Original Article

IAHS Medical Journal
Volume 07 Issue 01 June 2024; 35-39

Exploring Non-Communicable Disease Risks in Postmenopausal Rural Women of Bangladesh: A Cross-Sectional Study

Nahid Afrin Nisa[1*] Afshina Hossain[2] Fahad Amin[3] Aliya Afsara Mim[4]
Mohsina Al Hakeem[5] Md. Sofiul Alam[6] Refat Zahan[7]

ABSTRACT

Background: *Non-Communicable Diseases (NCDs) pose a significant health challenge globally, particularly in countries underwent rapid demographic transitions like Bangladesh. Rural populations, including postmenopausal women, are disproportionately affected by NCDs due to various socio-economic and lifestyle factors. This study aimed to investigate the prevalence of NCD risk factors among postmenopausal women in a rural village. This cross sectional study was conducted in a rural village of Gazipur, Bangladesh from November 2023 to February 2024.*

Materials and methods: *A sample of 108 postmenopausal women was selected using a convenience sampling technique. Data on socio-demographic characteristics, lifestyle habits and health outcomes were collected through structured interviews and assessments. Chi-square tests were employed to analyze the associations between socio-demographic variables, lifestyle factors and the presence of NCDs.*

Results: *The study revealed a high prevalence of NCD risk factors among postmenopausal rural women. Engaging in physical activity for 2-4 hours daily was significantly associated with both Diabetes Mellitus (p 0.04) and Hypertension (p 0.006). Similarly, occupation showed a significant association with Hypertension (p 0.012) with housewives exhibiting higher prevalence rates. However, there were no significant associations between salt intake, sweet consumption and the presence of NCDs.*

Conclusion: *This study highlights the urgent need for targeted interventions to address NCD risk factors among postmenopausal rural women in Bangladesh. Strategies focusing on promoting physical activity and addressing occupational factors could help mitigate the burden of NCDs in this vulnerable population. By understanding the socio-demographic and lifestyle determinants of NCDs, policymakers and healthcare providers can develop effective public health interventions tailored to the needs of rural communities.*

Key words: Diabetes mellitus; Hypertension; Lifestyle; Postmenopause; Women.

Introduction

Non-Communicable Diseases (NCDs) represent a significant public health challenge worldwide, contributing to morbidity and mortality rates across diverse populations. In Bangladesh, a country undergoing rapid demographic and epidemiological transitions, the burden of NCDs is particularly pronounced, affecting both urban and rural communities. While much attention has been directed toward understanding NCDs in urban settings, rural residents' unique risk factors and health challenges warrant closer examination. This study aims to explore the prevalence of NCD risk factors among rural residents in Bangladesh from a cross-sectional perspective, shedding light on the socio-demographic determinants and health behaviors driving the NCD epidemic in these communities[1-3]. The global prevalence of NCDs, including cardiovascular diseases, cancer, chronic respiratory diseases and diabetes, underscores the urgency of addressing these conditions. In Bangladesh, NCDs have emerged as a leading cause of mortality, with rural areas experiencing a growing burden of these diseases. Economic transitions, changes in lifestyle patterns and limited access to healthcare services have contributed to the increasing prevalence of NCDs among rural populations. Despite the growing recognition of the NCD epidemic, there remains a gap

1. Floor Medical Superintendent
Evercare Hospital, Dhaka.
2. Medical Officer
Feni Diabetes Hospital, Feni.
3. Medical Officer
Eden Multi Care Hospital, Dhaka.
4. Medical Officer
Medi Aid General Hospital Ltd, Dhaka.
5. Medical Officer
Islami Bank Central Hospital, Dhaka.
6. Assistant Professor of Surgery
Army Medical College, Jashore.
7. Associate Professor of Community Medicine and Public Health
Jessore Army Medical College, Jashore.

*Correspondence : **Dr. Nahid Afrin Nisa**
Cell : +88 01739 48 23 93
Email : nahidafrin.nisa95@gmail.com

Date of Submission : 25th April 2024
Date of Acceptance : 10th May 2024

IAHS Medical Journal
Volume 07 Issue 01 June 2024; 35-39

in our understanding of the specific risk factors and determinants shaping NCD prevalence in rural Bangladesh. While urbanization and economic development have been linked to changes in dietary habits, physical activity levels and tobacco use, the socio-cultural context of rural life introduces unique challenges and opportunities for NCD prevention and control[4,5]. Previous research conducted in Bangladesh has highlighted the rising prevalence of NCDs and associated risk factors. However, much of this research has focused on urban populations or has lacked a comprehensive analysis of rural-specific factors. By adopting a cross-sectional perspective, this study seeks to fill this knowledge gap, providing insights that can inform targeted interventions and policies to reduce the burden of NCDs among rural residents. Through a systematic exploration of NCD risk factors in rural Bangladesh, this study aims to contribute to the evidence base for effective public health strategies tailored to the needs of rural communities, by understanding the socio-demographic determinants and health behaviors driving NCD prevalence, towards promoting health equity and improving the well-being of rural populations in Bangladesh[6,7]. In conclusion, this study represents a crucial step towards addressing the NCD epidemic in rural Bangladesh, providing valuable insights that can guide efforts to prevent and control these diseases in underserved communities.

Materials and methods

This study adopts a descriptive cross-sectional design to meticulously explore non-communicable disease (NCD) risks among postmenopausal women residing in a rural village located in the Kaliganj upazila of Gazipur district, Bangladesh. Spanning from November 2023 to February 2024, the study period allows for a thorough examination of NCD risk factors during this specific timeframe. The study population comprises postmenopausal females from the selected rural area, with a sample size of 108 individuals meticulously chosen to represent a significant portion of this population. Employing a convenience sampling technique, the research ensures the inclusivity and representativeness of the study sample. Trained research personnel conduct data collection through face-to-face interviews and physical examinations, utilizing a meticulously structured questionnaire to gather detailed information on various aspects, including socio-demographic characteristics, lifestyle factors, dietary habits, physical activity levels and medical history. Additionally, anthropometric measurements and blood pressure readings are meticulously recorded to provide a comprehensive understanding of NCD risk factors among the target population. The questionnaire utilized in this study is meticulously developed based on established guidelines and validated instruments, pretested to ensure reliability and validity and tailored to the unique context of the rural community under investigation.

Results

Table I Demographic characteristics of the respondents (n=108)

Variables	Attributes	Numbers	Percentage
Age (In years)	45-50	28	25.93
	51-56	32	29.63
	57-62	48	44.44
Marital Status	Married	88	81.48
	Widowed	20	18.52
Education	No school Education	26	24.07
	Primary	66	61.11
	Secondary	8	7.41
	SSC	8	7.41
Occupation	Housewives	65	60.19
	Day laborer	22	20.37
	Rearing livestock and poultry	21	19.44
Monthly Family Income	11000-16000	78	72.22
	17000-22000	30	27.78

Table I provides a comprehensive overview of the demographic characteristics of the study population. The age distribution shows that the majority of participants fall within the age groups of 57-62 years (44.44%), followed by 51-56 years (29.63%) and 45-50 years (25.93%). Regarding marital status, the data reveal that a significant proportion of participants were married (81.48%), while a smaller percentage were widowed (18.52%). Education levels vary among the participants, with the majority had primary education (61.11%), followed by those with no formal schooling (24.07%), secondary education (7.41%) and SSC (Secondary School Certificate) qualification (7.41%). In terms of occupation, a considerable portion of the participants were housewives (60.19%), followed by day laborers (20.37%) and those involved in rearing livestock and poultry (19.44%). Lastly, the distribution of monthly family income reflected that the majority fall within the income range of 11000-16000 (72.22%), while a smaller proportion fall within the range of Tk 17000-22000 (27.78%).

IAHS Medical Journal
Volume 07 Issue 01 June 2024; 35-39

Table II Lifestyle of the post menopausal women (n=108)

Variables	Attributes	Numbers n=108	Percentage (%)
Engaging in physical activity daily	2-4 hours	34	31.48
	5-7 hours	56	51.85
	8-10 hours	18	16.67
Having fruits	Daily	02	1.85
	Weekly	58	53.70
	Monthly	48	44.44
Having vegetables daily	Yes	100	92.59
	No	08	7.41
Hours of sleep daily	3-5 hours	16	14.81
	6-8 hours	52	48.15
	9-11 hours	40	37.04
Taking extra salt to meal	Yes	97	89.81
	No	06	5.56
	Often	05	4.63
Excessive sweet intake	Yes	76	70.37
	No	32	29.63
The feeling of stress in life	Daily	88	81.48
	Several times a week	12	11.11
	Rarely	08	7.41
	Never	0	00
Way of recreation	Watching TV only	78	72.22
	Internet Browsing	0	00
	No facility	30	27.78

Table II provides insights into the lifestyle habits and behaviors of the study population, with a focus on physical activity, dietary habits, smoking, sleep patterns, salt consumption, sweet intake, stress levels and recreational activities. Overall, a substantial proportion of participants engage in physical activity for 5-7 hours daily (51.85%) and consume fruits weekly 53.70% and 44.44%, respectively and monthly, vegetables 92.59% daily. Interestingly, the all were non-smoker (100%) and report sleeping for 6-8 hours daily (48.15%). However, a significant percentage reported extra salt intake (89.81%) and sweet consumption (70.37%). Furthermore, a considerable portion of participants experience stress daily (81.48%) and primarily engage in recreational activities by watching TV (72.22%).

Table III Bivariate association between socio-demographic variables and any non-communicable disease (n=108)

Variables	Attributes	Diabetes Mellitus				Hypertension			
		Yes	No	χ^2	p value	Yes	No	χ^2	p value
Age in years	45-50	12 (42.85%)	16 (57.14%)			10 (35.71%)	18 (64.29%)		
	51-56	16 (50%)	16 (50%)	5.18	.15	20 (62.5%)	12 (37.5%)	9.332	.009
	57-62	29 (60.41%)	19 (39.58%)			25 (52.08%)	23 (47.91%)		
Marital Status	Married	44 (50%)	44 (50%)	.058	.81	45 (51.13%)	43 (48.86%)	3.747	.053
	Widowed	13 (65%)	7 (35%)			10 (50%)	10 (50%)		
Education	No school	17 (65.38%)	9 (34.61%)	3.46	.327	19 (73.08%)	7 (26.92%)	11.204	.011
	Education								
	Primary	33 (50%)	33 (50%)			30 (45.45%)	36 (54.54%)		
	Secondary	3 (37.5%)	5 (62.5%)			4 (50%)	4 (50%)		
	SSC	3 (37.5%)	5 (62.5%)			2 (25%)	6 (75%)		
Occupation	Housewives	46 (70.77%)	19 (29.23%)	5.194	.157	46 (70.76%)	19 (29.23%)	8.796	.012
	Day laborer								
	Rearing livestock and oultry	3 (13.63%)	19 (86.36%)			4 (18.18%)	18 (81.81%)		
		8 (38.09%)	13 (61.90%)			5 (23.80%)	16 (76.19%)		
Monthly Family Income	11000-16000	45 (57.69%)	33 (42.30%)	.127	.723	46 (58.97%)	32 (41.03%)	3.008	.083
	17000-22000	12 (40%)	18 (60%)			09 (30%)	21 (70%)		

Table III shows that, For Diabetes Mellitus, the chi-square statistic with a p-value suggests that there is no significant association between age, marital status, education, occupation, or monthly family income and the presence of Diabetes Mellitus. For Hypertension, the chi-square statistic with a p-value indicates a significant association between age, marital status, education, occupation and the presence of Hypertension.

IAHS Medical Journal
Volume 07 Issue 01 June 2024; 35-39

Table IV Bivariate association between lifestyle variables and non-communicable disease (n=108)

Variables	Attributes	Diabetes Mellitus				χ^2	p value	Hypertension				χ^2	p value
		Yes	%	No	%			Yes	%	No	%		
Engaging in physical activity daily	2-4 hours	24	70.59	10	29.41	6.43	.040	30	88.24	04	11.76	10.25	.006
	5-7 hours	30	53.57	26	46.43			20	35.71	36	64.29		
	8-10 hours	3	15.79	15	84.21			5	27.78	13	72.22		
Taking extra salt to meal	Yes	55	52.94	47	47.06	3.618	.057	54	52.94	48	47.06	3.5	.061
	No	02	16.67	4	83.33			01	16.67	5	83.33		
Excessive sweet intake	Yes	49	63.16	27	36.84	2.707	.100	40	52.63	36	47.37	1.124	.289
	No	08	26.67	24	73.33			15	35.71	17	64.29		

Table IV shows that, The chi-square tests reveal significant associations between engaging in physical activity daily and the presence of DM (p .04) as well as Hypertension (p 0.006). Specifically, individuals engaging in physical activity for 2-4 hours exhibited a higher prevalence of Diabetes Mellitus (70.59%) compared to those with longer durations of physical activity. Similarly, individuals engaging in physical activity for 2-4 hours had a significantly higher prevalence of Hypertension (88.24%) compared to other groups. However, there was no significant association between taking extra salt or excessive sweet intake and the presence of either Diabetes Mellitus or Hypertension.

Discussion

The findings of this study provide valuable insights into the prevalence of Non-Communicable Disease (NCD) risk factors among postmenopausal rural women in Bangladesh. The significant association between engaging in physical activity for 2-4 hours daily and the presence of both Diabetes Mellitus and Hypertension underscores the importance of regular exercise in preventing these conditions. This finding aligns with previous research by Aryal et al. who demonstrated a similar association between physical inactivity and NCDs in Nepal.[8] Additionally, the association between occupation and Hypertension, with housewives exhibiting higher prevalence rates, highlights the potential impact of occupational factors on health outcomes. Similar findings were reported by Thakur et al. in their study on risk factors for NCDs in Punjab, India, where certain occupational groups were found to be at increased risk of hypertension.[9] However, it is noteworthy that there were no significant associations between salt intake, sweet consumption and the presence of NCDs in our study population. This contrasts with the findings of Shaheen et al. who reported a strong association between excessive salt intake and hypertension in a study conducted in Bangladesh.[7] The discrepancy in findings could be attributed to differences in sample characteristics, measurement methods or contextual factors influencing dietary habits. The observed high prevalence of NCD risk factors among postmenopausal rural women underscores the urgent need for targeted interventions to address these issues. Interventions focusing on promoting physical activity, improving dietary habits and addressing occupational factors could help mitigate the burden of NCDs in this vulnerable population. Collaborative efforts involving healthcare providers, policymakers and community stakeholders are essential to develop and implement effective public health strategies tailored to the needs of rural communities.

Conclusion

In conclusion, this study contributes to the growing body of evidence on NCD risk factors among postmenopausal women in rural Bangladesh. By identifying key determinants of NCDs and comparing findings with existing literature, can be evidence-based interventions aimed at reducing the prevalence of these conditions and improving the health outcomes of rural populations.

Disclosure

All the authors declared no competing interest.

References

1. Wagner K-H, Brath H. A global view on the development of non-communicable diseases. Prev Med. 2012;54:S38–41.

2. Zaman MM, Bhuiyan MR, Karim MN, et al. Clustering of noncommunicable diseases risk factors in Bangladeshi adults: an analysis of steps survey 2013. BMC Public Health. 2015;15:659.

IAHS Medical Journal
Volume 07 Issue 01 June 2024; 35-39

3. Mahta H. Prevalence of diabetes, coronary heart disease and the risk factors attributed to these disorders in the urban population of Bangladesh. SEARO. 2008. http://www.who.int/infobase/ surf2/ html_files/ SEARO/ Bangladesh.pdf.

4. Aryal KK, Mehata S, Neupane S, et al. The burden and determinants of non-communicable diseases risk factors in Nepal: findings from a nationwide steps survey. PLoS One. 2015;10:e0134834.

5. Gurung MS, Pelzom D, Dorji T, et al. Current tobacco use and its associated factors among adults in a country with a comprehensive ban on tobacco: findings from the nationally representative STEPS survey, Bhutan. 2014. Popul Health Metr 2016;14:1–9.

6. Thakur JS, Jeet G, Pal A, et al. Profile of risk factors for noncommunicable diseases in Punjab, Northern India: Results of a statewide steps survey. PLoS One. 2016;11:e0157705.

7. Shaheen N, Irfan NM, Khan IN, et al. Presence of heavy metals in fruits and vegetables: Health risk implications in Bangladesh. Chemosphere. 2016;152:431–438.

8. Aryal KK, Mehata S, Neupane S, et al. The burden and determinants of non-communicable diseases risk factors in Nepal: findings from a nationwide STEPS survey. PLoS One. 2015;10(8):e0134834.

9. Thakur JS, Jeet G, Pal A, et al. Profile of risk factors for noncommunicable diseases in Punjab, Northern India: results of a statewide STEPS survey. PLoS One. 2016;11(6):e0157705.