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Strengthening lady health visitors and midwives for Sindh, Pakistan for non-communicable diseases (NCDs) prevention and management with refresh essential skills

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Strengthening Lady Health Visitors and Midwives for Sindh, Pakistan for Non-Communicable Diseases (NCDs) Prevention and Management with Refresh Essential Skills

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Abstract

They were addressing the rising burden of non-communicable diseases (NCDs), particularly in Low-Middle Income Countries (LMICs) like Pakistan. A proactive initiative undertaken by a Primary Health Service (PHS) in collaboration with a Private School of Nursing and Midwifery in Karachi conducted a 14-week project. 28 LHVs and Midwives (MWs) working in the community of PHS in various parts of Sindh, Pakistan were equipped with some common NCD prevention and management through online sessions and in-person refresher essential skills. The project aimed to equip them with the knowledge of early identification and management of some common NCDs and freshen some skills to promptly recognize and manage non-communicable diseases (NCDs) in the communities. The program included online sessions, hands-on simulation, and clinical exposure in a tertiary care hospital. Through a questionnaire, the participants gain knowledge regarding some common NCDs online sessions. With that, they feel confident after refreshing their skills in a simulation environment and clinical exposure. A participant's feedback was that this type of session should planned once or twice a year. Nonetheless, this is one of the initiatives that can enhance the capabilities of LHVs and midwives in aligning with global efforts to combat the growing burden of NCDs and may improve community health outcomes.

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Introduction

NCDs stand as the leading global cause of morbidity and mortality. According to the World Health Organization fact sheet 2021, NCDs are responsible for 41 million deaths worldwide, with a striking 77% of these fatalities occurring in Low-Middle Income Countries (LMICs). (1). The situation is particularly concerning for

Pakistan, where approximately 2,000 individuals die daily from these curative and preventable NCDs. (2). In a 2017 Lancet report, it was revealed that ischemic heart disease, stroke, congenital defects, cirrhosis, and chronic kidney disease ranked among the top ten causes of years of life lost in Pakistan(3). Using population-level mortality rates, it is projected that between 2010 and 2025, 3.87 million Pakistanis will lose their lives due to NCDs, predominantly attributed to cardiovascular diseases, cancers, and chronic respiratory diseases. (4).

In the specific context of Pakistan in 2024, the population is currently estimated at 245.2 million, with a substantial 63.09% residing in rural areas (5). The healthcare infrastructure in the country comprises basic health units, primary healthcare centers, and referral hospitals, where Lady Health Visitors (LHVs) and midwives (MW) account for the administration of 60 to 70% of healthcare services. (5) Looking at this scenario, it is imperative to recognize that the prevention and management of NCDs are integral components for advancing health progress regarding economic growth, social equity, and environmental protection. It also aligns with the Sustainable Development Goal-3 (SDG) for Good Health and Well-being. To mitigate the avoidable burden of NCD-related morbidity, mortality, and disability, the most impactful intervention is to significantly invest in and strengthen Primary Health Services (PHS). According to WHO, PHS involves enhancing preventive care, promoting health within communities, and providing basic treatment for common illnesses and injuries. This approach ensures initial identification and provides the first level of care to address common health diseases at the ground level (2)

In Pakistan, one of the PHS services is a community health program, developed mainly to provide services to enhance women's and children's well-being. With time, this PHS service broadens its' horizon of scope and includes curing and preventing common NCDs through screening, educating, and providing immediate care to the communities. This primary healthcare service reaches over 1.5 million people in Sindh, Pakistan, it operates 31 centers in Karachi, 19 in interior Sindh, 2 in Punjab, 30 in Gilgit-Baltistan, and 34 in Chitral. (6).

To address the pressing healthcare requirement, it is imperative that well-trained staff, such as nurses, LHVs, and midwives, are stationed in communities to execute their role in identifying early signs of common non-communicable diseases like hypertension, diabetes, and stroke. They can

identify early signs of these diseases and provide early interventions or education required by the community. In addition to that, they also play their role in performing some essential skills such as cannulation, suctioning, and wound dressing as per requirement in the community. This would help in providing cost-effective services and reducing NCD-related morbidities and mortalities.

Pakistan's healthcare system faces a critical challenge: a severe shortage of nurses. The current ratio of just 0.49 nurses per 1,000 people, which falls far short of the recommended 3.28 per 1,000 (7). It is evident that the shortage of trained healthcare professionals, especially in rural areas, is a significant challenge that needs to be addressed to enhance Pakistan's healthcare system, improve NCD prevention and management, and promote the overall well-being of the population. Therefore, LHVs and MWs in communities are considered as pivotal healthcare providers that connect healthcare services to respond to some of the common NCDs prevention, identification, and management within the communities.

Responding to this issue, one of the approaches utilized by the PHS in collaboration with the Private School of Nursing and Midwifery is to take a proactive initiative for a pilot project titled " Strengthening LHVs and MWs of Sindh Knowledge about NCDs Prevention and Management and Freshen their Skills". This project aims to strengthen LHVs and MWs, knowledge and skill competencies to respond to some of the common NCDs early detection, and prevention and perform skills with competency at the community level. In Pakistan, LHVs can prescribe medications for a limited list of minor ailments which is also an added benefit as LHV can prescribe some common medication as needed by the community individual. **(8).**

The project modules are constructed according to the needs identified by the PHS. The modules were delivered through online sessions (using Zoom) and for skills participants came in person. The modules were taught through Zoom, it had been identified that the participants were not comfortable using their mobile phones for pre and post-tests. Therefore, this is the limitation of this training that this project lacks pre and post-test test results. This paper explores the modules of NCD prevention and management training and analyzes participants' feedback on training and in-person skills acquisition.

Project description

This course aims to equip participants with the knowledge and skills to promptly recognize and manage (NCDs) in the PHC setting. While some of these skills may already be familiar to participants their work in the community setting requires refreshing. This includes:

Knowledge:	• Identification of the early signs and symptoms of some common NCD's • Management and provision of primary intervention for NCDs
Skills through simulation:	• Intravenous (IV) cannulation • Suctioning • Nasogastric tube insertion and removal • Open and closed wound dressing

Project participants

Participants in the common NCDs prevention and management Course were LHVs and Midwives working in four primary health care services in Baden, Larkana, Hyderabad, and Karachi.

Project execution

The project was conducted from November 2020 to January 2021. It consisted of nine weeks, six online sessions were held weekly via Zoom and three days of hands-on skills and clinicals were face-to-face. All teaching materials were shared with participants for their future reference. Following the online sessions, participants came in person at the private School of Nursing and Midwifery for hands-on simulation and clinical exposure in a tertiary care hospital. Twenty-eight LHVs and midwives from all four areas attended this training and received certificates of participation. Following were the sessions with the topics listed in Table 1:

Table 1: Sessions and content objectives

Sessions	Objectives
Session 1 Cardiovascular disease	• Discuss A& p of heart • Discuss causes of heart disease • Identify some of the risk factors • Assess chest pain by using the PQRST tool • Discuss immediate intervention for chest pain

	• Discuss blood pressure BP and the significance of different BP readings and actions. • List some important education and prevention teaching points of lifestyle modification
Session 2 Diabetics Mellitus DM	• Define DM. • List the types of DM. • Identify the causes of Diabetes Mellitus. • Discuss the signs and symptoms of DMs. • Discuss the good control of DM • Discuss the drug therapy of DM • Identify and discuss the food group and the meal plan for Diabetic patients. • List long-term complications of DM. • Discuss the preventive measures for Diabetic foot.
Session 3 Chronic respiratory disease CRD	• Define Asthma and Chronic Obstructive Pulmonary Disease (COPD) • Discuss the causes of CRDs. • Identify some of the risk factors that accelerate these CRDs • Relate signs and symptoms of CRDs • Discuss intervention of CRDs • List Prevention and education points for patient teaching
Session 4 • Managing early signs of Cerebrovascular accident (CVA)	• Define CVA • discuss causes of CVA • Identify some of the risk factors of CVA • Discuss Sign and symptoms of CVA • Discuss early intervention CVA signs • List Prevention and education points for patient teaching
Session 5 • Infection control practice and primary intervention.	By the end of the session learners will be able to: • Define infection and asepsis. • Discuss the chain of infection. • Discuss standard precautions • List down the risk for infections in the community setting. • Discuss strategies to prevent infection in communities.
Session 6 • Concepts of management of skin integrity and wounds.	Discuss the anatomy and physiology of the skin Discuss different types of wounds List factors that enhance wound healing Relate different types of dressing with their types Explore different ways to assess wounds.

In-person refresh hands-on-skills:

Participants were called in person to the Center of Innovation for Medical Education (CIME) in the Tertiary care hospital to refresh their hands-on skills. They were divided into 03 groups. An expert facilitator is assigned to each group to restore skills and provide supervision to them. An hour was provided to each group in a station (refer to Table 1).

The skills manual comprised checklists sent through email to all participants in advance. While performing they were expected to review all steps of a manual. Each facilitator of a group conducted a pre-briefing of 30 minutes. During that time, they oriented participants with venues, stations, and station flow. It helps to reduce their anxieties. Each participant will get enough time to practice and re-practice the skills by providing feedback to peers and station facilitators. Once they practiced, the facilitators observed their practice individually. For an hour, the facilitator debriefed participants about all skills and discussed challenges. At last, the station concluded with participants' feedback.

Table 2: Hands-On-Skills

STATIONS	SKILLS
Station 1 Participants got 15-20 minutes for each skill set	**Skill Set A:** Vital signs, including pulse and respiratory rate, temperature, pulse oximetry, and blood pressure.
	Skill set B: Three-lead electrocardiogram.
	Skill Set C: Chest physiotherapy, Suctioning, Oxygen therapy and Spirometry
Station 2 Participants got 30 minutes for each skill set	**Skill set D:** Demonstrate the proper use and care for various therapeutic tubes and drains.
	Skill Set E: Assess and manage wounds, including irrigation, and application of dressings.
	Skill set F: Hand-on ostomy care.

Data Collection and Analysis

Data were collected using self-developed evaluation forms. The forms were developed after reviewing the literature on program evaluation scales and other related assessment tools. The survey consisted of 12 items on a 5-point Likert scale, with response options ranging from "Strongly Agree" to "Strongly Disagree." The evaluation also included 3 open-ended questions these

questions gave participants an opportunity to share their opinions on the strengths of the program, areas for improvement in the curriculum/training manual, and the teachings they would apply at their respective clinics. (7).

In the Excel spreadsheet, the quantitative data was entered and calculated to produce percentages (see Table 2). The open-ended responses were compiled and analyzed to extract recurring themes.

Results

- **Socio-demographic Characteristics of Participants**

In total, 30 participants participated in the training. Table 2 illustrates the socio-demographic data of the participants.

Table 3. Demographic Data of Participants.

S.#	Demographic Variables	Participants (n=28)
1	**Level of education**	
	Lady Health Visitor	08
	Midwife and Lady health visitor	13
	Midwifery	06
	BSCN	01
2	**Years of experience**	
	<5years	08
	5-10years	10
	10 years and above	10

The feedback on the course results explores' the participants' perception of the hybrid training mode. However, only 18 out of 28 participants filled out the post-training evaluation forms.

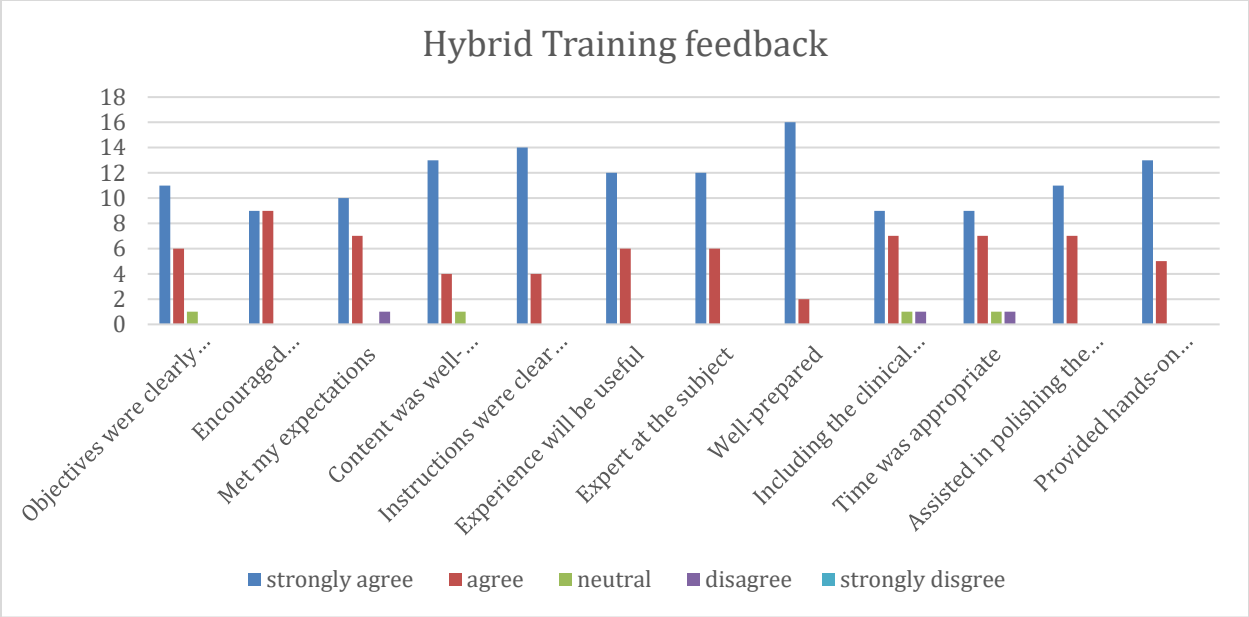

Figure 2: Post-Training Evaluations Analysis

Results show that most of the participants found the module objectives of the training were clear and met their expectations. However, there are some areas where the learner highlighted the improvements, such as the clarity of instructions and the amount of time allotted for each module.

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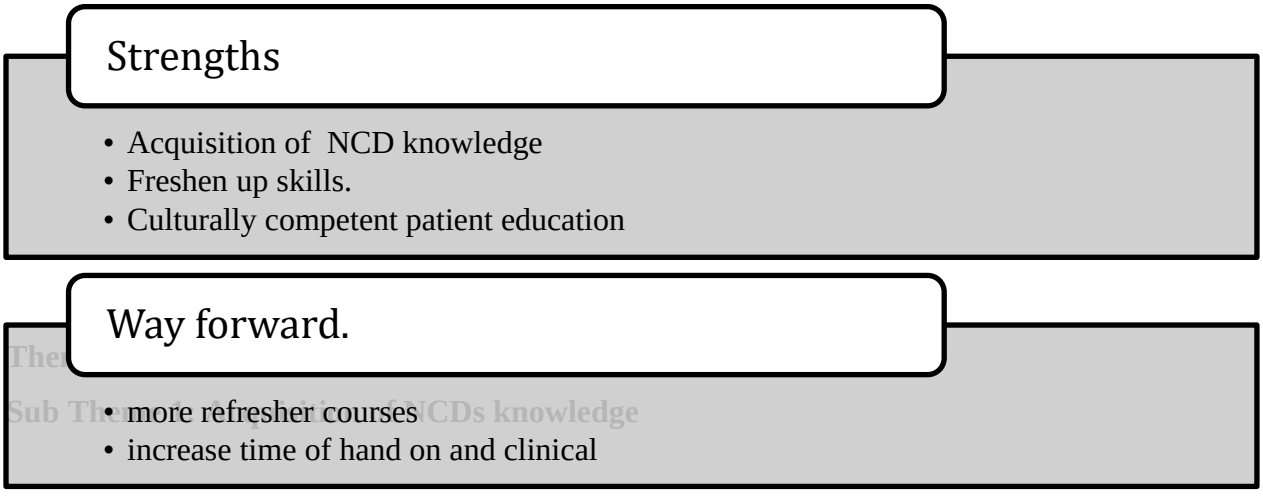
Findings from the open-ended Questions

The findings from the three open-ended questions (Figure 1). These questions address training (I) Strengths and (II) Way Forward. From these three questions, a few subthemes were extracted

Figure 3: Themes and Subthemes



According to the participants, the content taught about (NCDs) has been extremely valuable for the participants and provided a solid understanding of their causes, risks, and prevention. They gained knowledge about patient NCD identification, assessment, and management. One participant shared about skills practice saying that “The sessions were well thought. The practice of performance skills on mannequins was a new experience for me and I felt more confident in taking care of clients with basic needs and managing their concerns”.

Sub-theme 2: Freshen up skills

Participants encouraged hands-on skills performance and clinical experience as they added confidence in them to assess and manage patients' health in hospitals and community settings. Through hands-on patient care, these participants gain insights into disease patterns, patient behaviors, and socio-economic factors affecting health. This exposure fosters a deeper understanding of preventative care and health education, essential for delivering holistic, community-centered healthcare. One of the participants wrote: “Hands-on patient care in clinical settings offers healthcare professionals first-hand insight into the complex health needs of various populations."

Sub-theme 3: Culturally competent patient education

According to participants' responses addressing NCDs effectively requires culturally competent and tailored patient education. Tailoring education to fit cultural contexts ensures that patients are more likely to understand and engage with the information, leading to better adherence to preventative measures and treatment plans. As one of the participants shared; “Recognizing and respecting cultural differences improve patient trust and communication with healthcare providers." Another emphasized tailor-made strategies saying, "Tailored educational strategies
Address specific cultural needs and barriers, leading to higher adherence to treatment plans”.

- **Theme I: Way forward**: The participants identified key subjects that will make this training more fruitful and bring more impact.

Sub-theme I: Refresher Courses: Participants of the training are advised to share an annual or bi-annual planner for these training courses so that I can sign up for such training as per their comfort, need, and time. One participant shared “Plan such training as

a yearly training that we can attend as per our need and convenience".

Sub-theme II: Time duration of training: The aspect highlighted by the participants is the time allocated for the skills hands-on practice. One of the participants shared "try to build more time for clinical AND hands-on practice in the simulated to increase dexterity".

Discussion

Pakistan is the world's fifth most populous country, with 207.7 million people. (7) The country is suffering from an increased burden of communicable diseases and NCDs. (8). As in Pakistan people pay out of pocket for their health. Therefore, it is important to utilize a strategy to train healthcare professionals in the community that could benefit the people by their knowledge and skills which can contribute to community populations' better health outcomes. (8,10) This project is also one of the strategies to provide training to LHVs and MWs working in the community. The training aimed to make participants gain knowledge about early identification of some common non-communicable diseases and freshen essential skills. Undoubtedly, nurses, LHVs'and midwives are the backbone of any healthcare delivery system and play a pivotal role in community wellness. (8,9). Therefore, providing training to increase their capability to respond to the identification and management of some common NCDs is one of the strategies to strengthen their role in the community as primary caregivers. (10) Ultimately, it will improve health outcomes and the delivery of cost-effective services at the community level. (9). All training participants were experienced individuals and primary care responders in complex humanitarian crises and disasters. They are protectors and advocates for the community (8,10). Therefore, it was pivotal to equip them with the knowledge and skills to effectively address some common NCDs in the community.

The modules of this training were designed to develop theoretical knowledge of some of the common NCDs' identified by the PHS and freshen skills competency through simulation which helps them to provide proper care to people who require care in the community with minimal cost. Additionally, exposure to clinical areas allows them to observe the steps of skills on the patients by nurses or other staff. Participants appreciated the knowledge and skills taught to them and most importantly the exposure to clinical practice. Participants found that gaining exposure to shadowing experienced nurses in a hospital

setting, enhanced their understanding of providing appropriate preventive measures while performing skills on patients. In the literature, it is evident that clinical exposure would increase the capabilities of medical professionals' professional competencies and persistently comply with current practice standards. Participants strongly feel that such training should be planned once or twice every year in which more theoretical timing and days should be planned.

This initiative enriched their learning experience and equipped them with a positive attitude to provide better care to communities with early identification of initial management of some common NCDs. However, the limitation of this project is the team was unable to structure the pre and post-test of the modules. With that, also include observatory study to evaluate their practices.

In this realm, this project carries significant implications. The systematic use of monitoring data will be an essential tool for evaluating and comparing participant field performance. This evaluation will extend not only to individual regions but also facilitate cross-regional comparisons, thereby providing valuable insights for LHVs and MWs for NCD prevention and management. This approach can remain adaptive, informed, and in sync with evolving healthcare requirements, ultimately promoting the delivery of high-quality care across regions.

Conclusion

In conclusion, the project showcased several strengths, such as providing knowledge to participants about some common NCDs, practical freshening skills training, and clinical exposure. It is crucial to acknowledge the limitation regarding the restricted duration of in-person training sessions for participants. This constraint hindered a comprehensive assessment of knowledge enhancement through tests. In essence, the project has made commendable strides in enhancing the capabilities of participants to take the initiative to early recognize NCDs. This training should be structured and involve more LHVs and MWs who are dedicated to working in communities. This initiative then contributes to the broader goal of improving community health outcomes and aligns with global efforts to combat the rising burden of non-communicable diseases.

Conflict of Interest: None.

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