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Promoting Health Through Exercise and Diet: A Pre–Post Study on Reducing Ncd Risk Factors Among Women in Rural Malawi

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Abstract

Introduction: *Non communicable diseases (NCDs) now account for one-third of adult deaths in Malawi, yet women in rural areas receive limited communication on preventive lifestyles. This study assessed whether a community based program that demonstrates, explains, and reinforces physical activity and healthy eating can reduce two key NCD risk factors, obesity measured by body mass index (BMI) and blood pressure (BP) among adult women in Phereni Community, Lilongwe rural.*

Methods: *We carried out a six week quasi experimental pre post study. Using purposive sampling, 100 women aged 18–60 years were allocated to an intervention group (n = 50) and a usual practice control group (n = 50). Baseline BMI and BP were recorded. The intervention combined thrice weekly structured exercise sessions (offered in groups or tailored individually) and weekly dialogue based nutrition education delivered through, community meetings, visual aids and WhatsApp groups messages. The control group continued their usual lifestyle with no structured intervention. Safety checks and attendance logs were maintained throughout. Post program BMI and BP were re measured; within group changes were analyzed with paired t tests and between group differences with one way ANOVA ($\alpha = 0.05$).*

Results: *Ninety-two participants (92 %) completed the program. The intervention group's mean BMI fell from 29.4 ± 3.1 kg/m² to 27.1 ± 2.8 kg/m² (Δ = 2.3 kg/m², $p < 0.01$), and mean systolic BP dropped from 142 ± 11 mmHg to 128 ± 9 mmHg (Δ = 14 mmHg, $p < 0.01$). The control group showed no significant change in either metric. No adverse events were reported.*

Conclusions: *Integrating clear, culturally tailored health messages with hands on physical exercise and diet guidance significantly lowered BMI and BP among rural Malawian women within six weeks. Scaling such communication-driven interventions through existing village structures and mobile platforms could substantially reduce the nation's NCD burden.*

Keywords: Health Communication, Physical Activity, Non-Communicable Diseases, Blood Pressure.

Introduction

Non-communicable diseases (NCDs) are a leading cause of morbidity and mortality globally and increasingly burden low- and middle-income countries, including Malawi. According to the World Health Organization, NCDs such as cardiovascular diseases, hypertension, diabetes, and obesity account for over 70% of global deaths, with a growing proportion occurring in sub-Saharan Africa [1]. In Malawi, NCDs contribute to approximately one-third of adult mortality, with hypertension and obesity identified as major modifiable risk factors [2].

Women in rural Malawi face unique barriers to adopting healthy lifestyles, including limited access to health information, reduced opportunities for structured physical activity, poverty,

and sociocultural norms. Lifestyle modification through regular physical activity and a healthy diet is widely recognized as an effective approach to prevent and manage NCDs. However, health promotion efforts in many rural areas remain largely theoretical, with minimal practical implementation and follow-up support to sustain behavior change.

The Government of Malawi prioritizes NCD prevention through the National Action Plan for the Prevention and Control of Non-Communicable Diseases (2017–2022) and the Health Sector Strategic Plan III (2023–2030), both emphasizing lifestyle modification, community engagement, and preventive care. Despite these policies, empirical evidence evaluating structured exercise and nutrition interventions among rural Malawian women remains limited. This study was designed to assess whether a community-based intervention that integrates practical structured exercise sessions with participatory nutrition education can lead to measurable improvements in BMI and blood pressure among adult women in a rural setting.

Materials and Methods

Study Design

A six-week quasi-experimental pre–post intervention study with a control group was conducted between April and May 2024.

Study Setting

The study was conducted in Phereni Community, a rural area in Lilongwe District, Malawi. The community is characterized by limited access to structured health promotion services.

Study Population and Sampling

The study population comprised adult women aged 18–60 years residing in Phereni Community. Purposive sampling was used to recruit 100 participants who met the inclusion criteria. Participants were allocated into an intervention group (n = 50) and a control group (n = 50).

Inclusion criteria:

- Women aged 18–60 years
- Permanent residents of Phereni Community
- Willingness to participate and provide informed consent

Exclusion criteria:

- Pregnancy
- Known severe cardiovascular or musculoskeletal conditions

Intervention

The intervention group participated in a structured exercise and nutrition education program for six weeks. Exercise sessions were conducted three times per week and included aerobic activities, strength exercises, and flexibility training etc. Sessions were delivered in group formats, with individual adaptations made where necessary.

Nutrition education sessions were conducted weekly using participatory dialogue, visual aids, and culturally appropriate messages focusing on balanced diets, portion control, reduced salt and sugar intake, and increased consumption of fruits and vegetables. Reinforcement messages were shared through community WhatsApp groups.

The control group continued with their usual daily activities and did not receive any structured intervention during the study period.

Data Collection

BMI (kg/m²) and BP (mmHg) were measured at baseline, mid-intervention were taken at the end of three (3) weeks, and post-intervention measurements were taken at the end of six (6) weeks using standardized procedures and calibrated equipment. BMI was calculated as weight (kg) divided by height squared (m²). Blood pressure was measured using a calibrated digital sphygmomanometer following standard procedures. Sociodemographic data were also collected.

Ethical Considerations

Ethical approval was obtained from the Malawi University of Science and Technology Research Ethics Committee. Written informed consent was obtained from all participants prior to data collection.

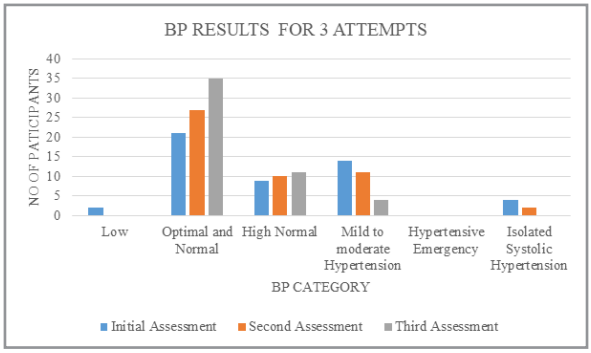
Data Analysis

Data were analyzed using Statistical Package for the Social Sciences (SPSS) version 20.0. Descriptive statistics were used to summarize participant characteristics. Paired t-tests assessed within-group changes, while one-way ANOVA compared differences between groups. Statistical significance was set at $p < 0.05$.

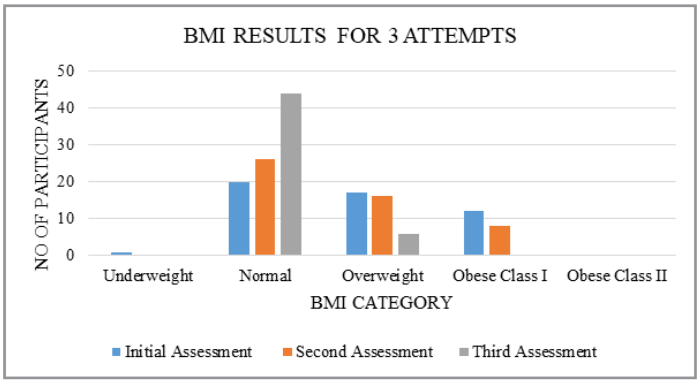
Results

Participant Characteristics

At baseline, both the control and intervention groups comprised 50 participants each, giving a total sample of 100 women. Out of the 100 women enrolled, 92 completed the study, yielding a retention rate of 92%. Eight (8) participants from the control group withdrew due to relocation and personal commitments, leaving 42 participants in the control group. All 50 participants in the intervention group completed the study.



Graph 1: presents blood pressure measurements across the three assessment



Graph 2: presents Body Mass Index (BMI) measurements across three assessment

Changes in BMI and Blood Pressure

In the intervention group, the proportion of participants with normal blood pressure (BP) increased from 21 (42%) at baseline to 35 (70%) post-intervention, while the proportion with normal BMI increased from 26 (52%) to 44 (88%), indicating meaningful improvements in blood pressure control and weight status. The intervention group experienced a significant reduction in mean BMI (29.4 ± 3.1 kg/m² to 27.1 ± 2.8 kg/m²; $p < 0.01$) and systolic blood pressure (142 ± 11 mmHg to 128 ± 9 mmHg; $p < 0.01$). The control group showed no statistically significant changes in either BMI or blood pressure.

No adverse events were reported during the intervention period.

Discussion

This study demonstrates that a community-based exercise and nutrition intervention significantly reduce BMI and blood pressure among rural Malawian women. These findings strongly align with Malawi's National Action Plan for Prevention and Control of Non-Communicable Diseases (2017–2022), which emphasizes lifestyle modification particularly physical activity and healthy diets as a cornerstone for reducing the national NCD burden.

The observed reductions in BMI and systolic blood pressure are consistent with evidence from similar community-based interventions across sub-Saharan Africa. Studies conducted in Tanzania, South Africa, and Kenya have reported significant improvements in cardiometabolic risk factors following culturally adapted physical activity and nutrition education programs delivered at the community level. [3-5]. These similarities highlight the effectiveness of low-cost, behavior-focused interventions in resource-limited settings.

In Malawi, rural women face unique structural and sociocultural barriers, including limited access to preventive healthcare and low exposure to health promotion messaging. By embedding the intervention within existing community structures and reinforcing messages through dialogue-based education and mobile platforms such as WhatsApp, this study addressed key gaps identified in Malawi's Health Sector Strategic Plan III (HSSP III), which calls for community-led and people-centered health promotion approaches [6].

The integration of physical activity with nutrition education likely contributed to the magnitude of the observed effects. Physical exercise improves cardiovascular efficiency and weight regulation, while dietary modifications such as reduced salt intake and improved portion control directly influence blood pressure and obesity outcomes. The participatory nature of the intervention may have enhanced adherence, ownership, and sustainability of behavior change [7].

Despite the positive outcomes, this study has limitation of six-week duration which does not allow assessment of long-term sustainability. Future research should employ longer follow-up periods, and integration with primary healthcare services to strengthen evidence and scalability.

Overall, the findings support Malawi's policy direction toward preventive, community-based NCD interventions and provide empirical evidence to inform national and district-level programming [8].

Conclusion

A six-week community-based exercise and nutrition program significantly reduced BMI and blood pressure among women in rural Malawi. Scaling such interventions through existing community structures and primary healthcare platforms may offer a cost-effective strategy for reducing the growing burden of NCDs in rural settings [9].

Acknowledgements

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References

1. World Health Organization. (2023). Noncommunicable diseases: Key facts. https://www.who.int/news-room/fact-sheets/detail/noncommunicable-diseases
2. Msyamboza, K. P., Ngwira, B., Dzowela, T., Mvula, C., Kathyola, D., Harries, A. D., & Bowie, C. (2011). The burden of selected chronic non-communicable diseases and their risk factors in Malawi: Nationwide STEPS survey. PLoS ONE, 6(5), e20316. https://doi.org/10.1371/journal.pone.0020316
3. Otieno, P. A., Wanjiru, R., & Mbogori, T. (2022). Effects of a community-based lifestyle intervention on metabolic syndrome in Kenyan adults: A randomized controlled trial. BMC Public Health, 22, 1234. https://doi.org/10.1186/s12889-022-1234-x

4. Mashamba-Thompson, T. P., Khosa, S., & Nkambule, R. (2023). Culturally tailored community-based physical activity interventions in South Africa: Frameworks and outcomes. BMC Public Health, 23, 21936. https://doi.org/10.1186/s12889-025-21936-9
5. Tsolekile, L., Puoane, T., & Sanders, D. (2023). Nutrition education and physical activity interventions for metabolic syndrome: Evidence from Kenya. Deutsche Nationalbibliothek. https://d-nb.info/1215561458/34
6. African Union. (2021). Africa health strategy 2016–2030. African Union Commission.
7. Guthold, R., Stevens, G. A., Riley, L. M., & Bull, F. C. (2018). Worldwide trends in insufficient physical activity from 2001 to 2016: A pooled analysis of 358 population-based surveys. The Lancet Global Health, 6(10), e1077–e1086. https://doi.org/10.1016/S2214-109X(18)30357-7
8. Malawi Ministry of Health. (2017). National action plan for prevention and control of non-communicable diseases (2017–2022). Government of Malawi.
9. Malawi Ministry of Health. (2022). Health Sector Strategic Plan III (HSSP III): 2023–2030. Government of Malawi.
10. Nyirenda, M. J., & Padfield, P. L. (2009). Diet, obesity and hypertension in sub-Saharan Africa. Journal of Human Hypertension, 23(1), 1–3. https://doi.org/10.1038/jhh.2008.77