Physical Activity Practices and Preferences of Adult Females Living with Hypertension in a Nigerian Rural Community: A Feasibility Study

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Abstract

Background: Hypertension is the leading risk factor of premature death worldwide and affects over 34% of Nigerian adults. Physical activity (PA) plays a vital role in the prevention and management of hypertension. Designing a PA program for female patients living with hypertension in a rural community grossly burdened by hypertension will alleviate their physical inactivity burden but we lack knowledge of their PA baseline and preferences. Hence, the need to undergo this study.

Materials and Methods: A total of 35 adult females (aged 35-55 years) living with hypertension participated in this cross-sectional study. Physical activity profile questionnaire (PAPQ) and a composite questionnaire were used to assess participants' physical activity practices, enablers, barriers and preferences. Descriptive statistics were used to summarize the data.

Results: Household activities (60%), especially indoor household activities (57.1%), emerged as prominent forms of physical activity. Fitness/health (5.4±2.5) was the common enabler of physical activity among the participants while health concerns (80%) and social influences (25.7%) were the common barriers. 31.4% of the participants chose incorporating PA into their activities of daily living (ADL) as their most preferred mode of staying/getting active.

Conclusions/Recommendations: Female Patients Living with Hypertension (FPLWH) predominantly engage in household activities, most especially indoor activities, representing their most common mode of PA. The Physical activity program intervention for FPLWH will be tailored towards activities that can be implemented within the settings of the household environment.

Keywords*: physical activity, hypertension, adult females, barriers and motivators, Nigeria.*

Introduction

Hypertension is the leading risk factor of premature death worldwide.[1] Among all the cardiovascular diseases in Africa, hypertension has been regarded as the most common illness affecting around 34% of Nigerian individuals who are 18 years of age and older.[2] It has become a public health concern; placing a burden on cardiovascular disorders, such as heart attacks and strokes.

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Hypertension can be caused by a variety of genetic, environmental, and lifestyle factors. Globally, 1.3 billion people aged 30–79 years old lived with hypertension in 2019 (according to European guidelines). More than 1 billion people worldwide (82% of those with hypertension) live in low and middle-income countries.[3]

Pharmacological treatment is proven to significantly improve the primary prevention of cardiovascular disease mortality and morbidity.[4] However, in a pooled analysis of 104 million participants, only 40% of people with hypertension received pharmacological treatment, and 23% of women and 18% of men of the total participants had controlled blood pressure. Economic limitations have made non-pharmacological management of hypertension an attractive approach. Non-pharmacological interventions like physical activity, weight loss, limited alcohol consumption, relaxation techniques of Yoga, Acupuncture, Tai chi have been considered as lifestyle changes that effectively lower blood pressure.[5]

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Physical activity (PA) is defined as any bodily movement produced by skeletal muscles that requires energy expenditure.[6] It includes a range of physical activities, such as leisure sports, strength training, flexibility training, and aerobic activities. PA reduces blood pressure by decreasing sympathetic nerve activity and expanding artery lumen widths, thus lowering peripheral vascular resistance.[7] Moreover, PA can reduce the left ventricular mass index which can reduce blood pressure among people with hypertension.[8] Recent evidence from interventional research has found a strong link between regular physical activity and hypertension control.[9] However, some studies found no positive effect.[10]

Despite the known benefits of PA towards hypertension, sedentary lifestyle is becoming increasingly common.[11] A study found that the majority of patients with hypertension and diabetes attending Irrua Specialist Teaching Hospital, Edo, Nigeria to be obese and physically inactive. This fact might be attributed to the findings from the work done by Oseni et al,[12] who reported that half of patients living with hypertension don't have the knowledge of the benefits of PA towards hypertension. Another study revealed that low counselling rates, lack of expertise and lack of referral to exercise experts in cardiopulmonary rehabilitation constitutes to the low utilization of PA.[13] As a result, physical inactivity is a growing concern as a risk factor for cardiovascular diseases including hypertension due to increasing urbanization and the tendency for sedentary lifestyles.

Anecdotal interactions revealed that the Ogui community in Enugu state, Nigeria has a high incidence of people living with hypertension with a low compliance to medical care due to challenging economic situations. Understanding the current levels and patterns of PA is paramount in planning and implementing PA interventions. In addition, setting up interventions without considering stakeholder perceptions and preferences may result to obscured designs outside the context of the population. Therefore, in order to properly develop a targeted, goal-oriented PA intervention program which will serve as an adjunct, safe and affordable management strategy to hypertension care. Information on the physical activity profiles of adult females living with hypertension is necessary; hence, the need to conduct this study.

Materials and Methods

Study design, population and sample size

This pilot study utilized a cross sectional survey research design to obtain participants' information at a given point in time. This study was conducted in the Ogui community of Enugu State, Nigeria. We sampled adults aged 35 years and above within the Ogui Community. Tickle-Degnen[15] provided guidance on the conducting feasibility studies and stated that feasibility studies are not expected to have larger sample size. An overall sample of 30 has been recommended by Lancaster[16]. We purposively recruited a total of 35 participants for the study.

Patient identification, consent process, and ethical considerations

Eligible participants were given a written informed consent form to be duly signed to qualify for the study. The details of the study were explained. The study received the necessary ethical clearance from the University of Nigeria Teaching Hospital Health Research Ethics Committee (clearance number: NHREC/05/01/2008B-FWA00002548-1RB00002323). The inclusion criteria include adult females who have been diagnosed with hypertension in at least the past 3 months and individuals who have the ability to speak and understand English or Igbo language as the survey tools were administered in these two languages. The study excluded pregnant women, Females with musculoskeletal, neurological, or other complications that may limit their ability to participate in physical activities and Women with cognitive and memory impairments which would hinder their ability to recall events.

Ethical approval: Ethical clearance was obtained from the Health Research Ethics Committee, University of Nigeria Teaching Hospital, Ituku-Ozalla Enugu, Nigeria before the commencement of the study. (Clearance number: NHREC/05/01/2008B-FWA00002548-1RB00002323).

Data collection

Relevant information on respondents' demographic and obstetrics characteristics were collected with a self-structured questionnaire prior to the administration of the main study instrument. We developed a composite questionnaire by selecting relevant questions from three established questionnaires including, Physical activity and disability survey (PADS), Motivation for PA Measure-Revised (MPAM_R) and barriers to physical activity questionnaire (BPAQ-MI). Enablers of physical activity were assessed on a scale of 1-7, where 1 represents least motivator and 7 represents highest motivator. The questionnaires were self-administered to the participants to obtain information on their physical activity practices, motivations and barriers as well as preferences for our proposed physical activity program. For clarity purposes, the questions were read out to the participants to ensure increased understanding and response rates.

Data analysis

Data were summarized with descriptive statistics of frequency, percentage, mean and standard deviation. Data analysis was done with the statistical package of social sciences software version 24 (SPSS inc, Chicago, Illinois, USA).

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Results

The general characteristics of the respondents are presented in table 1. Most of the respondents aged between 35 -55 years (82.8%) are married (88.6%), self-employed (66.8%), have a diagnosis of over 5 years (57.1%) and receiving ongoing treatment (71.4%).

From Table 2, about half of the respondents do structured physical exercise (45.7%), with aerobics being the most common (40%), while fewer engage in leisure-time activities (14.3%), and indoor household activities (57.1%) are more popular than outdoor ones (22.9%).

From Table 3, the most preferred physical activity from the respondents was incorporating activities of daily living (31.4%), followed closely by structured exercise and group exercise (28.6%). Gym and fitness centers (2.9%) were the least preferred physical activity plan.

From Table 4, fitness and health (5.4) were the strongest motivators for physical activity, while appearance (1.9) was the least influential.

Table 1 General Demographic Characteristics of the Participants (n = 35)

Variables	Frequency	%
Occupation		
Employed	24	68.6
Unemployed	11	31.4
Marital Status		
Single	4	11.4
Married	31	88.6
Duration of Diagnosis (year)		
< 1	4	11.4
1-5	10	28.6
> 5	20	57.1
Ongoing Medical Treatment		
Yes	25	71.4
No	10	28.6

Furthermore, from Table 5, The respondents reported that health concerns (80%) were the most common barrier to physical activity, while family-related issues (5.7%) were the least.

Table 2. Physical Activity Profiles of the Participants

Variables	Yes n (%)	No n (%)
Engagement in structured physical exercise	16(45.7%)	9(54.3%)
Mode of structured exercise		
Aerobics	14(40%)	21(60%)
Strengthening	5(14.3%)	30(85.7%)
Flexibility	3(8.6%)	32(91.4%)
Engagement in leisure-time activity	5(14.3%)	30(85.7%)
Mode of leisure-time activity		
Endurance	2(5.7%)	33(94.3%)
Non-endurance	3(8.6%)	32(91.4%)
Engagement in household activity	21(60%)	14(40%)
Type of household activity		
Indoor household activity	20(57.1%)	15(42.9%)
Outdoor household activity	8(22.9%)	27(77.1%)

Table 3. Participants' Physical Activity Preferences (The participants selected only one response)

Preferences	Frequency	%
Structured exercise	10	28.6
Incorporating ADL	11	31.4
Hospital based	3	8.6
Group exercise	10	28.6
Gym/fitness	1	2.9

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Table 4. participants' Physical Activity Enablers

Enablers	Mean± Standard deviation
Enjoyment	3.2±2.7
Appearance	1.9±1.7
Social	2.2±2.0
Fitness/health	5.4±2.5
Competence and challenge	2.5±2.3

(Enablers were assessed on a scale of 1-7, where 1 represents least motivator and 7 represents highest motivator)

Table 5. Participants' Physical Activity Barriers

Barriers	Yes n (%)	No n (%)
Health	28(80%)	7(20%)
Beliefs and attitude	9(25.7%)	26(74.3%)
Friends	9(25.7%)	26(74.3%)
Family	2(5.7%)	33(94.3%)
Fitness center	5(14.3%)	30(85.7%)
Staff Programme	6(17.1%)	29(82.9%)
Community built	3(8.6%)	32(91.4%)
Safety	6(17.1)	29(82.9%)

Discussion.

This study explored the physical activity profile of female patients living with hypertension. The major findings were that a good proportion of the participants engage in physical activity while more than half do not. Among those who engage in structured exercise, aerobics was the most practiced, followed by strengthening and flexibility exercises. This finding is partly consistent with previous research in similar Nigerian settings, where low-to-moderate levels of structured physical activity were reported among hypertensive and diabetic patients[12]. Oseni et al. observed that a substantial proportion of patients attending a teaching hospital in Edo State were physically inactive and obese, attributing this to poor knowledge of PA benefits and lack of structured exercise engagement[12]. Similarly, Abubakar et al. (2017) reported low adherence to non-pharmacological therapies, including exercise, among patients attending hypertension clinics[13]. Our study, however, suggests a relatively higher participation rate in structured exercise compared to these reports, which may reflect increased awareness of lifestyle modification strategies or the influence of community-based sensitization programs. Nevertheless, the dominance of aerobics as the preferred exercise mode aligns with global recommendations emphasizing moderate-intensity aerobic activity as the first-line non-pharmacological intervention for hypertension management[7]. This may suggest that although participation levels remain suboptimal, those who do engage are adopting exercise modalities with proven cardiovascular benefits, which is encouraging for future community-level interventions.

A notable finding in this study was that the majority of participants reported engaging in household chores, particularly indoor tasks, as their primary form of physical activity. This pattern reflects a broader sociocultural trend where women, despite increasing participation in the workforce, continue to bear the greater burden of domestic responsibilities[14]. While household activities do contribute to energy expenditure and can offer some cardiovascular benefit, evidence suggests that they may not consistently achieve the intensity or duration required to elicit clinically significant improvements in cardiorespiratory fitness or blood pressure control[19]. Moreover, household chores are often performed intermittently, with low to moderate intensity, and may lack the progressive overload necessary for sustained physiological adaptation[7]. On the other hand, the integration of household activities as a primary source of physical activity can be viewed as advantageous in settings where access to structured exercise programs, recreational facilities, or safe outdoor spaces is limited[21]. This highlights both the potential and the limitations of relying on domestic tasks as a surrogate for formal physical exercise in hypertension management. Future interventions should therefore consider leveraging household activities by modifying them to enhance their intensity such as encouraging brisk sweeping, carrying loads, or turning them into mini-interval sessions while simultaneously creating opportunities for women to engage in structured or group-based physical activities that provide greater cardiovascular benefit and social support.

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Low engagement in leisure-time physical activity in this sample should be interpreted in light of participants' own reported barriers rather than by speculative reasons. In this study participants identified health concerns, beliefs/attitudes and social influences as the principal barriers to being active (see Table 4). The predominance of these first-hand barriers has important clinical implications. Leisure-time moderate-to-vigorous physical activity is a key contributor to cardiorespiratory fitness and blood-pressure control; insufficient participation is associated with smaller reductions in resting blood pressure, less favourable changes in left ventricular mass and exercise capacity, and reduced gains from time-efficient exercise programmes shown to lower blood pressure in older adults. [7,8,9]Moreover, inadequate leisure-time activity contributes to higher prevalence of obesity and metabolic risk - a pattern observed among Nigerian patients with hypertension and diabetes which in turn amplifies atherosclerotic cardiovascular risk. [11]Low leisure-time activity also diminishes opportunities for structured progressive overload that improves aerobic capacity and functional reserve; over time this may worsen exercise tolerance, increase symptom burden (fatigue, dyspnoea), and reduce independence in activities of daily living among older adults with hypertension.[7,10,20] Finally, the combination of reported health-related fears and low leisure activity may perpetuate a cycle of inactivity and poorer self-management of hypertension (for example, lower uptake of lifestyle counselling), as documented in similar Nigerian clinic populations. [12]Together, these findings underscore the need for interventions that explicitly address participants' stated barriers (particularly health concerns and beliefs), while providing safe, graded leisure-time activity options that can produce clinically meaningful cardiovascular and functional benefits.

The fact that fitness and health emerged as the strongest motivators for physical activity in this study suggests that participants are aware of the positive impact of regular exercise on cardiovascular health and overall fitness, which may partly explain their willingness to engage in physical activity. This finding is encouraging, as it contrasts with reports from other Nigerian populations where poor knowledge of the benefits of physical activity was a major factor contributing to low participation and poor adherence to non-pharmacological management of hypertension[12,13]. Oseni et al. found that many hypertensive and diabetic patients in Edo State were inactive and obese due to limited awareness of physical activity benefits[12]. Similarly, Abubakar et al. reported low awareness and poor adherence to lifestyle modification measures, including exercise, among clinic attendees in Kano[13]. The high health-related motivation found in our study therefore provides a strong entry point for intervention programs, as participants may be more receptive to education, structured exercise prescriptions, and community-based PA programs designed to reduce blood pressure and improve quality of life.

Enjoyment and perceived competence (challenge) have been identified in this study as meaningful enablers of physical activity, a finding that is consistent with prior qualitative and quantitative work in older and female populations. Belza et al. reported that enjoyment and culturally appropriate, pleasurable activities were central to older adults' willingness to initiate and sustain exercise programs, highlighting enjoyment as a predictor of long-term adherence[19]. Evans' work with rural Black women similarly emphasizes that pleasurable and socially reinforcing activities increase uptake and maintenance of exercise in low-resource settings[20]. Hoebeke's focus groups with low-income women showed that perceived capability and the availability of manageable challenges influence whether women translate intention into regular activity[21], and Kirchhoff et al. identified perceived competence and progressive goal-setting as key strategies for sustaining activity among African American women. [21,22] Together these studies indicate that enjoyment and competence are not merely secondary preferences but actionable targets for intervention design. This contrasts with the sizeable proportion of clinic populations reported to have poor knowledge or low counselling on exercise, where lack of information rather than lack of enjoyment or capability was the dominant obstacle to activity; for example, Oseni et al.[12] and Abubakar et al.[13] suggesting two complementary intervention pathways: (1) leverage existing health-and-fitness motivation by offering enjoyable, competence-building activities, and (2) concurrently address knowledge and counselling gaps to convert motivation into safe, effective practice. In practical terms for this cohort where household chores predominate and leisure-time activity is low, adapting household-based tasks to increase enjoyment and introduce graded challenges may be an efficient, culturally acceptable strategy to improve adherence and amplify cardiovascular benefit.

Health-related barriers were the most commonly reported obstacles to physical activity in this study, with 80% of participants identifying health concerns such as fear of exacerbating existing illness, fatigue, or shortness of breath as reasons for limiting activity (Table 4). These findings are comparable to previous reports in which pain and symptom burden were highlighted as major barriers among individuals with chronic conditions, including hypertension, but at the same time served as motivators when patients perceived exercise as a means to reduce those symptoms[15]. Beliefs and attitudes, along with social influences from friends and family, were also noted by a considerable proportion of our participants, which is consistent with earlier qualitative work indicating that social support and family expectations can either facilitate or hinder women's participation in exercise programs[20,22].

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Together, these findings reinforce the importance of context-specific assessment of barriers, since factors such as health-related fears, social support, and environmental conditions may vary substantially between populations and should be accounted for when designing targeted interventions.

Incorporating physical activity into routine activities of daily living (ADL) emerged as the most preferred approach in this study, selected by 31.4% of participants. This preference aligns with the growing evidence supporting lifestyle-integrated physical activity interventions, which emphasize embedding moderate-intensity movement into everyday tasks such as walking, stair climbing, and domestic chores. Such approaches have been shown to be feasible, sustainable, and cost-effective, particularly in low-resource settings where access to gyms or structured exercise facilities may be limited[21]. Studies involving women in rural and low-income populations have similarly reported a preference for home-based and contextually relevant activities, citing convenience, safety, and cultural acceptability as key reasons for favouring ADL-based exercise over formal programs.[20,22] Furthermore, lifestyle-integrated PA has demonstrated clinically meaningful benefits in reducing blood pressure and improving cardiovascular fitness, even in time-efficient formats[7,9]. However, one potential limitation is that ADL-related activity may not consistently reach the intensity or duration required to achieve optimal cardiorespiratory improvements unless deliberate strategies such as pacing, goal setting, and progressive overload are incorporated[7]. These findings suggest that interventions for women living with hypertension in our setting should leverage their preference for ADL-based activity but incorporate education on intensity monitoring and progression to maximize health outcomes.

Limitations

This study was conducted as a pilot to generate context-specific evidence for the design of a community-based physical activity intervention in Ogui. As such, the findings are intentionally specific to this community and reflect the socio-cultural and environmental realities of its residents. While the results may not be directly generalizable to other populations, they provide valuable insights into the physical activity profiles, motivators, and barriers of women living with hypertension in this setting, which is essential for tailoring effective and culturally appropriate interventions. Future research could expand on these findings by including larger multi-community samples or longitudinal follow-up once the intervention is implemented, to strengthen external validity and examine the sustainability of outcomes over time.

Conclusion

The study provides insights that the participants engage mainly in structured physical exercise, with aerobics being the most common, while fewer engage in leisure-time activities, and indoor household activities are more popular than outdoor ones. Fitness/health are the major enablers of physical activity among the participants while Health concerns were the most common barrier to physical activity among the participants. The most preferred physical activity among participants was incorporating activities of daily living (ADL). We recommend that there should be a "Launch health promotion campaigns that highlight the health benefits of physical activity beyond weight loss or appearance. Emphasize the positive impact on hypertension management and overall well-being.

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References

1. Murray CJ, Ikuta KS, Sharara F, Swetschinski L, Aguilar GR, Gray A, et al. Global burden of bacterial antimicrobial resistance in 2019: a systematic analysis. Lancet. 2022;399(10325):629-55. doi:10.1016/S0140-6736(21)02724-0
2. Akinlua JT. An exploration of the risk factors, beliefs and management of hypertension in primary care in Nigeria-a mixed methods study [doctoral dissertation]. London (UK): University College London; 2019.
3. Zhou B, Carrillo-Larco RM, Danaei G, Riley LM, Paciorek CJ, Stevens GA, et al. Worldwide trends in hypertension prevalence and progress in treatment and control from 1990 to 2019: a pooled analysis of 1201 population-representative studies with 104 million participants. Lancet. 2021;398(10304):957-80. doi:10.1016/S0140-6736(21)01330-1
4. Li Q, Li L, Wang F, Zhang W, Guo Y, Wang F, et al. Effect and safety of LCZ696 in the treatment of hypertension: a meta-analysis of 9 RCT studies. Medicine (Baltimore). 2019;98(28):e16093. doi:10.1097/MD.0000000000016093
5. Igbal S, Klammer N, Ekmekcioglu C. Effect of electrolytes on blood pressure: a brief summary of meta-analyses. Nutrients. 2019;11(6):1362. doi:10.3390/nu11061362
6. World Health Organization. Physical activity. 2021. Available from: https://www.who.int/news-room/fact-sheets/detail/physical-activity
7. Hamer M. Anti-hypertensive effects of exercise. Sports Med. 2006;36(2):109-16. doi:10.2165/00007256-200636020-00002

https://doi.org/10.64061/tjhs.v33i1.4

8. Pitsavos C, Chrysohoou C, Koutroumbi M, Aggeli C, Kourlaba G, Panagiotakos D, et al. Impact of moderate aerobic physical training on left ventricular mass, exercise capacity and blood pressure response during treadmill testing in borderline and mildly hypertensive males. Hellenic J Cardiol. 2011;52(1):6-14.
9. Herrod PJJ, Lund JN, Phillips BE. Time-efficient physical activity interventions to reduce blood pressure in older adults: a randomised controlled trial. Age Ageing. 2021;50(3):980-4. doi:10.1093/ageing/afaa211
10. Liira H, Engberg E, Leppävuori J, From S, Kautiainen H, Liira J, et al. Exercise intervention and health checks for middle-aged men with elevated cardiovascular risk: a randomized controlled trial. Scand J Prim Health Care. 2014;32(4):156-62. doi:10.3109/02813432.2014.982368
11. Oseni TIA, Ahmed SD, Eromon PE, Fuh NF, Omoregbe IN. Physical activity, obesity and risk of atherosclerotic cardiovascular diseases among patients with hypertension and diabetes attending a teaching hospital in Edo State, Nigeria. PLoS One. 2024;19(8):e0307526. doi:10.1371/journal.pone.0307526
12. Abubakar S, Muhammad LU, Ahmed A, Idris F. Knowledge, attitude, and adherence to nonpharmacological therapy among patients with hypertension and diabetes attending the hypertension and diabetes clinics at tertiary hospitals in Kano, Nigeria. Sahel Med J. 2017;20(3):102-8. doi:10.4103/1118-8561.211856
13. Udo RK. Geographical regions of Nigeria. Berkeley (CA): University of California Press; 1970. p. 88.
14. Tickle-Degnen L. Nuts and bolts of conducting feasibility studies. Am J Occup Ther. 2013;67(2):171-6. doi:10.5014/ajot.2013.006270
15. Lancaster GA, Dodd S, Williamson PR. Design and analysis of pilot studies: recommendations for good practice. J Eval Clin Pract. 2004;10(2):307-12. doi:10.1111/j.2002.384.doc.x
16. Onwubere BJC, Ejim EC, Okafor CI, Emehel A, Mbah AU, Onyia U, et al. Pattern of blood pressure indices among the residents of a rural community in Southeast Nigeria. Int J Hypertens. 2011;2011:621074. doi:10.4061/2011/621074
17. Anyachukwu CC, Onyeso OKK, Ezema CI. Age, body mass and physical activity determinants of facial acne severity among Southern Nigerian adolescents and young adults. West Indian Med J. 2018;5(2):66-71.
18. Igwesi-Chidobe CN, Amarachukwu C, Sorinola IO, Godfrey EL. Translation, cultural adaptation and psychometric testing of Igbo fear avoidance beliefs questionnaire in mixed rural and urban Nigerian populations with chronic low back pain. PLoS One. 2019;14(5):e0216482. doi:10.1371/journal.pone.0216482
19. Lachance-Grzela M, Bouchard G. Why do women do the lion's share of housework? A decade of research. Sex Roles. 2010;63(11-12):767-80. doi:10.1007/s11199-010-9797-z
20. Belza B, Walwick J, Shiu-Thornton S, Schwartz S, Taylor M, LoGerfo J. Older adult perspectives on physical activity and exercise: voices from multiple cultures. Prev Chronic Dis. 2004;1(4):A09.
21. Evans LK. Rural Black women's thoughts about exercise. Appl Nurs Res. 2011;24(4):200-6. doi:10.1016/j.apnr.2009.12.002
22. Hoebeke R. Low-income women's perceived barriers to physical activity: focus group results. Appl Nurs Res. 2008;21(2):60-5. doi:10.1016/j.apnr.2006.02.003
23. Kirchhoff AC, Elliott L, Schlichting JA, Chin MH. Strategies for physical activity maintenance in African American women. Am J Health Behav. 2008;32(5):517-26. doi:10.5993/AJHB.32.5.2

https://doi.org/10.64061/tjhs.v33i1.4