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Behavioural Risk Factors of Non-Communicable Diseases among Rural Population in a Selected Area of Dhaka City

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Abstract

Background: Non-communicable diseases (NCDs) is considered as an emerging public health problem recognized as threats. **Objective:** The purpose of the present study was to determine the behavioural risk factors of non-communicable diseases (NCD) and socio-demographic factors among rural population in Bangladesh. **Methodology:** This descriptive type of cross sectional study was conducted among 186 participants who were selected purposively in Keranigonj Upazila of Dhaka District and lasted for 15 days from 15th May to 30th May 2019. The data was collected by using a semi structured questionnaire employing purposive technique. **Results:** A total number of 186 respondent's were recruited for this study. Regarding physical activity 118(73.75%) of the respondents do physical work 5 to 10 hours per day. Majority of the respondents (48.92%) use table salt whereas 17(9.13%) cases should not. Regarding smoking among male respondents of 41(53.24%) cases were current smokers. Regarding smokeless tobacco 111(59.67%) respondents were current users 64(34.40%) were non-users. Current study showed 14(18.18%) females and 11(10.09%) males were overweight (BMI>25kg/m^2). Knowledge regarding risk factors about NCD study showed that knowledge regarding diabetes, cancer and hypertention respondent gave multiple response. Again 76(40.86%) respondents gave the history excess sweet intake and 69(37.09%) respondents for smoking 17(9.13%) had no idea, 77(41.39%) respondents responed hypertention is due to smoking 42(22.58%) respondents had no knowledge about cancer and 71(38.17%) respondents responsed due to intake of unhealthy diet whereas 58(31.18%) they did not about the risk factor of cancer. **Conclusion:** The increasing burden of noncommunicable diseases (NCDs) in different population groups urges continuous survey to exclude risk factors. In the study area increasing awareness about NCDs through accepted and appropriate strategies need to be implemented. [*Journal of Current and Advance Medical Research, January 2022;9(1):9-15*]

Keywords: Non-communicable disease; body mass index; physical activity; smoking

Introduction

Non-communicable diseases (NCDs), such as cardiovascular diseases, cancers, respiratory diseases, and diabetes, cause 71.0% of all deaths globally, and over 85.0% in low- and middle-income countries[1] also there are some other diseases under NCDs like renal, nervous, mental diseases, arthritis, permanent results of accidents, senility, blindness, and chronic results of communicable diseases[2]. A risk factor is defined as an aspect of personal behavior or lifestyle, an environmental exposure, or a hereditary characteristic that is associated with an increase in the occurrence of a particular disease, injury, or other health condition[3]. Non communicable diseases now a days account for most of the global burden of disease globally and an increasing burden has been in low and middle income countries. Such epidemiologic transition has been linked to urbanization, industrialization and globalization leading to lifestyle changes which promotes to recover Non communicable diseases[4].

Worldwide including the Southeast Asia region (SEAR) is well established that non communicable diseases (NCDs) are the leading cause of adult death and sickness[5]. According to World Health Organization (WHO) identified cardiovascular disease (CVD), Diabetes mellitus, chronic respiratory diseases, and Cancers are four main NCDs as a leading cause of mortality[6]. Regarding risk factors most of the NCDs are attributable to eight modifiable risk factors, and WHO has classified them into behavioral and biological risk factors[7]. These behavioral and biological risk factors are tobacco consumption and intake of alcohol, physical inactivity, overweight and obesity, increased fat and sodium intake, low fruit and vegetable intake, overweight or obesity, sedentary behavior, and multiple health risk behavior responsible for risk of dying from NCD[3].

Regarding health expenditures are allocated there only 10.0% cases. WHO reported that in the world 60.0% of all deaths are now caused by NCDs and every third death is caused by cardiovascular diseases. In South-east Asian region (SEAR) NCDs are known to be increasing at an alarming pace where rapid changes in the economic, social and demographic determinants of health as well as embracing of unhealthy lifestyle in large segment of population are the contributing factors for NCDs[2].

According to World Health Organization (WHO) in 2005 estimated that 61.0% of deaths (35 million) and 49% of the global burden of disease were attributable to NCDs. It stated that already chronic disease deaths are occurring in low and middle income countries (LMICs) almost 80.0%, and if the current trends continue, by the year beyond 2020 these figures are expected to rise to 73.0% and 60.0% respectively, while by 2030 chronic diseases will account for 70.0% of total global deaths and 56.0% of the global disease burden. Before, NCDs were termed diseases of the rich in the developed countries[8].

In Bangladesh rapid urbanization increased risks of NCDs. In 2012the estimated total number of deaths due to NCDs in Bangladesh was over 886,000 which was almost two-third of total deaths.The majority of NCD deaths occurred in urban areas. Although national surveillance and monitoring of NCDs in Bangladesh are yet to be established, a number of studies in the past have been conducted and they provide some level of evidence base in terms of the current situation of NCD burden in Bangladesh at national level and by urban and rural settings Findings emerging from these studies suggest that allcause mortality and NCDs and their risk factors such as hypertension and abdominal obesity are significantly higher in urban than rural areas[9].

In south Asia Bangladesh is a lower middle income country with a population of over 160 million in 2015; while infectious diseases are still prevalent, the burden of NCDs is also increasing, even among the poor[10-18]. Population-based NCD risk factor surveys using a standardised method from the WHO called the STEP wise approach to surveillance (STEPS)[11] had been conducted four times in the past in Bangladesh. The WHO STEPS approach is a simple, standardised and flexible method that any country can implement to monitor NCD risk factors. This method also allows for comparison across countries[19]. The STEPS instrument includes the step 1 like questionnaire-based assessment of behavioural risk factors, such as tobacco consumption, alcohol consumption, diet and physical activity, step 2 like physical assessment of weight, height, waist and hip circumferences and blood pressure and step 3 like biochemical measurements of fasting blood glucose and blood lipids, such as total cholesterol.

It is important to generate the evidence to see how different their lifestyle is from the general population of Bangladesh and the risk factors that might leads to premature NCDs among this vulnerable people. Therefore, current study was conducted to explore all of the behavioural risk factors of NCDs among the semi-urban population

living in Keranigonj in Dhaka city in Bangladesh[12]. The purpose of the present study was to determine the behavioural risk factors of non-communicable diseases (NCD) and socio-demographic factors among rural population in Bangladesh.

Methodology

This was a cross-sectional study which was conducted on rural areas of Keranigonj District and lasted for 15 days from 15th May to 30th May 2019 with the objectives to determine the behavioural risk factors of non-communicable diseases (NCD) and socio-demographic factors among semi-urban population in Bangladesh. Data were collected from 186 participants by the face-to-face interview with the help of a predesigned and pretested questionnaire. The questionnaire comprised of sociodemographic factors like sex, age, education, occupation and monthly family income, behavioural risk factors like tobacco use, a consumption, insufficient fruit and vegetables intake, inadequate physical activity and added salt intake during meal and metabolic risk factors like overweight and obesity, hypertension, hyperglycaemia and cancer in the cervix and breast.

Results

Table 1 showed more than half 101(54.30%) were married and 81(43.54%) were unmarried. 172(92.47%) belongs Muslim family and majority 83(44.62%) of them monthly family income was within 5000Tk-10000Tk and 60(32.25%) showed income within 1000Tk-15000Tk. regarding education only 11(14.28%) males were illiterate whereas almost double 33(30.27%) were female illiterate. Among female 58(53.21%) and 18(16.51%) were completed their primary and secondary education respectively whereas among males 45(58.44%) were completed primary and 21(27.27%) were completed secondary education. Among female respondents 82(75.22%) were house wives and only 14(12.84%) were paid workers, whereas in case of male 52(67.53%) were paid workers.

Table 1: Distribution of Respondents According to Soci-odemographic Characteristics (n=186)

Characteristics	Respondents	
	Frequency	**Percent**
Marital status		
Married	101	54.30
Unmarried	81	43.54
Divorced	03	1.61

Widow	01	0.53
Religion		
Muslim	172	92.47
Hindu	14	7.52
Monthly Family Income(TK)		
<5000 Tk	20	10.75
5000 tk-10000 Tk	83	44.62
10000 tk-15000 Tk	60	32.25
>15000 Tk	23	12.36
Sex wise distribution of respondents		
Level of Education	**Male(77)**	**Female(109)**
Illiterate	11(14.28%)	33(30.27%)
Primary	45(58.44%)	58(53.21%)
Secondary & above	21(27.27%)	18(16.51%)
Occupation		
Students	7(9.09%)	11(10.09%)
House wives	0(0.0%)	82(75.22%)
Paid work	52(67.53%)	14(12.84%)
Unemployement	10(12.98%)	0(0.0%)
Retired	8(10.38%)	2(1.83%)

Figure I showed majority of respondents 46(42.20%) and 38(49.35%) were female and male respectively within age group between 30-40 years whereas 39(35.77%) and 25(32.46%) were female and male within age group more than 40 years.
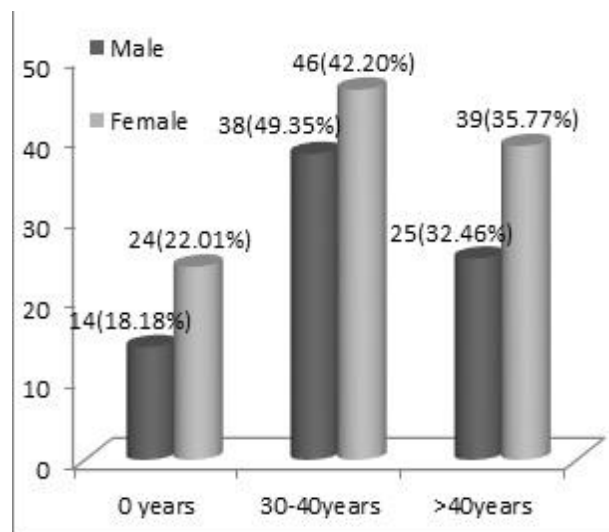

Figure I: Distribution of respondents according to the selected Characteristics (n=186)

Figure II showed majority of respondents 118(73.75%) performed physical activity within 5-10hours whereas only 13(8.12%) did activity >10hours and 25(17.12%) <5 hours.

Figure III showed majority respondents 113(60%) use vehicle by their own foot but rest of them 75(40%) were use public transport.
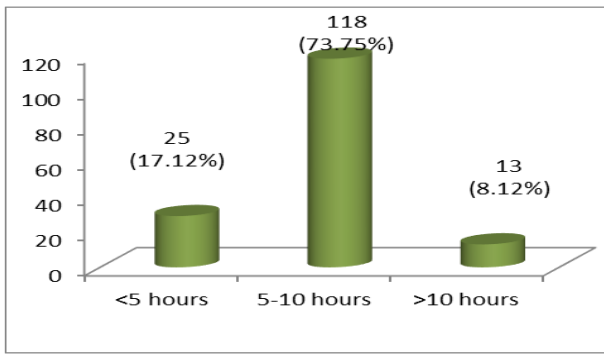
Figure II: Distribution of the Respondents about Hours of Physical Activates (n=156)

Table 2 showed frequent meals 3 times a day were 139(74.73%) and more than 3 times were 33(17.74%). Regarding salt intake majority 91(48.92%) take salt always along with meal whereas only 17(9.13%) avoid. Among respondents more than half 41(53.24%) and 111(59.67%) had habit of smoking tobacco and chewing tobacco respectively**.**
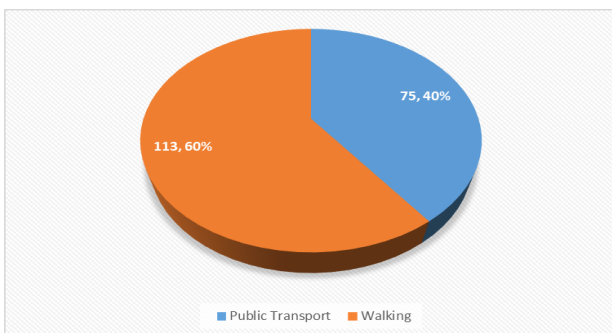

Figure III: Distribution of the respondents according use of transport to go outside (n=186)

Table 2: Distribution of Respondents according to Dietary habits (n=186)

Category	Frequency	Percent
How many times do you eat daily		
2 times	14	7.52
3 times	139	74.73
>3 times	33	17.74
Habit of adding salt at the table (n=186)		
Always	91	48.92
Never	17	9.13
Sometimes	78	41.93
Habit of Tobacco Smooking (n=77)		
Current smoker	41	53.24
Ex-smoker	15	19.48
Non-smoker	21	27.27
Current smoker	41	53.24

Habit of Taking Chewing Tobacco(n=186)

Current user	111	59.67
Ex user	11	5.91
Non user	64	34.40

Figure IV showed majority respondent (38.70%) used stair 2-4times per day whereas 53(28.49%) used more than 4 times and 61(32.79%) need not to be used.
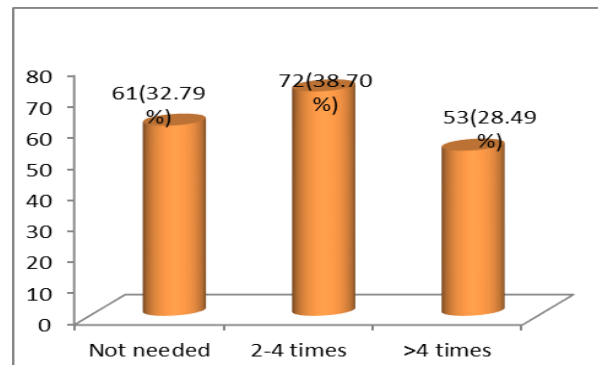

Figure IV: Distribution of the Respondents about Frequency of Using Stair Everyday (n=186)

Table 3 showed regarding knowledge and awareness of risk factors of NCDs presented multiple response that majority 76(40.86%), 77(41.39%) and 71(38.17%) respondents respond Diabetes mellitus due to excess sweet intake, Hypertension due to smoking and cancer due to lack of hygiene condition respectively.

Table 3: Knowledge regarding risk factors leading to common NCDs among the respondents (Multiple responses)

Risk factors	Frequency	Percent
Diabetes Mellitus		
Excess sweet intake	76	40.86
Lack of exercise	51	27.41
Lack of dietary fiber	22	11.82
Smoking	69	37.09
Did not know	17	9.13
Hypertension		
Excess salt intake	37	19.89
Lack of exercise	44	23.65
Smoking	77	41.39
Did not know	42	22.58
Cancer (Cervix & Breast)		
Lack of hygiene	49	26.34
Inherited	13	6.98
Unhealthy diet	71	38.17
Did not know	58	31.18

Discussion

This is cross-sectional study conducted on rural areas of Keranigonj District and lasted for 15 days from 15th May to 30th May 2019 with the objectives to determine the behavioural risk factors of non-communicable diseases (NCD) and socio-demographic factors among rural populaton of Bangladesh. Out of 186 respondent's majority age group within 30 to 40 years. Among them females were 46(42.2%) and males were 38(49.35%). Majority of the respondents were Muslim 172(92.47%) completed primary education whereas illiterate 33(30.27%) and 11(14.28%) respectively female and male. Among the female respondents housewives 82(75.22%) followed by paid workers 14(12.84%) and in case of male it was 52(67.53%). Majority of the respondents 60(32.25%) had monthly family income within10000 Taka to 15000 taka.

According to WHO STEPS, physical activity is defined as any bodily movement produced by skeletal muscles that require energy expenditure[13]. The role of physical activity in the prevention of overweight and obesity is a very important one, and the WHO Global Strategy on Diet, Physical Activity and Health states: Diet and physical activity influence health both together and separately. Present study revealed that 118(73.75%) of the respondents do physical work 5-10 hours and only 75(40.0%) use foot and 113(60.0%) use public transport while go outside which is almost similar from a study by Ahmed et al[12] three-quarter (76.0%) didn't perform adequate level of physical activity.

Extra table salt intake is one of the common modifiable risk factor of NCD. WHO recommendation is less than 5-10 grams salt per day. If it increases more than this, there will be risk for developing cancers and different forms of health diseases. Present study showed majority of the respondents 91(48.92%) habit to take table salt whereas 17(9.13%) not[2]. Similar findingds also showed by Khalequzzaman[10] there were 91(48.92%) respondents had a history of extra salt intake. While salt reduction is known to be a cost effective strategy to prevent cardiovascular diseases, it is difficult to modify the dietary habits of individuals in a short time period. Thus, a long-term community-wide campaign to modify the diets of community residents is necessary, as shown in successful model programmes in Japan. A study in Nepal by Adhikari and Adak[2] found that 26.24% were consuming large amount of salt (more than 15 gram) per day. Comparatively more number of

female respondents (32.96%) was found consuming high amount of salt per day than male (20.97%). only 42% of respondents were found using normal level of salt per day. A study by Ahmed et al[12] showed half (52.5%) were used to take added salt during their meal.

Among the all risk factors of NCDs, tobacco use remains as an important risk factors. It was estimated that about 5 million premature deaths in the world was attributed to smoking and 4 million of these deaths were in men. It has been reported that regular smoking can increase the risk not only of NCDs, but also of many other health hazards. [2]

A study in Bangladesh by Rawal et al[9] reported that the prevalence of current smoker reported at 35.7%, which is substantially higher than the one reported in a conducted nationwide NCD risk factor survey in Bangladesh where 17.0% of Bangladeshi adults are found as daily smokers. Low level of education and lack of knowledge and awareness may be responsible for high proportion smoking. [9] In our study, it was found that among male respondents 77(53.24%) were current smokers whereas 77(19.48%) cases and 77(27.27%) cases were ex-smoker and non smoker respectively. Regarding smokeless tobacco 111(59.67%) respondents were current users 64(34.40%) were non –users. Another study by Adhikari et al[2] reported higher percentage of males (47%) were tobacco user compared to female counterpart (27.6%). The study is similar to the prevalence reported in Nepal (15.8%) and Indonesia (15.7%); furthermore, the prevalence of daily smoking among the general population of Delhi (13.5%) and Bhutan (4.3%) was lower than current study[2]. Regarding smokeless tobacco use it is in 62.2% cases which is almost similar to the present study and higher compared to the Mishing tribes in Assam (48.5%) and other tribal population in India[7]. There was a study by Kumar et al[14] conducted on prevalence of risk factors of NCDs in a district of Gujarat, it was observed that 23.8% were smokers.

Present study showed majority respondents 139(74.73%) habit to take meal 3 times per day meals. A study by Ahmed et al[12] almost all (99.5%) were used to intake insufficient fruit and vegetables. A study by Allen et al[15] have showed six larger and higher quality studies from India predominantly found lower fruit and vegetable intake in groups of lower socioeconomic status.

A study in Bangladesh by Rawal et al[9] reported that obesity and overweight are modifiable risk factors to the NCDs. This study reported the prevalence of

overweight and obesity as 18.7% cases and 3.7% cases respectively. These findings are similar to the one reported in other studies including the Myanmar NCD risk factor study reported overweight of 22.3% and obesity of 5.5% cases, Bangladesh NCD risk factor study 20.5% and 5.2% cases, respectively and the study[9] in Nepal reported the combined prevalence of overweight and obesity up to 21.0% cases. Present study showed BMI >25/kg body weight was 14(18.18%) and 11(10.1%) respectively female and male though less than 18 BMI females 49(44.95%) cases were more in number than male 25(32.5%) which is lower than a study by Kumar et al[14] showed that 25.3% had BMI less than 25 Kg/m^2. Misra conducted on Mishing tribe, showed 26.0% had BMI >25 Kg/m^2. Another study, was conducted[14] in Delhi, showed 27.8% cases were having BMI >25 Kg/m.

Research suggests that knowledge regarding diabetes, cancer and hypertention respondent gave multiple response. Almost one-fourth respondents' response diabetes is responsible for due to Excess sweet intake and smoking. One third respondents responded hypertention is due to smoking and 71(38.17%) respondents responded cancer due to intake of unhealthy diet whereas 58(31.18%) they did not about the risk factor of cancer. There was a study by Khalequzzaman et al[10] knowledge of the risk factors of diabetes and hypertension is poor. The knowledge of the respondents about tobacco and alcohol as risk factors and the level of awareness about early detection of hypertension and diabetes. The majority (younger, 81.7%; older, 72.3%) responded that smoking was harmful, although nearly one half of them did not know the diseases that could be caused by smoking. Nearly one third of respondents were aware of the link between smoking and cancer. Very few knew that smoking could increase the risk of heart attack or stroke[16].

Conclusion

In the present study, risk factors, like smoking, use of smokeless tobacco, and poor consumption of food intake, the lack of physical activity, overweight, obesity are the risk factors which need to be under attention. This high prevalence of risk factors necessitates an urgent need for awareness raising programmes for developing healthy life styles like regular physical activities and habit of healthy diet. Communities play a key role in shaping not only health- seeking behaviours but also the lifestyle decisions that drive chronic illness onset and continuation, and people's interpretations of the responses to pain and suffering. Culture and values play significant roles in decision making: cultural values influence patient preferences, and the status and reputation of providers in communities and trust in informal providers are all factors that influence whom people approach for medical care.

References

1. Pengpid S, Peltzer K. Prevalence and correlates of behavioral non-communicable diseases risk factors among adolescents in the Seychelles: results of a national school survey in 2015. International Journal of Environmental Research and Public Health. 2019;16(15):2651

2. Adhikari K, Adak MR. Behavioural risk factors of non-communicable diseases among adolescents. Journal of Institute of Medicine Nepal. 2012;34(3):39-43

3. Nethan S, Sinha D, Mehrotra R. Non communicable disease risk factors and their trends in India. Asian Pacific journal of cancer prevention 2017;18(7):2005

4. Ige IG, Owoaje ET, Adebiyi OA. Non communicable disease and risky behaviour in an urban university community Nigeria. African health sciences. 2013;13(1):62-7

5. Oli N, Vaidya A, Thapa G. Behavioural risk factors of non-communicable diseases among Nepalese urban poor: a descriptive study from a slum area of Kathmandu. Epidemiology Research International. 2013 Nov 4;2013.

6. Shayo FK. Co-occurrence of risk factors for non-communicable diseases among in-school adolescents in Tanzania: an example of a low-income setting of sub-Saharan Africa for adolescence health policy actions. BMC public health. 2019;19(1):1-8

7. Bhar D, Bhattacherjee S, Das DK. Behavioral and biological risk factors of noncommunicable diseases among tribal adults of rural siliguri in Darjeeling District, West Bengal: A cross-sectional study. Indian Journal of Public Health. 2019;63(2):119-27

8. Akinwale OP, Adeneye AK, Oyefara JO, Adejoh PE, Musa ZA, Oyedeji KS, et al. Behavioral risk factors for Non-Communicable diseases in three most populous Nigerian urban slums. Journal of Public Health in Developing Countries. 2017;3(1):327-38

9. Rawal LB, Biswas T, Khandker NN, Saha SR, Bidat Chowdhury MM, Khan AN, et al. Non-communicable disease (NCD) risk factors and diabetes among adults living in slum areas of Dhaka, Bangladesh. PloS one. 2017;12(10):e0184967

10. Khalequzzaman M, Chiang C, Choudhury SR, Yatsuya H, Al-Mamun MA, Al-Shoaibi AA, et al. Prevalence of non-communicable disease risk factors among poor shantytown residents in Dhaka, Bangladesh: a community-based cross-sectional survey. BMJ open. 2017;7(11):e014710

11. WHO Chronic Diseases and Health Promotion Program. STEPwise approach to surveillance (STEPS). http://www. who. int/ chp/ steps/en/ (accessed 8 Sep 2016)

12. Ahmed S, Ahmed MM, Banik PC, Mondal R, Gupta PK. Association between behavioural, metabolic risk factors of non-communicable diseases and socio-demographic factors among Bihari population in Bangladesh. International Journal of Community Medicine and Public Health. 2019;6(10):4132-38

13. Fottrell E, Ahmed N, Shaha SK, Jennings H, Kuddus A, Morrison J, et al. Distribution of diabetes, hypertension and non-communicable disease risk factors among adults in rural Bangladesh: a cross-sectional survey. BMJ global health. 2018;3(6):e000787

14. Kumar A, Choudhury R, Yadav S. A study of non-communicable diseases risk factors among the tribal population of Lefunga block, Tripura: cross sectional study. International Journal of Community Medicine and Public Health. 2018;5(10):4478

15. Allen L, Williams J, Townsend N, Mikkelsen B, Roberts N, Foster C, et al. Socioeconomic status and non-communicable

disease behavioural risk factors in low-income and lower-middle-income countries: a systematic review. The Lancet Global Health. 2017;5(3):e277-89

16. Mahajan M, Naik N, Jain K, Patira N, Prasad S, Mogri S, et al. Study of knowledge, attitudes, and practices toward risk factors and early detection of non-communicable diseases among rural women in India. Journal of Global Oncology. 2019;5:1-0