

Original Research Article

Healthy lifestyle practices among government primary school teachers in selected districts of Pakistan

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ABSTRACT

Background: Deaths due to unhealthy behaviors account for more than one-third of total deaths worldwide. In Pakistan, poor awareness and sanitation are major contributors to the diseases, but a balanced diet, hygiene, and exercise can reduce these risks. The present study aimed to determine the current status of healthy life practices among the teachers of the selected primary school.

Methods: A descriptive cross-sectional study was conducted from February to April 2019 in 600 selected government primary schools of three districts of Sindh: Thatta, Hyderabad, and Mirpur Khas. Two teachers of each school were selected through convenience sampling for the purpose of interviewing through a structured questionnaire.

Results: The results revealed a generally moderate level of healthy lifestyle practices among primary school teachers. The majority of the teachers demonstrated good healthy hygiene practices. Statistically, 85% of the teachers practiced washing their hands before meals, and 69% practiced water purification through alum. A majority of the teachers, 82%, claimed to be early risers. Only 14% of the teachers practiced physical exercise.

Conclusions: Although basic hygiene needs were adequately met, the level of physical inactivity among teachers suggests the need for health education programs for teachers.

Keywords: Cross-sectional study, Healthy lifestyle practices, Low-and middle-income countries, Personal hygiene, Physical activity, Primary school teachers

INTRODUCTION

Health is a fundamental component of human well-being and an essential prerequisite for productive living. The World Health Organization defines health as a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity.

Adopting a healthy lifestyle can significantly improve quality-adjusted life years and drastically lower the risk of NCDs.^{1,2,4} A healthy lifestyle is generally described as

one that combines balanced nutrition, regular exercise adequate rest, and the avoidance of harmful habits such as smoking.⁴ Conversely, physical inactivity, unhealthy diets, and tobacco use contribute substantially to global mortality, with tobacco alone killing more than eight million people annually through its direct use and exposure to second-hand smoke.^{3,15} Healthy lifestyle practices such as balanced nutrition, regular physical activity, adequate sleep, maintenance of normal body weight, and avoidance of tobacco play a fundamental role in promoting overall well-being and preventing disease.¹¹

Physical activity may also support slower brain aging and cognitive health, while adequate and good-quality sleep has been associated with better regulation of blood pressure and reduced reliance on antihypertensive medication.^{13,19} Cardiovascular health, in particular, appears to be most strongly influenced by the cumulative adoption of multiple healthy behaviors rather than any single factor in isolation: a 20-year longitudinal study found that 60% of young adults who avoided smoking, limited alcohol, controlled their weight, stayed physically active, and ate a healthy diet went on to maintain a low cardiovascular risk profile in middle age, compared with only 6% of those who followed one or none of these behaviors, with a related study attributing the majority of cardiovascular health to lifestyle rather than heredity.⁹

Globally, the burden of non-communicable diseases (NCDs) has risen markedly, particularly in low and middle-income countries (LMICs).¹² NCDs, including diabetes, cancer, chronic respiratory conditions, and cardiovascular diseases, account for about 70% of all deaths worldwide, according to WHO reports.¹² In order to reduce this increasing burden, prevention strategies place an emphasis on lifestyle changes in addition to medical management. Rapid urbanization, industrialization, and changing work patterns have altered daily routines, often promoting sedentary behavior and unhealthy dietary habits.¹²

The prevalence of metabolic risk factors like obesity, high blood pressure, and elevated blood glucose has increased as a result of these changes. Conversely, research indicates that maintaining a normal body mass index, avoiding tobacco use, adequate sleep (roughly seven hours per night), eating a balanced diet like the Mediterranean diet, and engaging in regular physical activity for at least 150 minutes per week significantly lower health risks.^{14,16-18,20} Scoping reviews emphasize that structured programs, including those delivered through information and communication technologies, can effectively encourage healthy lifestyle behaviors.⁶

Schools provide a crucial platform to foster the lifelong healthy practices, with teachers acting as primary role models in developing and reinforcing positive healthy practices among children, underscoring the importance of teachers as consistent and credible sources of this information.⁵ Current evidence suggests that formal preparation in school health remains limited. Yet studies among students in higher education institutions suggest that adherence to healthy lifestyle practices is often only moderate: a study of Kuwaiti university students found that only half ate a healthy diet, fewer than half slept seven to nine hours a night, and just over a third exercised regularly.²² A similar knowledge-practice gap has also been reported elsewhere among students in higher education.⁷ Among adolescents specifically, healthy lifestyle activities and eating perceptions have similarly been found to correlate with both body mass index and the consumption of low-fat and low-sugar foods.²³

Notably, a comparison of medical and non-medical university students in Karachi found that although medical students scored significantly higher on nutritional knowledge, their diet and lifestyle practice scores did not differ significantly from those of non-medical students, with both groups citing lack of time as the leading barrier to healthy eating and regular exercise.²⁴ Broader community-level research reinforces this concern: a survey of South Asian communities in the UK found that over a third of respondents could not explain what heart disease meant and roughly one in five could not name a preventive measure for either heart disease or diabetes, with knowledge gaps particularly pronounced among women and people of Bangladeshi origin.²⁵ An April 2018 Knowledge, Attitude and Practices (KAP) survey of 520 rural and 185 urban secondary-school teachers found that only 10.38% of rural and 7.57% of urban teachers had received formal school-health training, despite uniformly high positive attitudes toward health (approximately 90%). Practice scores were relatively better among rural teachers (86.67%) compared to their urban counterparts (76.67%). These findings indicate a gap between favorable attitudes and structured training, highlighting the need to assess actual lifestyle practices of teachers in Sindh province.³⁰ This study assessed healthy lifestyle practices among government primary school teachers in Thatta, Hyderabad, and MirpurKhas, Sindh, where evidence is limited, to inform future interventions promoting healthy behaviors among the younger generation.

METHODS

Study design and setting

A descriptive cross-sectional study was conducting using a convenience sampling technique. The research included the primary government schools from Thatta, Hyderabad and MirpurKhas, districts of Sindh.

Study population

The study included consenting government school teachers from the selected schools in the districts of Sindh, Thatta, Hyderabad and Mirpurkhas, representing diverse urban, rural, and semi-urban settings to compare lifestyle pattern across different social and ecological contexts.

Study duration

The study was carried out over a period of three months; from February 2019 to April 2019.

Sample size and calculation

A sample size of 384 was calculated using a 95% confidence level, Z value of 1.96, 50% assumed proportion, and 5% margin of error.^{31,32} To account for potential non-response, withdrawal, or drop-off, the

sample was increased to 600 teachers, with approximately two teachers selected from each participating school.

Study tool

A pretested self-administered questionnaire assessed teachers' healthy lifestyle practices. One hundred schools per district were conveniently selected, with two teachers randomly recruited.

Data collection

A structured questionnaire was developed based on the literature and prevalence of lifestyle practices. A total of 600 government primary school teachers were interviewed at selected schools after obtaining informed consent. Each interview took approximately 20 minutes. The questionnaire was pilot-tested among 10 teachers, who were excluded from the final study, and subsequently modified for clarity. Standardized data collection procedures and pretesting were used to ensure reliability, validity, and minimize potential bias.

Statistical analysis

Data was analyzed using SPSS version 20.0. Descriptive statistics were applied to summarize the data, including calculation of frequency distributions, means, medians, and standard deviations. Responses were presented using descriptive analysis to depict the pattern of healthy lifestyle practices among the study participants.

RESULTS

Socioeconomic demography

The study included a total of 600 government primary school teachers from the districts of Thatta, Hyderabad, and Mirpur Khas. The gender distribution was balanced, with 50% male and 50% female respondents. In terms of marital status, 82% of the population were married, while 10.3% were unmarried and 2.6% were separated. Regarding educational attainment, 46.3% of the participants held a Master's degree, 47.0% were graduates, and 6.6% had completed Intermediate-level education (Table 1).

Table 1: Socio-economic demographics.

Variables	Categories	Thatta, N (%)	Hyderabad, N (%)	Mirpurkhas, N (%)	Number (%)
Gender	Male	158 (79)	82 (41)	120 (60)	360 (60)
	Female	42 (21)	118 (59)	80 (40)	240 (40)
Marital status	Married	126 (63)	196 (98)	200 (100)	522 (87)
	Unmarried	58 (29)	4 (2)	0 (0)	62 (10.3)
	Separated	16 (8)	0 (0)	0 (0)	16 (2.6)
Education	Intermediate	16 (8)	4 (2)	20 (10)	40 (6.6)
	Bachelors	116 (58)	86 (43)	80 (40)	282 (47)
	Masters	68 (34)	110 (55)	100 (50)	278 (46.3)

Communicable diseases practices

The practices among teachers to prevent communicable diseases, demonstrate positive hygiene behaviors among participants.

In terms of hand hygiene, as before eating, the majority of the teachers report good compliance. About 79.8% of the teachers reported to always wash their hands, 17.5% reported that they almost always washed their hands and only 2.6% reported that they seldom observed the practice handwashing before meals. Similarly, handwashing after eating was also widely practiced, with 83.3% of teachers reported that they always washed their hands after eating, 9% reported almost always, and 7.6% reported seldom doing so (Table 2).

The practice of hand hygiene after defecation had the highest percentage of adherence among the participants. The majority, 95%, washed their hands with soap and water after defecation, which is the appropriate practice for hand hygiene. However, 6% washed their hands with

soil and water and 4% with water alone, implying that some of the teachers do not adhere to the appropriate handwashing standards (Table 2).

Regarding dietary practices, most teachers avoided vendor food: 3.3% always, 13% occasionally, 46.3% rarely, and 36.8% never consumed it. Regarding environmental sanitation, 40% always maintained household cleanliness, 57% did so sometimes, 2% rarely, and 1% never, indicating generally satisfactory household cleanliness practices among participating teachers.

Similarly, about cleanliness outside the home, 22.6% of teachers reported always maintaining cleanliness in their surroundings, while a substantial proportion of 51.6% reported doing so sometimes. Meanwhile, 22.6% rarely practiced maintaining cleanliness outside their homes, and 3% reported never engaging in such practices.

Regarding the garbage storage practices, the majority of the participants, 62.1%, reported storage in a trash

container, while 21.6%, reported of storing the garbage outside the home.

Additionally, 7.16% stored garbage inside the home, 5.6% kept it besides the door, and 3.3% reported other storage practices. For the garbage disposal practices, 47.3% of the participants reported disposing it at a designated place, while 41% reported, garbage was disposed of by a sweeper. A smaller proportion, 11.6% reported throwing garbage in the street (Table 2).

Table 2 summarizes the main sources for the drinking water, mineral water used by the majority, reported by

74% of the participants, followed by hand pumps at 11% and tap water by 10%. River water was used by 3% of the participants, while 2% reported using other available sources. No participants reported using well water as a source of drinking water (Table 2).

Overall, the results indicate that the teachers generally exhibited appropriate personal hygiene practices, especially in terms of handwashing. The teachers' environmental sanitation and waste management practices exhibited variability (Table 2).

Table 2: Practices among teachers to prevent communicable diseases.

Practices	Category	Thitta, N (%)	Hyderabad, N (%)	Mirpurkhas, N (%)	Total, N (%)
Personal hygiene					
Wash hands before eating	Always	117 (58.5)	182 (91)	180 (90)	479 (79.8)
	Almost	67 (33.5)	18 (9)	20 (10)	105 (17.5)
	Seldom	16 (8)	0 (0)	0 (0)	16 (2.6)
Wash hands after eating	Always	158 (79)	182 (91)	160 (80)	500 (83.3)
	Almost	16 (8)	18 (9)	20 (10)	54 (9)
	Seldom	26 (13)	0 (0)	20 (10)	46 (7.6)
Handwash after defecation	Soap and water	158 (79)	198 (99)	200 (100)	570 (95)
	Soil and water	0 (0)	2 (1)	0 (0)	6 (1)
	Only water	42 (21)	0 (0)	0 (0)	24 (4)
Dietary habit					
Eating from vendors	Always	16 (8)	4 (2)	0 (0)	20 (3.3)
	Almost (1-2 times a month)	16 (8)	22 (11)	40 (20)	70 (13)
	Seldom (1-2 times a year)	101 (50.5)	20 (10)	160 (80)	281 (46.3)
	Never	67 (33.5)	154 (77)	0 (0)	221 (36.8)
Sanitation					
Home cleaning	Always	116 (58)	56 (28)	200 (100)	240 (40)
	Almost (miss 1-2 times a month)	58 (29)	142 (71)	0 (0)	342 (57)
	Seldom (doing 1-2 times a month)	26 (13)	0 (0)	0 (0)	12 (2)
	Never	0 (0)	2 (1)	0 (0)	6 (1)
Cleanliness outside home	Always	92 (46)	4 (2)	40 (20)	136 (22.6)
	Almost (miss 1-2 times a month)	50 (25)	180 (90)	80 (40)	310 (51.6)
	Seldom	42 (21)	14 (7)	80 (40)	136 (22.6)
	Never	16 (8)	2 (1)	0 (0)	18 (3)
Garbage storage	In home	41 (20.5)	2 (1)	0 (0)	43 (7.16)
	In trash	75 (37.5)	198 (99)	100 (50)	373 (62.1)
	Outside home	50 (25)	0 (0)	80 (40)	130 (21.6)
	Side of the door	34 (17)	0 (0)	0 (0)	34 (5.6)
	Others	0 (0)	0 (0)	20 (10)	20 (3.3)
Garbage disposal	Thrown street	66 (33)	4 (2)	0 (0)	70 (11.6)
	Specific place	84 (42)	20 (10)	180 (90)	284 (47.3)
	To sweeper	50 (25)	176 (88)	20 (10)	246 (41)
Source of drinking water	River	16 (8)	5 (2.5)	0 (0)	18 (3)
	Hand pump	89 (44.5)	0 (0)	60 (30)	66 (11)
	Tap water	63 (31.5)	2 (1)	80 (40)	60 (10)
	Well	0 (0)	0 (0)	0 (0)	0 (0)
	Mineral water	32 (16)	188 (94)	60 (30)	444 (74)
	Others	0 (0)	5 (2.5)	0 (0)	12 (2)

Table 3: Lifestyle preventive practices among teachers to prevent noncommunicable diseases.

Lifestyle practices	Category	Thatta, N (%)	Hyderabad, N (%)	Mirpurk, N (%)	Total, N (%)
Early riser	Yes	198 (54)	186 (93)	200 (100)	494 (82.3)
	No	92 (46)	14 (7)	0 (0)	106 (17.6)
Exercise	Daily	58 (29)	22 (11)	20 (10)	100 (16.6)
	Almost	34 (17)	44 (22)	40 (20)	118 (19.6)
	Occasional	42 (21)	130 (65)	80 (40)	252 (42)
	Never	66 (33)	4 (2)	60 (30)	130 (21.6)
	All core	58 (29)	180 (90)	140 (70)	278 (46.3)
Morning core works	Brushing	150 (75)	194 (97)	200 (100)	544 (90.6)
	Face washing	134 (67)	192 (96)	80 (40)	406 (67.6)
	Bathing	126 (63)	192 (96)	120 (60)	438 (73)
	Combing	184 (92)	192 (96)	160 (80)	536 (89.3)
	Change clothes	158 (79)	188 (94)	120 (60)	466 (77.6)
	Prayer	158 (79)	186 (93)	180 (90)	482 (80.3)
	All core	58 (29)	180 (90)	140 (70)	278 (46.3)
Taking breakfast	Daily	166 (83)	58 (29)	140 (70)	364 (60.6)
	Almost	26 (13)	140 (70)	0 (0)	166 (27.6)
	Often	8 (4)	2 (1)	60 (30)	70 (11.6)
	Never	0 (0)	0 (0)	0 (0)	0 (0)
Taking lunch	Daily	158 (79)	56 (28)	180 (90)	394 (65.6)
	Almost	26 (13)	140 (70)	20 (10)	186 (31)
	Often	16 (8)	4 (2)	0 (0)	20 (3.3)
	Never	0 (0)	0 (0)	0 (0)	0 (0)
Taking rest after lunch	Daily	158 (79)	4 (2)	180 (90)	342 (57)
	Almost	26 (13)	16 (8)	20 (10)	62 (10.3)
	Often	16 (8)	180 (90)	0 (0)	196 (32.6)
	Never	0 (0)	0 (0)	0 (0)	0 (0)
Taking snacks in evening	Daily	92 (46)	8 (4)	20 (10)	120 (20)
	Almost	34 (17)	28 (14)	60 (30)	122 (20.3)
	Often	58 (29)	72 (36)	40 (20)	170 (28.3)
	Never	16 (8)	34 (17)	60 (30)	110 (18.3)
	Only tea	0 (0)	58 (29)	20 (10)	78 (13)
Evening rest	Daily	8 (4)	0 (0)	0 (0)	8 (1.3)
	Almost	34 (17)	8 (4)	40 (20)	82 (13.6)
	Occasionally	58 (29)	165 (82.5)	140 (70)	243 (44.5)
	Never	100 (50)	27 (13.5)	140 (70)	267 (44.5)
Sleeping time	Just after dinner	16 (8)	2 (1)	0 (0)	18 (3)
	After 9:00 pm	116 (58)	16 (8)	120 (60)	252 (42)
	After 11:00 pm	42 (21)	178 (89)	60 (30)	280 (46.6)
	After 12:00 am	26 (13)	4 (2)	20 (10)	50 (8.3)
Drinking milk	Daily	26 (13)	34 (17)	100 (50)	160 (26.6)
	Very often	58 (29)	160 (80)	20 (10)	238 (39.6)
	Occasionally	66 (33)	6 (3)	40 (20)	112 (18.6)
	Never	25 (12.5)	0 (0)	40 (20)	65 (10.8)
	Others	25 (12.5)	0 (0)	0 (0)	25 (4.16)
Eating fruit	Daily	108 (54)	4 (2)	80 (40)	192 (32)
	Weekly	92 (46)	189 (94.5)	100 (50)	381 (63.5)
	Monthly	0 (0)	7 (3.5)	20 (10)	27 (4.5)
Eating meat	Daily	8 (4)	4 (2)	60 (30)	72 (12)
	Weekly	150 (75)	187 (93.5)	120 (60)	457 (76.1)
	Monthly	42 (21)	9 (4.5)	20 (10)	71 (11.8)

Noncommunicable disease practices

Physical activity was relatively limited, with 16.7% of teachers reporting daily exercise, while 42.0% exercised occasionally and 21.6% reported no exercise. Personal-care practices were generally well observed, particularly brushing (90.6%), combing (89.3%), prayer (80.3%), changing clothes (77.7%), and bathing (73.0%). Meal practices were generally favorable, with 60.6% and 65.6% reporting daily consumption of breakfast and lunch, respectively. However, evening rest was uncommon, with 44.5% reporting that they never took evening rest. Late sleeping was also prevalent, with 46.6% going to sleep after 11:00 PM and 8.3% after midnight. Milk was consumed daily or very often by 26.6% and 39.6% of teachers, respectively, while fruit consumption was mainly weekly (63.5%) and 32.0% reported daily fruit consumption. Meat was predominantly consumed weekly (76.1%). Overall, the findings, summarized in table 03, suggest favorable personal-care and meal-related practices, but highlight suboptimal physical activity and sleep-related behaviors among teachers (Table 3).

DISCUSSION

The results of the study provide an insight into the lives of government primary school teachers in the Sindh province of Pakistan. Healthy lifestyle habits are vital for the maintenance of physical and mental well-being, for the prevention of chronic diseases, and the promotion of longevity. Research conducted in Pakistan has shown that risk factors for lifestyle-related diseases are common among different segments of the population, including students, adolescents, and adults, and continue to be a major cause of illness and death.²⁷⁻²⁹ A cross-sectional study among university students in Karachi found moderate adherence to healthy lifestyle practices despite awareness of the importance of healthy diet, exercise, and adequate sleep. Many students reported irregular physical activity, inadequate sleep, and skipping breakfast, while 69.1% experienced mildly stressful lifestyles²⁷. This mirrors findings from a comparison of medical and non-medical university students in Karachi, where medical students scored significantly higher on nutritional knowledge yet showed no significant difference in diet and lifestyle practice scores compared to their non-medical peers, with both groups identifying lack of time as their leading barrier to healthy eating and regular exercise.²⁴ Female students showed better levels of healthy lifestyle habits than male students, highlighting the influence of gender, stress, academic demands, and time constraints on health behaviors.⁷ This pattern of moderate adherence is not unique to Pakistan: a study of college students in Kuwait similarly found that only half maintained a healthy diet and just over a third exercised regularly, despite general awareness of healthy lifestyle principles.²² Evidence among adolescents and young adults in Pakistan also indicates persistent unhealthy dietary and lifestyle behaviors, with lifestyle activities

and dietary perceptions associated with BMI and food choices.²³ Similarly, research conducted at the Aga Khan University and Hospital family medicine center identified several risk behaviors, including low water intake (21%), sleeping less than six hours (19%), cigarette smoking (17%), and betel nut chewing (21%).²⁹ These findings demonstrate gaps in preventive health practices and are consistent with evidence from other South Asian communities, where limited understanding of cardiovascular disease and diabetes prevention has also been reported.²⁵ In contrast, the present study found encouraging levels of healthy behaviors among government primary school teachers, particularly in personal hygiene, healthy nutrition, and exercise. This is important because teachers may influence students' knowledge and adoption of healthy behaviors, potentially extending benefits to families and communities. Nevertheless, the broader literature indicates a persistent gap between knowledge and practice, influenced by time constraints, stress, environmental barriers, and limited institutional support.²⁷⁻²⁹ Context-specific interventions, including workplace health programs, health education, and institutional support for physical activity and healthy dietary choices, are needed to promote healthier lifestyles among teachers and the wider population. This study assessed daily lifestyle practices among government primary school teachers in Thatta, Hyderabad, and Mirpur Khas. Teachers demonstrated good personal hygiene, particularly handwashing before meals (85%) and after defecation (95%). However, other practices were less satisfactory. Only 14% reported regular physical activity, and fewer than half followed a complete morning routine. About 50% avoided street food, while 74% consumed mineral water. Overall, basic hygiene was satisfactory, but healthier lifestyle practices require further improvement. Strengthening health and hygiene education through teacher training and health promotion sessions, in collaboration with the Health Department, could encourage better exercise, nutrition, and water-intake practices. Promoting healthy behaviors among teachers may reduce the risk of non-communicable diseases and foster a culture of health within schools and the wider community.

CONCLUSION

There is lack of awareness and inadequate knowledge related to dog bite and its management: 77% were aware that dog bite causes disease; whereas out of these 46.8% were aware that Rabies is caused by dog bite. 44.4% participants were aware that dog bite wound should be cleaned with soap and water, 95.8% were aware about the vaccine availability for the dog bite. Eighty eight percent of dog bite victims received treatment.

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