

Practical insights from implementing a school-based breast cancer awareness program in a rural Nigerian community

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Abstract

Breast cancer remains the most commonly diagnosed cancer among women globally and is a growing public health concern in sub-Saharan Africa, where late presentation and limited screening infrastructure contribute to poor outcomes. In this commentary, we share practical lessons learned from designing and implementing a school-based breast cancer awareness program in rural Nigeria, targeted at in-school adolescent girls. Our intervention, which combined teaching sessions with pre- and post-intervention assessments, significantly improved breast cancer knowledge and attitudes. Key insights include the importance of tailoring program content and data collection tools to the literacy level of participants, incorporating culturally sensitive approaches such as female educators and accounting for logistical challenges such as school scheduling and unexpected costs. These lessons highlight the potential of school-based programs as cost-effective, sustainable platforms for early health education in low-resource settings. We argue that integrating breast health education into school curricula, supported by multisectoral partnerships, can contribute to improved cancer prevention and early detection practices among young populations.

Keywords: *breast cancer, breast self-examination, school-based intervention, adolescents, rural communities*

Introduction

Breast cancer is the most commonly diagnosed cancer among females globally, with approximately 2.3 million new cases and 670,000 mortality cases reported in 2022 alone [1]. Globally, it is the major cause of cancer-related mortality among women, and the fifth leading cause generally. There has also been a rapid increase in the incidence in Africa, especially the sub-Saharan region, which is plagued by late diagnosis (most diagnoses are made at either stage III or IV of the disease), high mortality rates and low survival rates. While mammography is the World Health Organisation recommendation for screening, low-resource settings like Nigeria depend largely on breast self-examination (BSE), a zero-cost practice that helps women become more familiar with their breasts and report changes to their healthcare providers promptly [2].

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Female adolescents and young adults need to be taught proper BSE so that they can get used to the practice over time. One of the easiest ways to achieve this is via structured school-based sessions, especially in rural areas, which are often deprived of quality healthcare access and education. This commentary aims to share some of the practical insights we obtained while designing and implementing a school-based breast cancer program, which involved teaching in-school adolescent girls about breast cancer and BSE, and measuring the impact of the intervention through pre- and post-intervention questionnaires.

Rationale for school-based interventions

Although breast cancer is more common among older women, it represents up to 14% of all cancers among adolescents and young adults (15–39 years), and the outcomes are often poorer in this demographic [3]. Adolescence involves a series of physical and psychological growth waves in which young girls begin to get more familiar with their bodies. This presents an opportunity to teach them positive health-seeking behaviours and practices that can stay with them as they grow into adulthood. Since Nigeria does not have comprehensive national breast cancer screening programs, young girls need to be taught breast cancer early detection measures. The school-based educational programs are more effective than the annual ‘pink October’ campaigns because the latter are not maintained year-round, and they mostly target older women. School-based interventions are more structured, cost-effective and easier to evaluate for improvement. They have also been proven effective for delivering public health interventions, including those focused on improving breast cancer knowledge and awareness [4–7].

Building on this background, we set out to evaluate this in a rural community in South West Nigeria. We applied for the Royal Society of Tropical Medicine and Hygiene (RSTMH) Early Career Grant, which eventually funded the project with funding from the National Institute for Health and Care Research. This grant provides a maximum of £5,000 for early-career researchers working on projects related to tropical medicine and global health. The resources involved include the cost of educational materials and data collection tools, transportation, refreshments for researchers and study participants, ethical approval, data entry and analysis and so on.

Our study employed a quasi-experimental design with the random selection of a school in the rural community of Akinyele, Ibadan, Nigeria. The students were randomised into two groups: the intervention and control groups. The intervention group received breast cancer training while the control group received career guidance training concurrently. We summarised the breast cancer training for the control group at the end of the program. We developed a data collection tool, under the guidance of the project supervisor, a Professor of Community Medicine at the University of Ibadan, Nigeria. The project was divided into two phases. In the first phase, the funding from RSTMH had not been secured, so we operated on a very small budget. It, however, prepared us for the second phase, which was the major part of the project.

Two schools were involved, and the students received training on the fundamentals of breast cancer, the signs and symptoms, red flags, BSE and so on. The training was delivered by penultimate and final-year medical students from the University of Ibadan. The focus was on adolescent girls, as they were the primary beneficiaries of the discussion. The boys were formally excluded from the training, but were allowed to join the career guidance session, which ran concurrently. All the sessions took place during school hours, during a period dedicated to extracurricular activities (the first two school periods on Thursdays). Including the boys would have been a good approach, as that could have motivated them to pass the message across to their female relatives. However, we excluded them because we felt the girls might feel less comfortable with the boys around during such sensitive discussions. At the end of the project, we conducted a community outreach to translate the findings from the study to the broader community.

Practical lessons learned

Program design and content development

The first lesson we learnt is the need to ensure that interventions and data collection tools are designed for the literacy level of the participants. In the first phase of our study, we observed inconsistencies in the responses of some respondents. Upon closer look at each participant's responses, we discovered that most of the inconsistencies were because some parts of the questionnaire were too technical for the students to understand, despite limiting participation to senior secondary school girls only. This realisation prepared us better for the second phase of the study. This also emphasises the advantage of conducting pilot studies, although technical and funding limitations sometimes make this difficult.

Secondly, our intervention, which included teaching sessions, was successful, but adding hardcopy educational materials could help ensure better retention long-term, compared to only teaching and practical sessions. This has been demonstrated by similar studies, which combined group discussion sessions, video demonstrations and brochures in their intervention [4, 5].

Implementation challenges and solutions

The first challenge was securing approvals at our proposed study sites. Despite obtaining ethical approval from the state's Ministry of Health, some school heads were still reluctant to allow us to conduct the study. When we eventually did, securing a suitable period to fit the intervention in the school schedule was an issue in some places. The reasons were mostly related to concerns about the logistics of organising the program and the perceived disruption of the schools' schedules. In one of the schools, we could not include girls in the most senior class because they were away for the West African Senior School Certificate Examination, which the school did not inform us about until the day of the intervention. Considering that the girls might feel uncomfortable having male educators teach them about breast cancer and BSE, we ensured that many of the educators were female. Most of the male educators were in charge of logistics, so only a few of them joined the female educators in delivering the sessions. There was, however, no session entirely delivered by male educators alone. This approach reflected cultural sensitivity and helped to gain the participants' trust. Another challenge is the unplanned provision of snacks for the students and teachers. At the end of the sessions, the teachers politely demanded that we provide some snacks for the students, and the teachers who assisted with coordinating the students during the intervention. Although this was not included in our budget, we had to provide it. This highlights the need for including 'miscellaneous/contingency expenses' when preparing budgets for research projects. The placebo for the control group was a career development session, although we summarised the breast cancer teachings to the group members at the end of the intervention.

Measuring impact

We evaluated the impact of our intervention via pre- and post-intervention questionnaires. The post-intervention questionnaires were administered immediately after the intervention, and the results indicated a significant improvement in knowledge and attitude scores. The students and teachers also expressed deep gratitude for the training. One of the school heads was particularly surprised that we requested to give the training at her school. According to her, schools in that community seemed to have been cut off from health education and outreaches by non-governmental organisations (NGOs) and other bodies. However, it is important to measure the long-term practice of BSE among the participants, which is the ultimate goal.

Broader implications

The insights and lessons learnt from our study will be beneficial to public health researchers and practitioners working with adolescents, especially in rural communities. The findings are also useful in the integration of breast education in the school curricula to help tackle the rising burden of breast cancer right from adolescence. This is a call for sustainable partnerships between the government, NGOs and other stakeholders to maximise the potential of school-based interventions for health education and promotion among adolescents and young adults. More studies should focus on highlighting the practical insights and lessons obtained from interventional studies to increase the quality of subsequent ones.

Conclusion

There is a great need for adolescent-focused, culturally sensitive and sustainable approaches to cancer prevention in low-resource settings like Nigeria. Our study aimed to evaluate the effectiveness of a school-based educational intervention in improving the knowledge of breast cancer early detection measures among in-school adolescent girls in a rural Nigerian community. Some of the key insights and lessons we learnt from the project include the need to tailor the design of data collection tools to the literacy level of study participants, including hard-copy materials in educational/awareness programs, logistic and cultural factors in securing study sites in rural communities, the need for both short-term and long-term follow-ups after interventional studies and so on. These insights will help strengthen the design of future studies

in the field and accelerate our success in the fight against the rising burden of cancer in Nigeria and beyond. We hope that the outcomes of this one-time study would guide the incorporation of similar programs into the school curriculum and inform the conduct of more robust studies in the field.

Conflicts of interest

I have nothing to declare.

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