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Knowledge and Practice of Occupational Health Promotion among Nepalese School Teachers

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Keywords

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Abstract

Occupational health (OH) is the area of public health that promotes and maintains workers' highest degree of physical, mental, and social well-being in all occupations. WHO Promotes OH practices that include all three dimensions of health, including physical, mental, and social well-being. Promotive practice is any positive behavioural phenomenon that supports occupational workers, i.e., teachers, carpenters, garment factory workers, cashiers, salespeople, and farmers. For the promotion of OH, there are positive practices of physical well-being, such as proper physical exercise, body movement, and a balanced diet. Mental well-being, like yoga and meditation. Social well-being, i.e. social activity, community participation, social meetings, and participation in social functions or events in occupational settings. This study examines the knowledge and promotive practices of OH among secondary-level teachers in Tarkeshwor municipality, Kathmandu, Nepal. The descriptive cross-sectional study included 239 participants from public and institutional schools. Gender and the state of advertising practices are significantly correlated. Provide mentoring programs and peer support groups so that female educators who actively engage in promotional activities may guide and assist their male counterparts. For all teachers, this can contribute to developing a well-being and supportive culture for health promotion.

Introduction

Public health primarily focuses on maintaining employees' physical, mental, and social health in different occupations. According to the World Health Organization (WHO) /International Labour Organization (ILO) Joint Action Committee, Occupational health (OH) is the area of public health that promotes and maintains workers' highest degree of physical, mental, and social well-being in all occupations (WHO, 2024). Promoting OH is managing occupational safety and health (OSH) to prevent accidents and diseases and protect employees from occupational risks and hazards. Researchers claim that promoting OH means uplifting physical, mental, and social well-being in all occupations through specific public health interventions (Van der Put et al., 2023).

ILO estimates that every year, over 2.3 million women and men die at work from an occupational injury or disease. Every day, approximately 6,400 people die from occupational accidents or diseases, and 860,000 people are injured on the job (ILO, 2015). Globally, an average of 86,000 workers are injured at work, 5,600 develop occupational illnesses, and about 6,300 die as a result of occupational causes (Levy et al., 2018). According to a Slovenian survey, 56% of participants said they frequently experienced health issues, such as neck issues (19%), headaches (43%), and low back pain (28%) (Markelj et al., 2024). However, a study in Nepal in 2019 stated that about 69% of secondary-level teachers suffered from occupational disease (Bhattarai et al., 2019). Similarly, the Department of Community Health, University of Lagos, mentioned that about 45.5% of respondents have good knowledge and 54.5% have inadequate understanding of OH. However, 73.2% of respondents have adequate practice, and 26.8% have inadequate practice about OH promotion (OHP) (Odeyemi & Chukwu, 2015). A study conducted in 2023 revealed that 43.1% of teachers never exercised, with age increasing. Less than 24-year-olds, 45-49-year-olds, and only 30.9% of secondary-level teachers were involved in physical exercise (Aryal, 2022).

Similarly, Gurung et al. (2021) revealed that 10.9% of participants were unaware of OSH, 38.4% were unaware of first aid, 1.7% did not know about the OSH program, and 6.6% did not know about OSH training. Personal Protective Equipment (PPE) was mentioned most, but safety checks and meetings were less common. Over half knew preventative measures (Gurung et al., 2021). Studies in Nepal stated that about 30.9% of secondary-level teachers are physically active (Aryal, 2022). Similarly, a study in 2014 declared that 87.2% of workers in the beer, Rio, water, chips, and cheeseball industries used PPE to ensure health. Most regularly used all relevant PPE, with 57% using it when needed and 35% using it all the time. Reasons for not using PPE included unavailability and lack of necessity (Acharya, 2014).

A study in 2020 found that participants spent an average of 38.34 hours per week on teaching activities, with 64.34% having little or no training in virtual teaching and 56.81% having extensive training. Interestingly, 80% of participants physically exercised at home, and 57.39% went for walks (Aperribai et al., 2020). A study in Malaysia found a significant difference in school knowledge about OSH. Primary school teachers had a low level of expertise, while secondary school teachers had a medium level. Most teachers had a positive attitude towards OSH, with a significant percentage having good practice. However, a substantial number of teachers had poor practice, with 11.5% of primary school teachers having poor practice (Yusoff et al., 2019). The study in Bhaktapur, Nepal, revealed that most participants were aware of OH and safety, with over half using gloves, boots, and masks. However, 42% worked 11-13 hours daily, exceeding the ILO's recommended 8 hours (GC et al., 2018).

Similarly, Debela et al. (2023) claimed that 29.6% of good OH and safety practices, with factors like inadequate personal protective equipment, lack of strict safety regulations, insufficient incentives, and ineffective management support.

A 2022 study in Nepal found that 94.8% of workers were aware of PPE use, while 63.8% had poor practices, and the PPE usage factors included marital status, work experience, hours, first aid facilities, insurance awareness, and workplace safety training (Adhikari & Wagle, 2022). A Chinese study found that students' attitudes and understanding of hypertension and stroke were positively correlated with healthy lifestyle modification instruction. However, most teachers incorrectly answered questions about hypertension, its association with Type II diabetes, and its manifestation (Cheng & Wong, 2015). A study in 2017 found that the Labor Act of 1992 and Labor Rules of 1993 do not adequately address OSH issues industrial workers face. The Ministry of Labor and Employment proposed the Labor Bill 2017, which is insufficient to ensure worker safety in Nepal (Shrestha, 2017).

The role of teachers in OH is vital for the promotion of OH, so OHP has an essential impact on filling OHP gaps. OH problems are increasing in trends whereas globally or nationally, increasing prevalence of OH problems leads to an increase in the rate of occupational mortality, morbidity, and disability, and occupational disease or OH problems prevalence was given accordingly. As mentioned above, data shows an increase in the prevalence of OH problems. Hence, a targeted intervention helps to promote the OH of teachers. There was inadequate evidence-based information on knowledge and promotive practice of OH and its associated factors among secondary-level teachers in Tarkeshwor municipality. Research on expertise and promotive practice of OH and its associated factors helped identify gaps through evidence-based information for planning, implementing, and evaluating OH programs. Therefore, this study aimed to describe the knowledge and practice of OH promotion and its associated factors among Nepalese teachers.

Methods

A descriptive cross-sectional study design was used, with a self-administered semi-structured questionnaire used among secondary-level school teachers of Tarkeshwor Municipality. Both public and private schools were taken for this study. During the day of data collection, non-present teachers were excluded. A convenient sampling method was used to select the Kathmandu district and Tarkeshwor Municipality, and 23 schools were selected from 74 schools in Tarkeshwor Municipality (Tarkeshwor Municipality, 2017). Schools were selected based on the 31% prevalence of the previous study (Aryal, 2022). The first school was selected using a convenient sampling technique to collect data until the sample size was fulfilled with the survey method (Adhikari et al., 2023). The collected data were first edited, coded, decoded, and classified, and tabulation, analysis, and interpretation were done. The data was entered in the SPSS version 20 for further analysis. Descriptive statistics included frequency and percentage, followed by an analytical study chi-square test and Fisher exact test. Statistical significance was set at $p < 0.05$.

Results

Socio-Demographic Situation of the Teachers

The teachers who participated in this study are of various socio-demographic characteristics.

Table 1
Socio-Demographic Information

Characteristics	Frequency	Percentage
Age (years)		
18-34	123	51.5
35-60	116	48.5
Mean ±SD	**34.33 ±8.33**	
Gender		
Male	100	41.8
Female	139	58.2
Ethnicity		
Brahmin /Chhetri	160	66.9
Other than Brahmin/Chhetri	79	33.1
Religion		
Hindu	193	80.8
Non-Hindu	46	19.2
Family type		
Nuclear	160	66.9
Joint	79	33.1
Teaching experience	139	58.2
<9 years	100	41.8
>or = 9 years	**9.33 ±7.73**	
Mean ±SD		
BMI		
<18.5	4	1.7
18.5-24.9	114	47.7
25-29.9	94	39.3
>30	27	11.3
Marital status		
Married	187	78.2
Unmarried	52	21.8
Family income monthly	22	9.2
	217	90.8
<30000		
>or=30000		

The study's participants ranged in age from 18 to 60 years, with a mean age of 34.33 years (SD ± 8.33). The distribution was nearly balanced, with 51.5% aged 18–34 years and 48.5% aged 35–60 years, representing a mix of younger and middle-aged individuals. Gender distribution showed a higher proportion of females (58.2%) than males (41.8%), indicating a female-dominated sample. Regarding ethnicity, 66.9% of participants identified as Brahmin/Chhetri, while 33.1% belonged to other ethnic groups, reflecting a predominance of traditionally dominant castes. The majority (80.8%) practised Hinduism, with 19.2% adhering to other religions, aligning with regional religious practices.

The family structure revealed that 66.9% lived in nuclear families, while 33.1% resided in joint families, suggesting a shift towards nuclear family arrangements. Participants had an average teaching experience of 9.33 years (SD ± 7.73), with 58.2% having less than nine years of experience and 41.8% possessing nine or more years, indicating a relatively experienced cohort. Regarding body mass index (BMI), 47.7% had a normal BMI, while 39.3% were overweight, 11.3% were obese, and 1.7% were underweight, highlighting a notable prevalence of overweight and obesity.

Marital status analysis showed that 78.2% of participants were married, with 21.8% unmarried, reflecting the demographic norms. Additionally, 90.8% reported a family income of ≥30,000 per month, suggesting a higher economic status, while only 9.2% earned less than this amount. These characteristics provide a detailed demographic and socio-economic profile of the participants, offering crucial context for interpreting the study's findings.

Occupational Health Status of the Teachers

Table 2

Physical Activity and Occupational Health-Related Behaviors

Characteristic	Frequency	Percentage
Physical activity (n=239)		
Physically active	104	43.5
Physically inactive	135	56.5
Timing of physical activity (n=104)		
Less than 30 minute	73	70.2
More than or equal to 30 minutes	31	29.8
Peers influence (n=239)		
Influence	164	68.8
Non-influence	75	31.4
Infrastructure (n=239)		
Adequate	74	31
Inadequate	165	69
Occupational diseases (n=94)		
Sensory diseases	50	53.20
Non-sensory diseases	44	46.80
Physical activity status		
Physically active	104	43.5
Physically inactive	135	56.5
Non-use of tobacco and alcohol		
Non-use	194	81.2
Use	45	18
Participation in health-related training by the school		
Participate	40	16.7
Not participate	199	83.3
Participation in MH training counselling by LG		
Participate	111	46.4
Not participate	128	53.6
Peers influence status		
Adequate influence	164	68.6
Inadequate influence	75	31.4
Use of safe drinking water		
Yes	178	74.5
No	61	25.5
Consumption of a balanced diet		
Yes	133	55.6
No	106	44.4

The majority of the population (56.5%) was physically inactive, most engaging in less than 30 minutes of exercise. Peers influence most, and 69% report inadequate infrastructure. Occupational diseases were prevalent, with sensory diseases being the most prevalent (53.20%).

Over half of the population was physically inactive, causing adverse health impacts. However, a low prevalence of tobacco and alcohol use indicated successful public health messaging. Low participation in school-provided health-related training indicates limited efforts. Increased awareness and access to mental health services could improve OH promotion practices. Peer influence could encourage healthy behaviours. High usage of safe drinking water was favourable, but universal access was needed. A balanced diet was needed for 44.4% of the population.

Knowledge of OHP

More than half of the population (53.6%) knew about OH promotional practices, but 46.4% lacked adequate knowledge, potentially affecting their ability to maintain and improve their well-being.

Table 3

Knowledge of OHP

Characteristics, (n=239)	**Frequency**	**Percentage**
status of knowledge of the promotive practice		
Adequate	128	53.6
Inadequate	111	46.4
Know about OHP		
Adequately know	121	50.6
Inadequately know	118	49.4
Source of information status		
Adequate information	121	50.6
Inadequate information	118	49.4
Management of classroom waste opinion		
Appropriately manage	64	26.8
Inappropriately manage	175	73.2
Conception about lifestyle modification		
Adequately know	132	55.2
Inadequately know	107	44.8
Management of workplace tension idea		
Effective management	145	60.7
Ineffective management	94	39.3
Understanding health promotion		
Understand	124	51.9
Not understanding	115	48.1
Know about mental illness type		
Adequately know	105	43.9
Inadequately know	134	56.1

Over half of the population was concerned about the adequacy of information sources, particularly regarding OHP. They believed classroom waste management was inappropriate, and most had sufficient knowledge about lifestyle modification and workplace tension management. However, the understanding of health promotion was slightly above half, and mental health education was lacking.

Table 4

Knowledge on Mental Illness

Knowledge about sources of information on mental illness		
Adequate knowledge	104	43.5
Inadequate knowledge	135	56.5
Thought about the cause of mental problem		
Major causes	108	45.2
Other causes	131	54.8
Understand the management of mental problems		
Effective management	122	51
Ineffective management	117	49
Perception about mental health promotion activity		
Adequate intervention	105	43.9
Inadequate intervention	134	56.1

The majority of respondents had inadequate knowledge about sources of information on mental illness. Additionally, more individuals attribute mental problems to other causes rather than major ones, indicating possible misconceptions about mental health issues. On a positive note, nearly half of the population understood the effective management of mental problems. However, a majority perceived mental health promotion activities as inadequate, highlighting the need for more effective interventions.

Table 5

Knowledge of the Prevention of Mental Problems

Opinions about the status of mental problem awareness		
Aware	94	39.3
Not aware	145	60.7
Perception about prevention of mental problem		
Effective prevention	88	36.8
Ineffective prevention	151	63.2
Concept about social well-being		
Conceive	62	25.9
Misconceive	177	74.1
Perception about causes of social isolation		
Know	60	25.1
Not know	169	74. 9
Understanding about social participation		
Understand	80	33.5
Not understand	159	66.5
Thought about causes to effect on social participation		
	135	56.5
Effect	104	43.5
Not effect		

The majority of the population was unaware of mental health issues, believed in ineffective prevention, and had misunderstandings about social well-being and social participation. However, over half of respondents believed in the effects of social participation.

Table 6

Level of Knowledge of OHP

Characteristics (n= 128)	**frequency**	**Per cent**
Level of knowledge		
Low level of knowledge	55	52.63
Medium level of knowledge	45	39.84
High level of knowledge	28	7.51

The study revealed a significant disparity in knowledge levels among participants, with over half having low knowledge and only a tiny percentage having high knowledge, indicating a need for educational interventions.

Table 7

Associated Factors of Knowledge Status of OHP

Family type (n=239)	**Status of knowledge**			**Chi-square**	**df**	**p-value**
	Adequate	Inadequate	Total			
Type of family						
Single Joint Total	93 (38.9%) 35 (14.6%) 128 (53.6%)	67 (28%) 44 (18.4%) 111 (46.4%)	160 (66.9%) 79 (33.1%) 239 (100%)	4.602	1	0.044
Income						
<30000 thou. 30 thou-1 lakh >1 lakh Total	11 (4.6%) 96 (40.2%) 21 (8.8%) 128 (53.6%)	11 (4.6%) 65 (27.2%) 35 (14.6%) 111 (46.4%)	22 (9.2%) 161(67.4%) 56 (23.4%) 239 (100%)	4.246*		0.015
Physical activities						
Yes No Total	66 (27.6%) 62 (25.9%) 128 (53.6%)	38 (15.9%) 73 (30.5%) 111 (46.4%)	104 (43.5%) 135 (56.5%) 239 (100%)	7.262	1	0.007

*Fisher exact test

The analysis of the association between family type and knowledge status reveals a statistically significant relationship, with a p-value of 0.044, indicating that family structure impacts knowledge levels. Individuals from single-family households tend to have higher knowledge, with 38.9% having adequate knowledge compared to 28% with inadequate knowledge. In contrast, individuals from joint-family households have a more even distribution, with 18.4% having sufficient knowledge and 46.4% having inadequate knowledge.

Income was significantly associated with knowledge status, with a p-value of 0.015 (Fisher exact test). Higher-income groups (earning between 30,000 and 1 lakh) show a greater proportion of adequate knowledge (40.2%) than those with incomes below

30,000 or above 1 lakh, where only 4.6% and 8.8%, respectively, have sufficient knowledge. This suggests that income plays a critical role in influencing knowledge status.

Furthermore, the relationship between physical activities and knowledge status was also significant (p-value = 0.007), with individuals who engage in physical activities showing higher knowledge levels (27.6% adequate knowledge) compared to those who do not participate in physical activities (15.9% adequate knowledge). This indicates that physical activity might contribute to higher levels of awareness or education.

OHP Practices among the Teachers

Table 8

Associated Factors of OHP Practice

	Status of promotive practice			**Chi-square**	**df**	**p-value**
	Adequate	Inadequate	Total			
Gender						
Male	50 (20.9%)	50 (20.9%)	100 (41.8%)	6.917	1	0.009
Female	93 (38.9%)	46 (19.2%)	139 (58.2%)			
Total	143 (59.8%)	96(40.2%)	239 (100%)			
Peers influence						
Yes	121 (50.6%)	43 (18%)	164 (68.6%)	42.304	1	0.001
No	22 (9.2%)	53 (22.2%)	75 (31.4%)			
Total	143 (59.8%)	96(40.2%)	239 (100%)			
Sensory diseases						
Yes	120 (50.2%)	67 (28%)	187 (78.2%)	6.731	1	0.009
No	23 (9.6%)	29 (12.2%)	52 (21.8%)			
Total	143 (59.8%)	96 (40.2%)	239 (100%)			

The status of promotive practice was analyzed across gender, peer influence, and sensory disease presence using a chi-square test. A statistically significant association was found between gender and promotive practice status ($\chi^2 = 6.917$, df = 1, p = 0.009). Females (38.9%) were likelier to engage in adequate promotive practices than males (20.9%), highlighting gender-specific differences in health-related behaviours. Peer influence was also significantly associated with promotive practices ($\chi^2 = 42.304$, df = 1, p = 0.001). Participants with adequate peer influence were likelier to demonstrate adequate promotive practices (50.6%) than those without peer influence (9.2%), indicating the importance of social support and peer networks. Similarly, the presence of sensory diseases showed a significant relationship with promotive practices ($\chi^2 = 6.731$, df = 1, p = 0.009). Participants with sensory diseases (50.2%) were likelier to practice adequate health promotion than those with (28%). These findings suggest that gender, social influences, and sensory health conditions are critical factors influencing promotive health practices.

Discussion

The study found that 53.6% of secondary-level teachers in Tarkeshwor municipality had good knowledge and practice of OH, compared to 45.5% in a previous Nigerian study (Odeyemi & Chukwu, 2015).

Moreover, this study found that the protective practice of OH was 59.8%, which was also a good result compared to the previous study (Odeyemi & Chukwu). We found that about 43% of the participants had adequate physical activity, 74% used safe drinking water, and 55% consumed a balanced diet, which was relatively better than research conducted in Mexico public schools. Similar to this, 31% of respondents consumed healthy food, 44% used safe drinking water, and 32% did physical activity (Mendez et al., 2015).

There were about 81.2% of respondents involved in the non-use of tobacco and alcohol, about 46% of school teachers participated in health training conducted by local government collaboration with both public and private schools, and 67% of respondents practiced peer influence. It was also quite good than the previous research conducted in Nigeria that declared that 49% of school teachers were involved in the non-use of alcohol and 64% participated in health training, health training was a component of a health-promoting school (Abayomi et al., 2013). We also found a statistically significant relationship between the peers' influence and the status of promotive practice, with a p-value (0.000) that showed peer influence was directly related to the promotive practice of OH.

We found a situation of 52.3% of teachers having a poor BMI situation in this study because only 47.7% of teachers had a normal BMI of 18.5 to 24.9. It may lead to poor role modeling among the students as a previous study claimed that the teachers with normal BMI were not providing adequate observational learning to their students (Aryal, 2020). If the teachers are physically active, they set themselves as role models and can persuade their students through role modeling (Aryal & Maharjan, 2021).

There was a significant relationship between physical activity and status of knowledge with a p-value (0.007), which illustrate that individuals who engage in physical activity are more likely to possess sufficient knowledge compared to those who do not engage in physical activity. No previous study found an association between the peer's influence and status of promotive practice and the relationship between physical activity and the status of knowledge.(Ghimire & Lamichhane, 2024; Sharma et al., 2023). Also, there is a significant relationship between the genders of respondents, and the status of promotive practice showed a p-value (0.009), which strongly supports the significance of genders and promotive practice compared to previous research conducted in Bagmati province of Nepal; there was also a significant relationship between gender and status of promotive practice with a p-value (0.000) (Aryal, 2022; Sharma et al., 2023). This data strongly supports the positive relationship between genders and the promotive practice of OH.

Conclusions

We came up with idea that the to improve the overall health knowledge and promotive health behaviors among the teachers, targeted educational initiatives should address family structure, socio-economic status, gender, peer influence, and physical activity levels. This study highlights several critical factors that influence OH awareness and practices among teachers. Family involvement emerged as a key element in promoting OH knowledge. Gender didn't seemingly affect the knowledge, female respondents were more likely to engage in promotive health practices. Regular physical activity correlated

with higher knowledge levels, suggesting the integration of fitness into health education. There was no linkage in this study regarding the relationship between promotional practices and disease incidence, underscoring a need for future research in this area. Therefore, health education and promotion programs should be tailored to the specific needs of different socio-demographic groups, focusing on enhancing family involvement, promoting gender-sensitive approaches, and overcoming socio-economic barriers to ensure that all teachers have access to the resources they need to adopt healthy lifestyles and promote healthy role-modeling.

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Conflict of Interest

The authors declare no conflict of interest related to this research study, its findings, or its publication.

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Authors' Contribution

SP and AA conceptualized the study and conducted fieldwork, while BA supported the literature review and publication procedures. BA, PS, and MB edited and finalized the manuscript, with all authors providing final approval for publication.

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