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Knowledge And Prevalence Of Non-Communicable Diseases And Risk Factors Among Primary School Teachers In Vadodara

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Abstract:
Introduction: *Non-communicable diseases (NCDs) are a leading cause of death globally, with increasing prevalence in India due to lifestyle and behavioral risk factors. Assessing the prevalence and knowledge of NCDs among primary school teachers in Vadodara is crucial, as teachers play a key role in promoting health awareness in the community.*
Aim: *This study aims to assess the prevalence and knowledge of Non-Communicable Diseases and their risk factors among primary school teachers in Vadodara. Additionally, it seeks to examine the association between knowledge levels and socio-demographic variables.*
Methodology: *The study used a quantitative, descriptive cross-sectional design to assess the prevalence and knowledge of Non-Communicable Diseases (NCDs) among 200 primary school teachers from urban and rural areas in a district of Uttar Pradesh, selected via stratified random sampling. Data were collected through a structured self-administered questionnaire covering socio-demographics, NCD prevalence, and knowledge of risk factors. A pilot study ensured the tool's clarity and reliability. Ethical approval was obtained, and participants gave informed consent with assurances of confidentiality. Data analysis involved descriptive statistics and Chi-square tests using SPSS to explore associations between knowledge and demographic variables.*
Results: *The study included 200 primary school teachers, mostly aged 31–40 years (35.5%) with a balanced gender ratio. Nearly half held an M.Ed., had 5–10 years of experience, worked in government schools, and lived in urban areas. Common NCDs were asthma/COPD (22%), diabetes (21%), and obesity (17.5%). About half had regular health checkups, but only 15.5% monitored blood pressure or sugar regularly. Over half were advised to change lifestyle, and 41% exercised daily. Tobacco and alcohol use were reported by 62% and 54%, respectively, while 68% slept less than 7 hours. Knowledge levels were mostly average (52.5%), with a mean score of 17.38. Only area of residence was significantly associated with knowledge, with urban teachers having better awareness.*
Conclusion*: The study revealed a moderate prevalence of NCDs and average knowledge levels among primary school teachers, with significant knowledge differences only by area of residence. Urban teachers showed better awareness, highlighting the need for targeted health education in rural areas.*
Keywords: *Non-Communicable Diseases, Prevalence, Knowledge, Risk Factors, Primary School Teachers, Health Awareness and Chronic Disease Prevention.*

INTRODUCTION

Non-communicable diseases (NCDs), including cardiovascular diseases, diabetes, chronic respiratory diseases, and cancers, are currently the leading cause of morbidity and mortality globally. According to the World Health Organization (WHO), NCDs account for approximately 74% of all deaths worldwide[1]. In India, the burden of NCDs is rising rapidly due to urbanization, sedentary lifestyles, unhealthy diets, tobacco use, and alcohol consumption[2]. The state of Uttar Pradesh, being one of the most populous regions of India, faces a significant health burden due to these chronic illnesses[3]. Non-Communicable Diseases (NCDs) are a major global health burden, accounting for approximately 40 to 41 million deaths each year, which represents nearly 74% of all global deaths[4]. A significant proportion of these deaths (around 85%) occur in individuals between the ages of 30 and 69, particularly in low- and middle-income countries[5]. In India, more than half of all deaths are attributed to NCDs, despite only a third of the national health expenditure being directed toward their management[6]. The increasing prevalence of NCDs is strongly associated with modifiable behavioral risk factors such as tobacco use, excessive alcohol consumption, physical inactivity, and unhealthy dietary habits, as well as metabolic risks including high blood pressure, obesity, hyperglycemia, and abnormal lipid levels[7]. According to the Global Burden of

Disease study, in 2015, unhealthy diets alone contributed to nearly 12 million deaths, tobacco use to 6.5 million, alcohol and drug use to 1.8 million, and low physical activity to 1.6 million deaths[8]. These risk factors often develop during childhood and adolescence and tend to persist into adulthood, increasing the likelihood of developing conditions like diabetes, cardiovascular diseases, and obesity[9]. Therefore, early and sustained health interventions aimed at promoting healthier behaviors are essential in reducing the burden of NCDs and improving long-term public health outcomes[10].

Although some Indian states have reported higher prevalence rates of Non-Communicable Diseases and associated risk factors due to advanced demographic and epidemiological transitions, other regions also face significant yet understudied Non-Communicable Diseases burdens[11]. Despite being less explored, emerging data suggest that teachers in India, especially those working in rural and semi-urban settings, may exhibit clustering of Non-Communicable Diseases risk factors similar to or lower than the general population[12]. However, research on the health behavior and Non-Communicable Diseases risk awareness among school teachers in low- and middle-income settings remains inadequate[13]. School teachers play an instrumental role in shaping students' attitudes toward health and wellness. As respected figures in the community, their knowledge, behavior, and health status can significantly influence not only their students but also parents and the wider society[14]. Teachers are vital facilitators in implementing school-based health education and health promotion programs, which aim to instill healthy habits from an early age. Their participation in such initiatives enhances the credibility and effectiveness of these programs[15].

The aim of this study is to assess the prevalence of Non-Communicable Diseases (NCDs) among primary school teachers in Vadodara and to evaluate their knowledge regarding NCDs and associated risk factors. Additionally, the study seeks to examine the relationship between the teachers' knowledge levels about NCDs and various socio-demographic factors. This comprehensive assessment aims to identify gaps in awareness and inform targeted interventions to improve health education and prevention strategies within the teaching community.

METHODOLOGY

The study adopted a quantitative research approach to collect and analyze numerical data regarding the prevalence and knowledge of Non-Communicable Diseases (NCDs) among primary school teachers. A descriptive cross-sectional survey design was employed to assess the prevalence of NCD risk factors and the level of knowledge among participants at a single point in time. The study was conducted in selected primary schools across various blocks of a district in Vadodara, encompassing both urban and rural areas. The target population included all primary school teachers working in government and private schools within the selected district. A total of 200 teachers were selected based on feasibility and statistical requirements, using a stratified random sampling technique to ensure representation from urban and rural areas as well as from government and private schools.

Data were collected using a structured, self-administered questionnaire divided into three sections: socio-demographic data, prevalence of Non-Communicable Diseases, and knowledge-based questions related to common NCDs and their risk factors. A pilot study was conducted on 10% of the sample (20 teachers) in a non-sampled school to evaluate the feasibility, clarity, and reliability of the tool, after which necessary modifications were made. Administrative permission was obtained from the concerned authorities before data collection commenced. Selected participants were informed about the study's purpose and objectives, and informed consent was obtained to ensure voluntary participation. The questionnaire was distributed and collected within a stipulated timeframe, while maintaining strict confidentiality and anonymity to respect participants' privacy and rights.

For data analysis, descriptive statistics including frequency, percentage, mean, and standard deviation were used to summarize demographic data, prevalence, and knowledge scores. Inferential statistics such as the Chi-square test were applied to determine associations between knowledge scores and selected demographic variables. Data analysis was conducted using SPSS software.

Ethical approval for the study was obtained from the Institutional Ethics Committee of the Parul Institute of Nursing. Participants were fully informed about the study's purpose and were assured of confidentiality and anonymity. Their voluntary participation was emphasized, ensuring adherence to ethical principles including autonomy, beneficence, non-maleficence, and justice.

RESULTS:

Distribution of Socio-Demographic Variables of the Primary School Teachers

Table 1: Frequency and Percentage Distribution of Socio-Demographic Variables of the Primary School Teachers

n= 200

Socio–Demographic Variable	Category	Frequency (F)	Percentage (%)
Age	20 – 30 Years	37	18.50%
	31 – 40 Years	71	35.50%
	41 – 50 Years	59	29.50%
	Above 51 Years	33	16.50%
Gender	Male	103	51.50%
	Female	97	48.50%
Educational Qualification	B.Ed.	51	25.50%
	M.Ed.	99	49.50%
	Other	50	25.00%
Teaching Experience	< 5 Years	37	18.50%
	5 – 10 Years	71	35.50%
	11 – 15 Years	39	19.50%
	16 – 20 Years	26	13.00%
	Above 20 Years	27	13.50%
Type of School	Government	111	55.50%
	Private	89	44.50%
Area of Residence	Urban	103	51.50%
	Rural	97	48.50%
Monthly Income (INR)	< 10,000	33	16.50%
	10,000–20,000	71	35.50%
	20,001–30,000	38	19.00%
	> 30,000	58	29.00%

Table 1 presents the socio-demographic profile of 200 primary school teachers. Most participants (35.5%) were aged 31–40 years, followed by 29.5% aged 41–50 years. The sample included 51.5% males and 48.5% females. Nearly half (49.5%) had an M.Ed. qualification, while 25.5% had B.Ed., and 25% had other degrees. Teaching experience varied, with the majority (35.5%) having 5–10 years of service. Most teachers (55.5%) worked in government schools, and 51.5% resided in urban areas. In terms of income, 35.5% earned ₹10,000–₹20,000 monthly, followed by 29% earning over ₹30,000. This demographic distribution provides a diverse base for analyzing knowledge and prevalence of Non-Communicable Diseases.

Prevalence of Non-Communicable Diseases among Primary School Teachers

Table 2: Frequency and Percentage Distribution of Non-Communicable Diseases among Primary School Teachers

n= 200

Prevalence of Non-Communicable Diseases		**Frequency (F)**	**Percentage (%)**
Diagnosed with Any of the Following Conditions	a. Hypertension	15	7.50%
	b. Diabetes Mellitus	42	21.00%
	c. Obesity	35	17.50%
	d. Cardiovascular disease	24	12.00%
	e. Asthma or COPD	44	22.00%
	f. Cancer	14	7.00%
	g. Thyroid disorder	10	5.00%
	h. Chronic kidney disease	16	8.00%
Frequency of Health Checkup	a. Once a year	30	15.00%
	b. Every 6 months	97	48.50%
	c. Only when symptoms appear	56	28.00%
	d. Never	17	8.50%
Family History of Diseases (Multiple responses allowed)	a. Hypertension	19	9.50%
	b. Diabetes	50	25.00%
	c. Heart disease	24	12.00%
	d. Stroke	14	7.00%
	e. Cancer	12	6.00%
	f. None	81	40.50%
Self-Monitoring BP/Sugar	a. Regularly	31	15.50%
	b. Occasionally	74	37.00%
	c. Never	95	47.50%
Advised by Doctor to Change Lifestyle	Yes	103	51.50%
	No	97	48.50%

Regular Physical Activity	a. Daily	82	41.00%
	b. 3–5 times a week	68	34.00%
	c. Rarely	29	14.50%
	d. Never	21	10.50%
Tobacco/Smoking Use	a. Yes, regularly	57	28.50%
	b. Yes, occasionally	67	33.50%
	c. No	76	38.00%
Alcohol Consumption	a. Yes, regularly	43	21.50%
	b. Yes, occasionally	65	32.50%
	c. No	92	46.00%
Average Sleep Duration	a. Less than 5 hours	64	32.00%
	b. 5–6 hours	72	36.00%
	c. 7–8 hours	40	20.00%
	d. More than 8 hours	24	12.00%

Table 2 presents the distribution of Non-Communicable Diseases (NCDs), health behaviors, and knowledge levels among 200 primary school teachers. Asthma or COPD (22%), diabetes (21%), and obesity (17.5%) were the most commonly reported conditions. Nearly half of the participants (48.5%) underwent health checkups every 6 months, while 28% only did so when symptoms appeared. Family history of diabetes (25%) and hypertension (9.5%) was notable, though 40.5% reported no such history. Only 15.5% monitored their BP or sugar regularly, while 47.5% never did. About half (51.5%) had been advised by doctors to change their lifestyle. While 41% exercised daily, 25% engaged rarely or never. Tobacco and alcohol use were reported by 62% and 54% respectively. Sleep patterns were suboptimal, with 68% sleeping less than 7 hours a day. These findings indicate a moderate prevalence of NCDs and highlight the need for improved health awareness and lifestyle modification among school teachers.

Section III: Findings related to the Knowledge regarding Non-Communicable Diseases and their Risk Factors among Primary School Teachers

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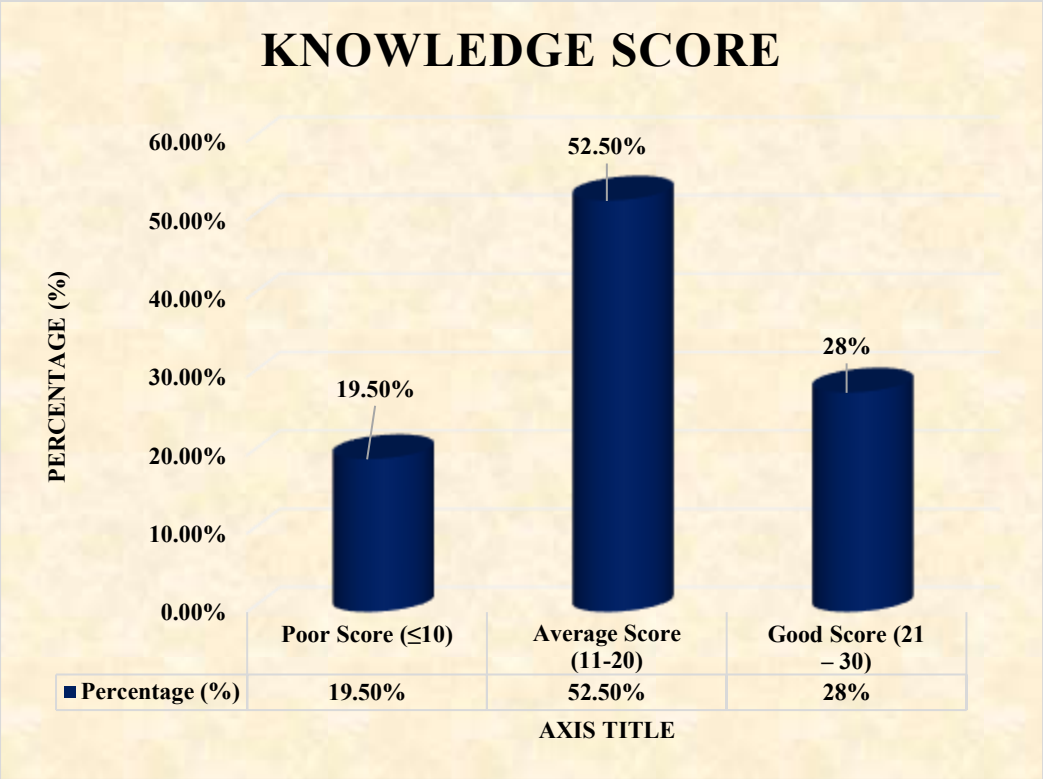

Figure 1: Percentage Distribution of the Knowledge regarding Non-Communicable Diseases and their Risk Factors among Primary School Teachers

Figure 1 shows that the majority of primary school teachers (52.5%) had an average knowledge of Non-Communicable Diseases (NCDs) and their risk factors. 28.0% demonstrated good knowledge, while 19.5% had poor knowledge. These findings indicate a moderate level of awareness among teachers, with a need for further educational interventions to improve understanding of NCDs.

Table 4: Descriptive statistics of the Knowledge regarding Non-Communicable Diseases and their Risk Factors among Primary School Teachers

n= 200

Score	Mean Score	Standard Deviation
Knowledge Score	17.38	5.28

Table 4 shows that the mean knowledge score of primary school teachers regarding Non-Communicable Diseases and their risk factors was 17.38 with a standard deviation of 5.28, indicating a moderate level of knowledge with some variation among participants.

Association between Knowledge Level regarding Non-Communicable Diseases and their Risk Factors with the Selected Socio-Demographic Variables of Primary School Teachers

Table 5: Chi- Square Association between Knowledge Level regarding Non-Communicable Diseases and their Risk Factors with the Selected Socio-Demographic Variables of Primary School Teachers

n= 200

Socio–Demographic Variable		F	Knowledge Score			df	Chi-square	p-value
			Poor	Average	Good			
Age	20 – 30 Years	37	10	19	8	6	3.985	0.679
	31 – 40 Years	71	13	41	17			
	41 – 50 Years	59	10	29	20			

	Above 51 Years	33	6	16	11			
Gender	Male	103	16	57	30	2	2.135	0.344
	Female	97	23	48	26			
Educational Qualification	B.Ed.	51	13	27	11	4	4.483	0.345
	M.Ed.	99	14	53	32			
	Other	50	12	25	13			
Teaching Experience	< 5 Years	37	4	22	11	8	11.2	0.191
	5 – 10 Years	71	9	39	23			
	11 – 15 Years	39	12	18	9			
	16 – 20 Years	26	8	10	8			
	Above 20 Years	27	6	16	5			
Type of School	Government	111	26	53	32	2	3.103	0.212
	Private	89	13	52	24			
Area of Residence	Urban	103	26	52	25	2	4.81	0.049*
	Rural	97	13	53	31			
Monthly Income (INR)	< 10,000	33	6	17	10	6	8.893	0.18
	10,000–20,000	71	20	36	15			
	20,001–30,000	38	6	17	15			
	> 30,000	58	7	35	16			

Table 5 shows that knowledge about Non-Communicable Diseases among teachers was significantly associated only with their area of residence (p=0.049). Other socio-demographic factors like age, gender, education, experience, school type, and income showed no significant association with knowledge levels.

CONCLUSION:

The study revealed a moderate prevalence of Non-Communicable Diseases (NCDs) among primary school teachers in the Uttar Pradesh district, with asthma, diabetes, and obesity being the most common conditions. While nearly half of the participants regularly underwent health checkups and over half were advised to modify their lifestyle, unhealthy behaviors such as tobacco use, alcohol consumption, and inadequate sleep were still prevalent. The majority of teachers demonstrated an average level of knowledge regarding NCDs and their risk factors, though a significant portion had poor awareness, indicating the need for targeted educational interventions. Importantly, the knowledge level was significantly associated

only with the area of residence, suggesting that urban or rural settings influence awareness about NCDs. Other socio-demographic factors such as age, gender, education, teaching experience, type of school, and income showed no significant relationship with knowledge levels. These findings highlight the importance of developing location-specific health education programs to enhance NCD awareness and promote healthier lifestyles among primary school teachers, who can further influence community health behaviors.

Discussion:

The present study assessed the prevalence and knowledge of Non-Communicable Diseases (NCDs) and their risk factors among 200 primary school teachers in a district of Uttar Pradesh. The findings revealed that asthma/COPD (22%), diabetes (21%), and obesity (17.5%) were the most commonly reported NCDs among participants. This is comparable to studies conducted among teachers and similar professional groups in other regions. For instance, Zungu et al. (2019) reported a high prevalence of NCDs such as hypertension and diabetes among educators in South Africa[5]. Similarly, Alemi et al. (2021) highlighted significant gender-specific prevalence of NCD risk factors among schoolteachers in Afghanistan[13.]

The mean knowledge score regarding NCDs in this study was 17.38 ± 5.28, indicating an average awareness level. More than half (52.5%) had average knowledge, while 19.5% had poor knowledge. These findings align with Wijayathunge and Hettiaratchi (unpublished) who observed similar moderate knowledge levels about hypertension risk among Sri Lankan schoolteachers [12]. Likewise, Selvam et al. (2017) demonstrated that schoolteachers in Southern India had only modest baseline awareness about diabetes and other NCDs, but this improved significantly with health education interventions [8].

The study found that only the area of residence showed a significant association with knowledge level ($p = 0.049$), with urban teachers demonstrating better awareness. This is consistent with previous research suggesting that urban residents generally have better access to health information and services than their rural counterparts [10]. Chaudhari et al. (2016) also highlighted similar urban-rural disparities in knowledge levels among adolescents [6].

Behavioral risk factors such as tobacco use (62%), alcohol consumption (54%), and insufficient sleep (68% slept <7 hours) were alarmingly high in the present study. These findings echo those of Biswas et al. (2022), who found multiple risk factor clustering among adolescents globally, underlining the need for early preventive strategies[9]. The high prevalence of unhealthy behaviors among teachers underscores an urgent need for targeted workplace health promotion programs. Studies by Ade et al. (2014) and Kedar and Gupta (2019) support this, emphasizing the impact of school-based interventions and policy-level changes to address modifiable risk factors among educators and students alike [7,15].

Overall, the present findings stress the importance of continuous professional health education for teachers, who can act as role models and transmit healthy behaviors to students and communities. Designing location-specific awareness campaigns and regular screening programs for teachers, especially in rural areas, could bridge the knowledge gap and encourage healthy lifestyle modifications.

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Conflict of Interest: The authors declare that there are no actual or potential conflicts of interest related to this research study.

Ethical Consideration: Ethical approval for the study was obtained from the Parul Institute Ethics Committee (PIEC), Vadodara, Gujarat. All participants were informed about the purpose and nature of the study, and written informed consent was secured from each participant prior to data collection.

REFERENCES

1. Saluja K, Rawal T, Bassi S, Bhaumik S, Singh A, Park MH, et al. School environment assessment tools to address behavioural risk factors of non-communicable diseases: A scoping review. *Prev Med Rep*. 2018;10:1–8.
2. Singh A, Bassi S, Nazar GP, Saluja K, Park M, Kinra S, et al. Impact of school policies on non-communicable disease risk factors–a systematic review. *BMC Public Health*. 2017;17:1–19.
3. Gamage AU, Jayawardana PL. Knowledge of non-communicable diseases and practices related to healthy lifestyles among adolescents in state schools of a selected educational division in Sri Lanka. *BMC Public Health*. 2018;18:1–9.

4. Shivalli S, Gupta MK, Mohaptra A, Srivastava RK. Awareness of non-communicable diseases and their risk factors among rural school children. *Indian J Community Health*. 2012;24(4):332–5.
5. Zungu NP, Mabaso ML, Kumalo F, Sigida S, Mlangeni L, Wabiri N, et al. Prevalence of non-communicable diseases (NCDs) and associated factors among HIV positive educators: Findings from the 2015/6 survey of health of educators in public schools in South Africa. *PLoS One*. 2019;14(2):e0209756.
6. Chaudhari AI, Rami K, Thakor N. Assessment of knowledge regarding noncommunicable diseases and their risk factors among students of higher secondary school: An interventional study. *Int J Med Sci Public Health*. 2016;5(1):115–8.
7. Ade A, Chethana KV, Mane A, Hiremath SG. Non-communicable diseases: Awareness of risk factors and lifestyle among rural adolescents. *Int J Biol Med Res*. 2014;5(1):3769–71.
8. Selvam S, Murugesan N, Snehalatha C, Nanditha A, Raghavan A, Simon M, et al. Health education on diabetes and other non-communicable diseases imparted to teachers shows a cascading effect: A study from Southern India. *Diabetes Res Clin Pract*. 2017;125:20–8.
9. Biswas T, Townsend N, Huda MM, Maravilla J, Begum T, Pervin S, et al. Prevalence of multiple non-communicable disease risk factors among adolescents in 140 countries: A population-based study. *EClinicalMedicine*. 2022;52:101578.
10. Sarma PS, Sadanandan R, Thulaseedharan JV, Soman B, Srinivasan K, Varma RP, et al. Prevalence of risk factors of non-communicable diseases in Kerala, India: Results of a cross-sectional study. *BMJ Open*. 2019;9(11):e027880.
11. Alzeidan R, Rabiee F, Mandil A, Hersi A, Fayed A. Non-communicable disease risk factors among employees and their families of a Saudi university: An epidemiological study. *PLoS One*. 2016;11(11):e0165036.
12. Wijayathunge LADNL, Hettiaratchi UPK. Assessment of knowledge and risk factors of hypertension among school teachers in a selected district in North Central Province of Sri Lanka.
13. Alemi S, Nakamura K, Arab AS, Mashal MO, Tashiro Y, Seino K, et al. Gender-specific prevalence of risk factors for non-communicable diseases by health service use among schoolteachers in Afghanistan. *Int J Environ Res Public Health*. 2021;18(11):5729.
14. Faruque M, Barua L, Banik PC, Sultana S, Biswas A, Alim A, et al. Prevalence of non-communicable disease risk factors among nurses and para-health professionals working at primary healthcare level of Bangladesh: A cross-sectional study. *BMJ Open*. 2021;11(3):e043298.
15. Kedar A, Gupta S. School-related factors affecting non-communicable diseases risk factors among 13–15 years old adolescents from two schools in Delhi. *Int J Community Med Public Health*. 2019;6(7):3087–91.