




# Assessment of undergraduate health students' perception and satisfaction on training and participation in community health outreach

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## Abstract

**Aim** The need to improve training of health professionals has increased in recent years due to increasing frequencies of public health events. Consequently, a descriptive cross-sectional survey was carried out to determine the level of satisfaction and knowledge acquired by undergraduate students in the health sciences during a community health outreach program.

**Subject and methods** Students were invited to complete an online-administered questionnaire (consisting of both open- and closed-ended questions) to assess their perceptions and experiences on the community health outreach program. Additionally, the survey was carried out to assess the quality of training provided and obtain suggestions for further improvements. Responses were collected and analysed using Microsoft Excel.

**Results** Most respondents (>83%) reported satisfaction with the community diagnosis and community intervention briefing and training sessions. All respondents reported familiarity with standard community health outreach instruments and were capable of identifying environmental health risk factors that may contribute to the spread of communicable diseases. Interestingly, respondents reported greater appreciation of health challenges faced by rural communities. However, respondents expressed dissatisfaction with the duration of the outreach program (24%) and funding (15%).

**Conclusion** Although respondents reported overall satisfaction with the organization and execution of the health outreach program, certain aspects of the program were deemed unsatisfactory. Despite the shortcomings, we believe that our student-centred learning strategy is readily adaptable for training future healthcare professionals and improving health literacy of rural communities, particularly in sub-Saharan Africa.

**Keywords** Student-centred learning · Community health outreach · Health literacy · Rural sub-Saharan Africa · Community diagnosis

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## Introduction

Recent epidemiological events such as the 2014–2016 Ebola virus outbreak, the current coronavirus disease 2019 (COVID-19) pandemic (2019-date) and the mpox virus outbreak (2022-date) have challenged health systems globally, thus highlighting the importance of resilient public health systems. In low- and middle-income countries (LMICs), most of which are in sub-Saharan Africa, public health systems are particularly fragile due to limited resources for testing and surveillance, inadequate vaccine supplies and insufficient training of public health personnel and researchers. Other challenges include the prevalence of endemic communicable diseases such as malaria, tuberculosis and HIV infection/AIDS. Although communicable diseases dominate the

sub-Saharan Africa disease landscape, increasing cases of non-communicable diseases such as cardiovascular diseases, diabetes and cancers such as breast and prostate cancer have been reported (Gouda et al. 2019; Li et al. 2022; Musekiwa et al. 2022). These factors, together with rapid population growth in sub-Saharan Africa (Sadigov 2022), necessitate the development of well-resourced public health systems and well-trained personnel. This can be particularly challenging for rural and remote areas as there is less motivation and incentive to retain public health officials in such areas (Awofeso 2010; Buchan et al. 2013; Efendi 2012; Russell et al. 2021; Sirili et al. 2022; Wurie et al. 2016).

The ability to contain communicable diseases at the point of origin has long been recognized as essential for effective prevention and control measures. Such measures include active disease surveillance in both human and non-human hosts, and identification of pathogen reservoirs, both of which are widely recognized as major factors in the emergence and re-emergence of infectious diseases in LMICs. Measures to improve disease surveillance in Africa include initiatives such as the Africa Pathogen Genomics Initiative (APGI), which aims to incorporate pathogen genomic surveillance systems and data-sharing platforms into disease prevention and control strategies (Makoni 2020; Inzaule et al. 2021).

One of the most successful public health strategies for improving outcomes of public health events involves evidence-based decision-making (EBDM) (Brownson et al. 2009). EBDM is an essential component of public health practices, and involves employing the best available evidence to make disease prevention and health promotion decisions (Jenicek 1997; Kohatsu et al. 2004). It is a collaborative effort between public health professionals, community nurses, community members and other health agencies (Jacob et al. 2018). However, most African countries lack access to EBDM resources and well-trained public health personnel with the capacity to predict, prevent, respond and control epidemiological events before disease outbreaks spread beyond local areas (Harris et al. 2016). Therefore, there is a need to incorporate EBDM into the undergraduate school curriculum for effective training of health-related professionals (Fitzpatrick et al. 2016; Knight et al. 2017).

In November 2019, the College of Basic Medical & Health Sciences (COBMEHS) at Fountain University Osogbo in Osun State, Nigeria, was granted permission by the National Universities Commission and relevant regulatory agencies to commence undergraduate programs in Public Health, Medical Laboratory Science, Nursing Science and Environmental Health Science. A key component of the University Master Plan for all these courses is the incorporation of hands-on fieldwork programs such as to improve competencies in collaborative community health diagnosis and intervention training. This is in recognition of the need

to make the connection between knowledge and practice early on during career development to increase confidence and competency (Harmer et al. 2015; Knight et al. 2017). Such programs, designed to complement classroom training, are expected to provide students with hands-on training in physical examination, sample collection and analysis, recording and analysis of survey data, and development of action plans for community health intervention. Broadly, when considered across the four disciplines, students are expected to develop skills in cultural competency, communication, teamwork and interdependence skills. Additionally, it is anticipated that students will gain a comprehensive understanding of the social determinants of health and inequalities that lead to poor health coverage for under-resourced and underserved communities. Efforts by the World Health Organization to encourage inter-professional education (WHO 2010) have resulted in several successful programs, particularly at the undergraduate level of education (Wilbur and Kelly 2015; Shelvey et al. 2016).

In order to achieve the goals of the University as outlined in the Master Plan, COBMEHS launched an interdisciplinary Public Health Outreach program in the surrounding local communities of the University campus. Until recently, these communities were largely inaccessible to healthcare services due to factors such as poor road networks, fragile healthcare infrastructure and other socioeconomic factors, thus making outreach more critical. To ensure that the campaign achieved its goals, we established well-defined guidelines for all stakeholders. Succinctly, we aimed to (i) train students in the development of evidence-based community health diagnosis and intervention, and (ii) provide state-sponsored basic public health diagnostic and intervention outreach programs to the local communities.

In this article, we report the results of a survey to assess the adequacy and relevance of the knowledge and skills acquired during our first public health outreach program from the students' perspective. We also report the level of student satisfaction with the training provided for the program with a view to enhancing capacity building and improving future public health outreach programs.

## Methodology

**The community** The Oshara community (estimated population: 850), located approximately 1.5 km from the main campus of the University, was selected for our first community health outreach program. Most community members are farmers, hunters, artisan workers or market traders. There is no primary health centre in the community, and the nearest primary health centre is at least 10 km away. Consequently, most community members seek medical services from patent and proprietary medicine vendors (PPMVs) in

neighbouring communities or simply practice self-medication. Prior to commencement of the outreach, the College faculty visited the community and discussed the outreach program with the leaders of the community, which consisted of the traditional monarch referred to as the *Baale*, the community president, local school officials and market and youth leaders.

**Student participation** When the outreach program started (during the 2021/2022 academic session), there were no students enrolled on the Environmental Health Science program. As a result, only second-year students in the Public Health, Medical Laboratory Science and Nursing Science departments participated in the outreach program. The training sessions were delivered by college faculty and invited public health professionals, and included separate community diagnosis and community intervention sessions. Community diagnosis training was divided into three 50-minute sessions with 15-minute breaks between each session. In the first session, students were trained on the principles and practices of community diagnosis. In the second session, students were divided into groups and trained in the use of community diagnostic tools such as focus group discussion (FGD), key informant interview (KII) and in-depth interview (IDI) guidelines. Training was also provided on the use of questionnaires and observational checklists, and stages of community diagnosis, including community entry (initiation), data collection, diagnosis, dissemination, prioritization and action. The final phase of the training session involved a question-and-answer session and a return demonstration of skills taught during the training session.

A training format similar to the one outlined above was used for the community outreach training. Here, students were trained on the responsibilities of healthcare professionals engaged in community health outreach, and included discussions on the importance of EBDM, collection of qualitative and quantitative EBDM data, data analysis and development of intervention measures. Occupational health and safety discussions focused on the need to minimize exposure to harmful substances in the workplace. In the first session, students were trained in community outreach organization and ethical considerations. In the second session, students were distributed into groups and they were encouraged to attend at least three training sessions as stated above. The last session of the training included a question-and-answer session and a review of all the taught healthcare skills. The Osun State Health Department provided ethical approval for the outreach. State health promotion and surveillance professionals were invited to participate in the outreach program to provide guidance and support to students.

At the end of the community outreach, students were invited to complete a voluntary and confidential questionnaire (approved by the University Ethics Committee) about

the training and their experiences and perceptions of the outreach program. The survey tool was created using Google Forms and consisted of 57 questions divided into 4 sections. In order of appearance, the first section consisted of demographic and language proficiency questions, the second section consisted of questions about the training for and execution of the community diagnosis phase, the third section consisted of questions about the training for and execution of the community intervention phase, and the last section consisted of post-outreach assessment questions. A selection of students and faculty members (not involved in this study) evaluated and tested the questionnaire before the final version was implemented. Participating students were sent an email explaining the purpose of the survey, a request to complete the survey, and a link to the Google Forms survey material. The survey officially started on August 2, 2022, and ended on August 9, 2022. Quantitative questions were designed to give 'yes' or 'no' answers or using a five-point Likert scale that included the descriptive terms 'excellent', 'very good', 'moderate', 'poor' and 'very poor', or numerical scale from 1 to 5, with 5 being the highest. Subsequently, Likert scales were narrowed to 'average and above' if the scale ranged from 3 to 5, and 'below average' if respondents chose 1 or 2. Quantitative data were analysed using Microsoft Excel and a subset of participating students was invited for interviews to gain further insight into some of the responses. Analysis of qualitative data was performed by reading responses and deleting obvious incorrect responses. Next, the answers were organized and summarized into common themes that were then enumerated. Microsoft Excel was used to determine the frequency of each common theme and to create charts.

## Results

The main objectives of the community outreach program conducted in the Oshara community of Osun State were to provide students with hands-on community outreach training and to establish a community health relationship with the community. The second phase of the outreach program is currently underway; therefore, the results will be published elsewhere. In this article, we focus on students' experiences and perceptions of the training for and participation in the outreach program.

### Briefing and training sessions

Although the total number of students that participated in the outreach was 90, 63 students completed the questionnaire, and therefore a response rate of 71% was obtained. The characteristics of respondents by discipline are presented in

**Table 1.** Our survey showed that the majority of respondents (95%) were satisfied with the briefing session prior to community diagnosis training. When asked about the quality of training provided for the community diagnosis exercise, 94% of respondents expressed satisfaction with the training provided, with a rating of average and above. Respondents who stated that they were not satisfied with the training (four out of 63) did not indicate the training sessions they attended. Therefore, we were unable to determine which training session(s) they found inadequate. Nevertheless, all respondents stated that they attended at least one community diagnosis training session, and 71% stated that they attended at least three training sessions. As shown in Fig. 1, most respondents indicated attending the interview skills training session (75%), followed by preparation of questionnaire preparation (63%), with the occupational health and safety training session (36%) recording the lowest attendance.

Preparation for the community intervention exercise included briefings and training sessions to inform students of their responsibilities. When students were asked to indicate their satisfaction with the community intervention briefing

and training sessions, 17% and 14%, respectively, expressed their dissatisfaction. We wondered why students expressed a higher degree of dissatisfaction with the community intervention training sessions compared to the community diagnosis training sessions. Personal interviews with a subset of students showed that most of the information provided during the community intervention briefing and training session had already been provided in the previous community diagnosis training session. Consequently, they felt the duration of the community intervention training could be significantly reduced. Nevertheless, most respondents attended the interview skills training session (65%), followed by physical examination (63%), with the occupational health and safety training recording the lowest attendance (28%). Through personal interviews, we were able to determine that the students felt they were already knowledgeable about occupational health and safety practices as they had already completed a two-unit course on the subject and, therefore, did not see the need to participate in the training session.

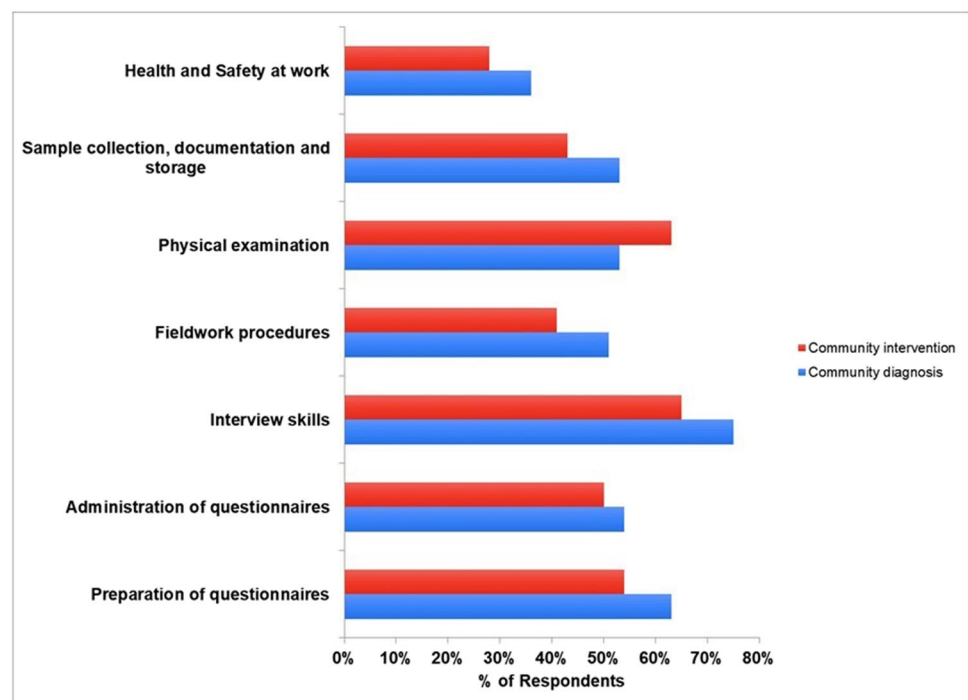
### Interactions with the community

One of the most important factors determining effective community engagement is communication in the language spoken and understood by the majority of the community members. Nigeria is a linguistically diverse country with over 500 spoken languages, including English as the official language. The Oshara community is located in the South-West region of Nigeria and is predominantly composed of the Yoruba language-speaking people. Our survey showed that five respondents were not proficient in Yoruba and

**Table 1** Survey response rate of outreach participants

Department	Number of participants	Number of respondents	Response rate %
Public Health	30	18	60
Medical Laboratory Science	10	08	80
Nursing Science	50	37	74
Total	90	63	

**Fig. 1** Community intervention and diagnosis training sessions attended by students



communicated in English if the community member understood the language, or through a Yoruba-speaking fellow student if the community member could not speak English.

### Identification of stakeholders

Successful community engagement exercises in communities such as the Oshara community require the involvement of community leaders, who are recognized as trusted officials within the community (Svoboda 2022). When students were asked to identify prominent community leaders present during the outreach, 88% of respondents were able to identify at least one community leader. Specifically, the *Baale* (traditional monarch of the community) was the most prominent (81%), followed by a religious leader (75%), chairman of the community (53%), women's leader (47%), youth leader (36%) and secretary of the community (21%). State public health officials were invited to all our outreach activities to ensure compliance with official public health engagement regulations, provide public health services such as screening for diseases and provide further guidance to students. The survey indicated that 65% of respondents were able to identify at least one of the state health agencies, the Osun State Agency for the Control of AIDS (OSACA), with all reporting that the agency provided HIV/AIDS screening, counselling and referrals. However, when students were asked to comment on the roles of the state public health department in community health promotion, one of the respondents, who was involved in questionnaire administration noted that the state public health department:

‘... don't give enough CHEWs to the community, and the interval between their intervention is too long, but they deliver a lot of drugs, nets and tools for the community’

(Note: CHEWs stands for Community Health Extension Workers). Although we were unable to determine the reason for this response, it is quite likely that the respondent was reporting the response of community members to questions on the state public health department's involvement in community health diagnosis and intervention.

### Familiarity with community health outreach instruments

Various tools were used during the health outreach program, including a focus group discussion (FGD) guide, key informant interview (KII) guide, an observational checklist and a questionnaire for the collection of demographic and self-reported health information. Sterile needles, syringes and sample bottles were used for sample collection. Stadiometers, glucometers, weighing scales, stethoscopes, thermometers and sphygmomanometers were used for the physical examinations. Our survey showed that students were familiar with the names and functions of the tools. Interestingly, we

observed that students preferred activities more appropriate to their discipline. Thus, most Public Health students were involved in demographic and self-reported health information collection (88%), Medical Laboratory Science students were involved in sample collection and analysis (83%), and Nursing Science students were either involved in physical examination (67%) or collection of self-reported health information (33%).

### Environmental health challenges observations

Environmental health factors such as the availability of drinking water, air quality, access to good sanitation and waste management contribute significantly to overall community health and wellbeing. Therefore, observations on these factors have the potential to inform about the health challenges faced by the community. Students were asked to describe their observations about the environment that could pose health risks to members of the community. All respondents were able to identify at least one major environmental health risk, thus demonstrating awareness of the environmental health issues facing the community.

### Post-outreach data analysis

Data collected during the outreach program such as completed questionnaires, HIV, hepatitis B, hepatitis C and malaria test results, body mass index (BMI), urinalysis and blood pressure test results were analysed using SPSS 24.0 and Microsoft Excel. When students were asked whether they participated in the analysis of the data collected during the outreach program, only 14% reported that they did. Indeed, although all students were encouraged to participate in the exercise, most of the participants were students in the Department of Public Health. Through post-outreach personal interviews, we were able to determine that students in other departments felt inadequately trained for data analysis, unlike the Public Health students, who had completed a Bio-statistics course with hands-on practical training exercises on data collection, collation and evaluation.

### Learning outcomes

One of the main goals of the community outreach exercise was to provide students with hands-on training in community health diagnosis and intervention. When students were asked to rate their self-efficacy in conducting a community diagnosis exercise on a scale of 1 to 5 (with 5 being the highest), most respondents selected 3 or higher (only one respondent selected < 3). Similarly, self-efficacy in conducting a community health intervention was also self-reported as above average, and only three students rated their self-efficacy as below average. Since self-efficacy was not

determined before the outreach program, it is not possible to determine whether the outreach program influenced the self-reported competency in outreach programs. Nevertheless, when students were asked to assess the skills acquired during the outreach program, most reported some form of improvement, as exemplified in this response:

‘Improved interviewing and interacting skills. Using the appropriate steps and exact words in conducting a community diagnosis’.

Some respondents also reported engaging in a specific activity that was beneficial to their training as a healthcare professional:

‘It helped me to build more interpersonal relationship with patients. The outreach was the first time I did venipuncture. It was a great one! I wish we have more’.

Provision of adequate community health services involves the contributions of healthcare professionals from different disciplines. Thus, it was anticipated that our collaborative effort involving students from different health disciplines would increase their sense of belonging, respect and appreciation. More importantly, we wanted the students to appreciate the need for collaboration across disciplines. We believe this was achieved as one of the respondents noted:

‘It has helped improve my knowledge and assisted in communication with community members and created a type of cooperation with my colleagues’.

When students were asked to suggest improvements to the outreach program, responses could be grouped into four overarching concepts, namely the need to improve time management (24%), better briefing and training (21%), provision of refreshments (39%) and improved funding (15%) (Fig. 2). We acknowledge that we experienced difficulties encouraging community members to commit to all aspects of the outreach program, including timely arrival and commitment to all aspects of the outreach program. In addition, we experienced overcrowding at the medical diagnosis stations, which may have partially unsettled some students. There was no provision in the budget for refreshments, which we consider to be a serious oversight, and have since made it a priority for future outreach programs. Through personal interviews, we were able to identify that some students might want to be trained in data analysis. Consequently, we have included data analysis in future training programs. We are currently seeking donations of healthcare materials from non-governmental organizations (NGOs) and sponsorships from philanthropic organizations to improve funding for future exercises.

When students were asked to recommend the frequency of the community health outreach program, most respondents (87%) suggested it at least twice a year. As well as looking forward to developing the skills necessary for their discipline, students were also conscious of the contribution

**Fig. 2** Students’ Suggested areas for improvement



such programs could make to local communities. The community health outreach program apparently improved their understanding of the health requirements of local communities, as best described by one of the respondents:

‘It has made me know about how small community members live their lives, deal with health problems and how to help them improve their health’

And more generally by another respondent:

‘It has contributed to help, uplift, and support those who are deprived of certain services and rights’.

## Discussion

Recent public health events highlight the need for enhanced capacity building for current and future public health professionals. In this report, we aimed to evaluate the effectiveness of a newly launched public health outreach program for health-related undergraduate students at our institution. In collaboration with public health officials, the outreach program incorporated community health diagnosis to assess the health status of the population, and community health intervention, to provide adequate advice and needs, whenever possible. Overall, this program is designed to offer students the opportunity to apply classroom lessons in real-life situations, while also presenting students with challenges beyond what can be taught in the classroom by working directly with community members.

This survey recorded a high level of satisfaction among students in terms of the briefing and training prior to the community diagnosis and intervention exercises. However, we observed that satisfaction with community intervention briefing and training sessions was lower than the community diagnosis sessions due to redundancy in some aspects of the training sessions. Also, the survey results show that students have a good working knowledge of the tools used in outreach programs and how to use them effectively for data collection, analysis and intervention. However, we observe that most of the students did not participate in data analysis because they had no training. We have now established provisions for data analysis training for future outreach programs.

With hindsight, we acknowledge that this study has some limitations. First, it would have been better to evaluate students’ knowledge and self-efficacy before starting the outreach program. This would have provided us with sufficient data to determine the effectiveness of the program in improving students’ knowledge and skills. Second, the survey could have been more informative if students were provided with opportunities to explain why they were dissatisfied with certain aspects of the training. We acknowledge that simple ‘yes’ or ‘no’ answers or Likert scale answers may not be sufficient to truly reflect students’ perceptions. With these limitations in mind, we aim to refine future surveys to

improve the quality of data from such exercises. Ultimately, it is our goal to learn from these experiences and improve the overall quality of education given to students.

## Conclusion

Public health emergencies such as the COVID-19 pandemic have increased the awareness of students in health-related disciplines about the importance of their discipline. Our survey results show that outreach programs such as the one described here can improve students’ knowledge, competence and confidence. As a result, other health-related departments at higher institutions are encouraged to incorporate such programs in their curriculum.

**Survey instrument and availability of data** [https://docs.google.com/forms/d/1DxogvEx2ZL40\\_6A1-o2o94eYO-HgEqyzeznOyqbp4WI/edit](https://docs.google.com/forms/d/1DxogvEx2ZL40_6A1-o2o94eYO-HgEqyzeznOyqbp4WI/edit)

**Authors’ contribution** Muse Oke conceived and designed the study. All authors performed material preparation, data collection and analysis. The first draft of the manuscript was written by Muse Oke, and all authors commented on all versions of the manuscript. All authors read and approved the final manuscript.

## Declarations

**Ethical approval** Ethical approval for the health outreach program was provided by the State of Osun Ministry of Health; Ethical approval for the survey was provided by the Fountain University Ethics Committee.

**Consent to participate** Not applicable

**Consent for publication** Not applicable

**Conflict of interest** The authors declare no competing financial interests.

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