treatment group, we tested the efficacy of background colour in the recorded drama and found that background with bright and saturated colour was more efficient in educating the masses on the issue than dull and less saturated background. Additionally, we found that self-efficacy, task efficacy, and expected

outcome are predictors of health behaviour related to childhood obesity of rural women within the study area.

The current study has extended literature on how to prevent obesity as most of the previous studies (Miller *et al.*, 2018; Stark, 2018; Cox & Blaser, 2015; Heerman *et al.*, 2019; Chen *et al.*, 2017) did not recognize the role of the theatre in educating the general public on issues related to childhood obesity. Another aspect which the current study has added to literature is by focusing on women. We understand that women spend most of the time with children and play a greater role in determining their diet. Apart from that, the behaviour of women during pregnancy has been recognized by researchers (Heerman *et al.*, 2019; Wan *et al.*, 2020) as playing critical roles in childhood obesity vulnerability. Despite this, very little attempts, especially from developing countries like Nigeria, have been made to examine how to educate women on childhood obesity prevention.

Also, while literature (Dhar, 2006; Okpadah, 2017; Umenyilorah, 2014) has identified the theatre as an important communication tool for behaviour change, it has rarely been applied to provide evidence regarding its effectiveness in obesity prevention. The current study has looked at this missing gap by showing that participatory development theatre is an effective tool for combating the menace of childhood obesity in rural areas of Nigeria. The current study equally extends our understanding of the effect of colour in theatrical production by showing that it greatly contributes in determining the effectiveness of recorded drama. This understanding will serve as a guide in designing health messages in drama format. Finally, we have shown that self-efficacy, task efficacy, and expected outcome are important predictors of health behaviour related to childhood obesity among the sample examined. These findings support the theoretical postulations of social cognitive theory (Bandura, 1998, 2001).

Implications of the Results on Health Promotion

The results of this study have implications on health promotion in the following ways:

1. It suggests that the theatre is an important communication tool for educating rural women on public health issues.
2. The results also suggest that women are key players in creating awareness about public health issues. This means that health campaigns must pay close attention to women, especially rural illiterates.
3. In using theatre for development strategy to communicate health messages to rural areas, it is essential to pay close attention to colour, especially where such messages are recorded.
4. Policies and programmes aimed at addressing public health emergencies should make adequate provision for the utilization of theatre as a communication approach.

Conclusion/ direction for further studies

We conclude that the theatre is a viable communication strategy for educating rural women on public health issues. It is also the conclusion of the current study that in utilizing the theatre for health promotion, recorded drama with bright and saturated coloured background will be very effective in assisting the viewers to understand health messages. We conclude also that variables from social cognitive theory are effective for influencing the health behaviour of rural women. Although this study has provided

evidence on the effectiveness of theatre for health promotion, it has some limitations. The first limitation is that the researchers examined only women from rural areas. It will be good to also include women from urban areas because children from urban areas are equally vulnerable to obesity. Also, in the current study, only theatre was used; there are other communication strategies that can be utilized to reach rural dwellers. Finally, the researchers made use of recorded drama; it will be good to also utilize live drama. It is recommended that future studies should address these limitations.

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