How to Cite:
Jyoti, J., Dular, S. K., Chhillar, R., & Abonmai, K. (2022). A quasi-experimental study to evaluate the effectiveness of a health education program in terms of knowledge and attitudes toward the prevention of common respiratory illnesses among sanitation workers in Gurugram, Haryana. *International Journal of Health Sciences*, *6*(S2), 9205–9219. https://doi.org/10.53730/ijhs.v6nS2.7406

A quasi-experimental study to evaluate the effectiveness of a health education program in terms of knowledge and attitudes toward the prevention of common respiratory illnesses among sanitation workers in Gurugram, Haryana

Jyoti
M. Sc Nursing, Faculty of Nursing, SGT University, Gurugram, Haryana, India
Corresponding author email: tharanjyoti@gmail.com

Dr. Sunil Kumar Dular
Professor, Faculty of Nursing, SGT University, Gurugram, Haryana, India

Rekha Chhillar
Assistant Professor, Faculty of Nursing, SGT University, Gurugram, Haryana, India

Khiumajuliu Abonmai
PG Tutor, Faculty of Nursing, SGT University, Gurugram, Haryana, India

***Abstract*---**Objectives: The study's goal is to conduct research on the effectiveness of a Health Teaching Programme (HTP) in preventing common respiratory illnesses among sanitation employees in a specific region in Gurugram, Haryana. Methodology: Apre-experimental research was conducted to determine the effectiveness of HTP in preventing common respiratory disorders. A quantitative research technique, also known as a quantitative research design, was applied in this study. Purposive sampling was used to choose 60 people. The attitude scale on prevention of common respiratory disorders among sanitation employees was assessed using self-structured questionnaires and a Likert scale in chosen locations of Gurugram, Haryana. Result: The difference between the mean pre-test and post-test knowledge scores of sanitation work is 4.99 and the t-value is 11.675 with the df, 59 and the p-value is 0.000, which is significant at the 0.05 level. Similar to the sanitation work, there is a difference in the mean pre-test scores and post-test attitude scores of

23.55 and t-value is 44.740 with the df, 59 and p-value is 0.000, which is significant at the 0.05 level. There is an effectiveness of a health education programme on sanitation employees' understanding of how to prevent common respiratory illnesses. Conclusion: Mean percentage of post-test is more than the pre-test. The difference between pretest and post-test knowledge score is 4.99 and attitude score is 23.55. This showed that Health Teaching Program was effective in improving the knowledge and attitude regarding prevention of common respiratory problems among Sanitation workers.

***Keywords*---**assess knowledge, attitude, sanitation hygiene, prevention, respiratory problems, sanitation worker, MCG.

Introduction

A sanitation worker is responsible for cleaning, maintaining, operating, or emptying equipment or technologyat every point along the sanitation chain. Toilet cleaners and attendants in household, public, and institutional settings are referred to as "sanitation workers." A trash collector (also known as a rubbish collector or a Bin Man) is a person who collects municipal solid waste.[1] The Union Ministry of Social Justice and Empowerment (MSJE)[2],confirmed thatbetween 2016 and November 2019, 282 sanitation employees died in the country while cleaning sewers and septic tanks. In 2016, 50 sanitation employees died as a result of suffocation in septic tanks and sewers; in 2017, 83 sanitation workers died as a result of suffocation in septic tanks and sewers; and in 2018, 66 sanitation workers died as a result of suffocation in septic tanks and sewers. The death toll recorded from around the country until November 2019 was 83.[3]

In India's National Capital Region (NCR), Gurugram, the key financial and industrial centre, and Faridabad are located.[4]Gurugram is the second most populous urban agglomeration in Haryana's northern state. Gurugram is a unique metropolitan centre that has undergone a social process that has resulted in the region's development. The city had a population of 876, 824 people, with an impressive literacy rate of 86.30 percent.[1],[2] Sanitation employees encounter four types of obstacles and risks: occupational and environmental health and safety, legal and institutional concerns, financial insecurity, and social issues.[5]

Need of the study

A study is being conducted to investigate the dynamics associated with the social status of a group that is viewed and defined as the most socially backward in Indian society. People that work in the sanitation industry are mostly from the lowest caste group and they suffer from different occupational health hazards[6] especially respiratory diseases[7]owing to a lack of hygiene[8] in their workplace. Because of different social and cultural hurdles, they have limited access to the health-care system. Sanitation workers are members of the scheduled castes (constitutional category) and have long been oppressed and under-resourced in Hindu culture due to caste prejudice and the stigma of impurity.[9]

Delimitations

The area of the proposed research is confined to:

- Sanitation workers in the Municipal Cooperation Gurugram, Haryana
- Sanitation workers who are willing to participate in the study.

Research Methodology

A pre-experimental research design one group "pre-test post-test" research design was utilized to assess the effectiveness of Health Teaching Program (HTP) on knowledge and attitude regarding prevention of common respiratory problems among sanitation workers at selected areas of Gurugram, Haryana. The ethical permission to perform the research project was received from the University's ethics committee via letter number. FON/SGTU/20/262 dated November 28, 2020. Before the study began, the Sanitation Workers gave their consent to participate. Purposive sampling[10] was used to choose research participants, and a total of 60 Sanitation Workers were recruited from various locations who were willing to participate. Those who were not present for data collection and intervention were not included in the research.

Data Collection Procedure

The Sanitation Workers head of department, Municipal Cooperation of Gurugram, gave his written clearance for the research to be conducted on chosen sanitation workers. The housekeeping staff members who satisfied the study's inclusion criteria were chosen as research samples for this study. Before the Health Teaching Programme session, a pre-test questionnaire was administered for 20 minutes. The Sanitation Workers were supplied with a HTP that included respiratory illness causes, signs and symptoms, treatment, and preventative actions such as hand cleanliness, gloving, masking, wearing and doffing of PPE. After seven days of HTP, a post-test was administered. The COVID-19 guidelines were followed during the instruction session, which included the mandatory wearing of masks at all times and small groups of 23-30 people at a time to minimise huge gatherings.

Table: 1: The schematic representation of research design is shown below

GROUP	PRE-TEST	INTERVENTION	POST-TEST
Sanitation workers including Street sweeper and Solid waste collectors.	O1	X	O2
	Administration of pre-test • Questionnaires on demographic variables. • Structured knowledge questionnaires	Administration of Health Teaching Program (HTP) on prevention of common respiratory problems.	Administration of post-test to evaluate the effectiveness of HTP. • Questionnaires on demographic variables. • Structured knowledge questionnaires • Structured attitude Likert scale

	• Structured attitude Likert scale		
	Day 1	Day 1	Day 7-10

Key Words

O1: Pre-test to assess the knowledge and attitude and practice of Sanitation workers who are including under the categories of Street sweeper and Solid waste collectors.
X: Administration of Health Teaching Program (HTP) on prevention of common respiratory problems.
O2: Post-test to assess the knowledge and attitude regarding prevention of common respiratory problems among Sanitation workers.

Crteria for Sample Selection

The criteria are as follows:

Inclusion criteria:

1. Sanitation workers of age group of 19 to below 60 years.
2. Those who are willing to participate in the study.
3. Sanitation workers who can read and understand in Hindi or English.

Exclusion criteria:

1. Sanitation workers who are not willing to participate in the study.
2. Sanitation workers who were not available at the time of data collection.

Variables Under Study

- Dependent variable: knowledge and attitude of sanitation workers
- Independent variable: Health Teaching Program (HTP)
- Demographic variable: Age, gender, marital status, educational status, religion, years of working, types of family, family income, dietary pattern, source of information, previous knowledge, type of work, Field of work, previous treatment history etc.

Result

The Interpretation and Analysis of Data

Under the following headings, the obtained data was tallied and presented in accordance with the goals. Figure 1: 30% (18) participants which were included the age group of 18-29 years and 40-49 years, 26.7% (16) participants which were included the age group of 30-39 years, 13.3% (8) participants were included the age group of 50-60 years, majority of the males were 70% (42) and 30% (18) belonged to female participants, 53.3% (32) participants which were married, 30%

(18) participants which were unmarried, 13.3% (8) participants which were widow, 3.3% (2) participants which were included were divorced, 28.3% (17) of participants were no formal education, 51.7% (31) of participants were taken Primary education, 5% (3) participants were having Secondary education, 15% (9) participants were taken the Higher secondary education,67% (40) of study participants were residing in Urban areas and 33% (20) were in rural areas, 76.7% (46) participants were Hindu; 15% (9) participants were Christian and 8.3% (5) participants were Muslim, 60% (36) of participants were Street sweeper and 40% (24) of participants were Domestic waste collector, 20% (12) of participants were on permanent employee, 45% (27) of participants were on contractual employee and 35% (21) of participants were part time employee, 21.7% (13) of participants were less than 1 year of working, 50% (30) of participants were between the experience from 1-5 years, 20% (12) of participants were between the experience from 6-10 years of working and the 8.3% (5) of participants were between the experience of more than 10 years, 67% (40) of participants not having any previous knowledge and 33% of participants were having knowledge about the prevention of common respiratory problems among Sanitation workers.

Figure 2 shows the knowledge and attitude score regarding prevention of common respiratory problems among sanitation workers. The pre-test knowledge mean score was 15.38 with mean % 51.26 and SD 1.678 similarly in post-test mean score was 20.37 with mean % 67.9% and SD 2.571.The pre-test attitude mean score was 22.47 with mean % 44.94 and SD 3.596 similarly in post-test mean score was 46.02 with mean % 92.04% and SD 1.557.

Figure 3 represent pre-test and post-test knowledge level regarding prevention of common respiratory problems among sanitation workers. In pre-test 33.3% (20) of participants were having moderate knowledge and 66.7% (40) were having inadequate knowledge level, similarly in post-test 48.33% (29) of participants were having adequate knowledge and 51.67% (31) were having moderate knowledge level.

Figure 4 shows pre-test and post-test attitude level regarding prevention of common respiratory problems among sanitation workers. In pre-test 71.67% (43) of participants were having neutral attitude and 28.33% (17) were having negative attitude level, similarly in post-test 58.33% (35) of participants were having positive attitude and 41.67% (25) were having neutral attitude level.

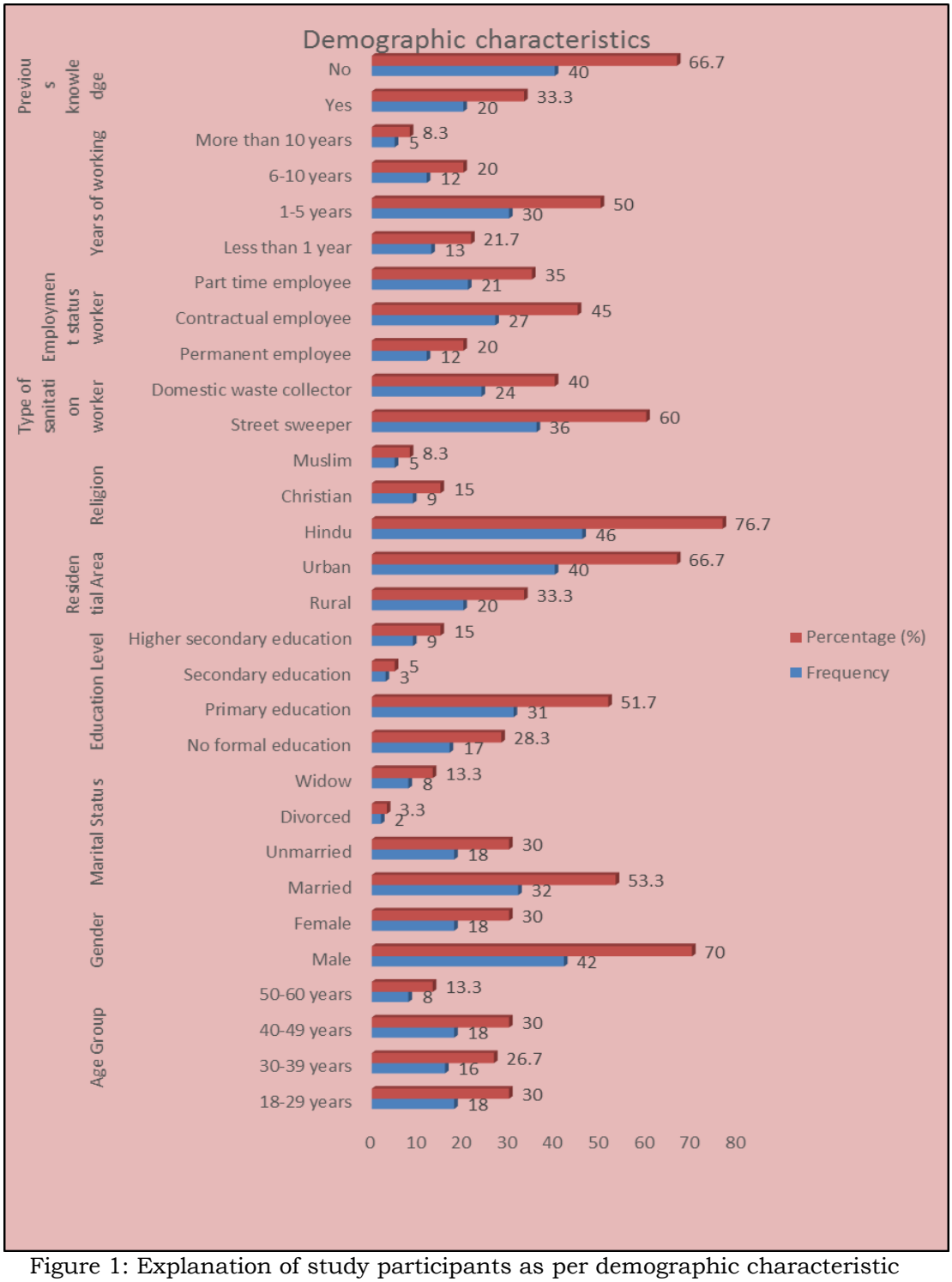

Figure 1: Explanation of study participants as per demographic characteristic

Table 2: Distribution of subject according to knowledge & attitude score regarding prevention of common respiratory problems among sanitation workers. N=60

Categories	Knowledge score				Attitude score			
	Max Score	Mean	Mean %	SD	Max Score	Mean	Mean %	SD
Pre-test	30	15.38	51.26%	1.678	50	22.47	44.94%	3.596
Post-test	30	20.37	67.9%	2.571	50	46.02	92.04%	1.557

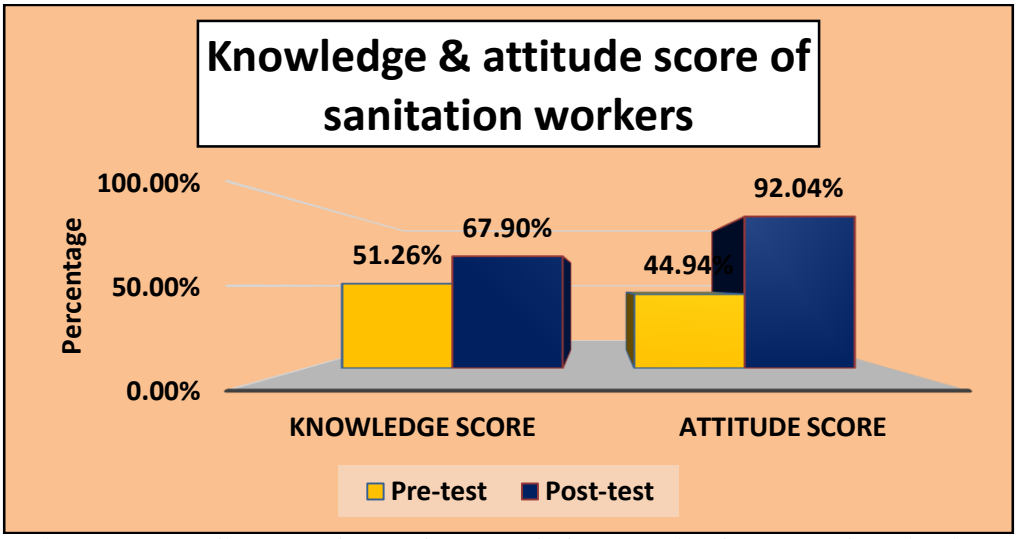

Figure 2: Bar diagram shows the Knowledge & attitude score of sanitation workersregarding prevention of common respiratory problems

Table 3: Distribution of subject according to knowledge level regarding prevention of common respiratory problems among sanitation workers. N=60

Knowledge Level	Pre-test		Post-test	
	Frequency	Percentage	Frequency	Percentage
Adequate Knowledge	0	0.00%	29	48.33%
Moderate Knowledge	20	33.33%	31	51.67%
Inadequate Knowledge	40	66.67%	0	0.00%
Total	60	100%	60	100%

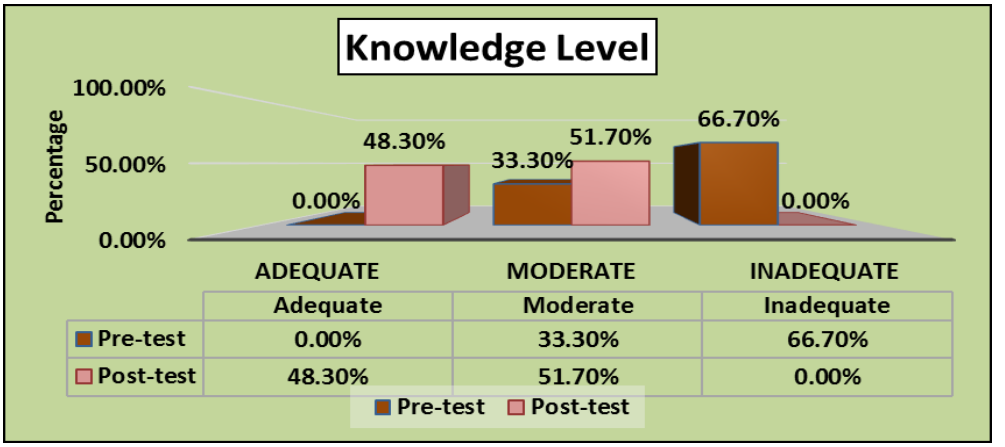

Figure 3: Distribution of study subject according to pre-test & post-test knowledge level

Table 4: Distribution of subject according to attitude level regarding prevention of common respiratory problems among sanitation workers N=60

Attitude Level	Pre-test		Post-test	
	Frequency	Percentage	Frequency	Percentage
Positive attitude	0	0.00%	35	58.33%
Neutral attitude	43	71.67%	25	41.67%
Negative attitude	17	28.33%	0	0.00%
Total	60	100%	60	100%

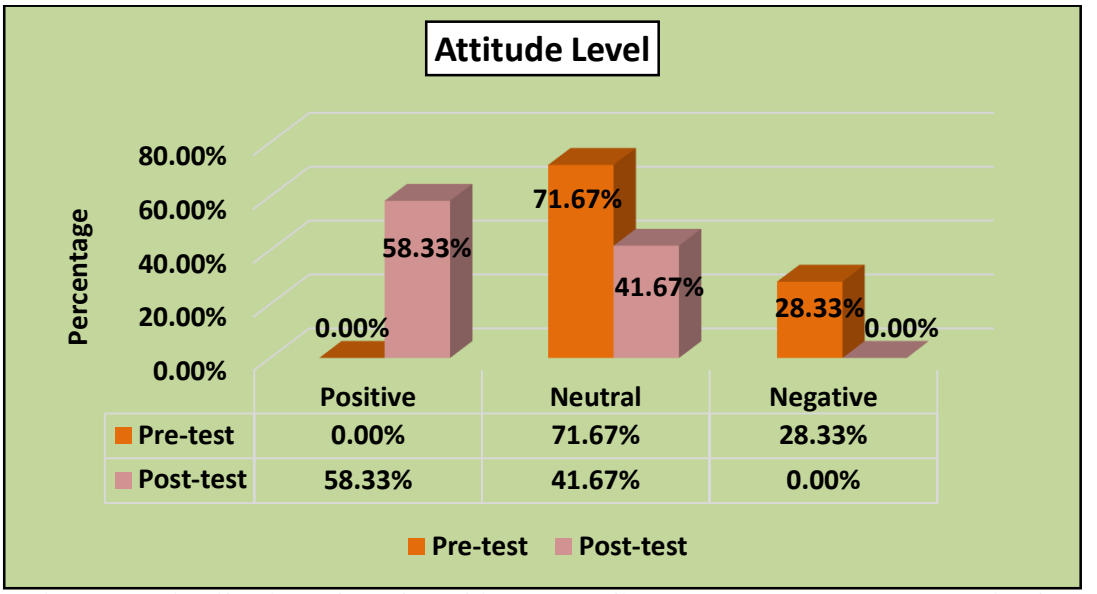

Figure 4: Distribution of study subject according to pre-test & post-testattitude level

Table 5: Effectiveness of Health Teaching Program regarding prevention of common respiratory problems among sanitation workers

N=60

Categories	Test	Mean	Mean %	SD	Mean difference	t-value
Knowledge	Pre-test	15.38	51.26%	1.678	4.99	11.675*
	Post-test	20.37	67.9%	2.571		
Attitude	Pre-test	22.47	44.94%	3.596	23.55	44.740*
	Post-test	46.02	92.04%	1.557		

The df=59 and *p-value is significant at the level of 0.05.

Table 5 represent Effectiveness of Health Teaching Program regarding prevention of common respiratory problems among sanitation workers. The difference between the mean pre-test and post-test knowledge scores of sanitation work is 4.99 and the t-value is 11.675 with the df,59 and the p-value is 0.000, which is significant at the 0.05 level. Similar to the sanitation work, there is a difference in the mean pre-test scores and post-test attitude scores of 23.55 and t-value is 44.740 with the df,59 and p-value is 0.000, which is significant at the 0.05 level. Table 6 shows there is no association between post- test knowledge score regarding prevention of common respiratory problems among sanitation workers with selected demographic variables.

Table 7 shows there is an association between post- test attitude score regarding prevention of common respiratory problems among sanitation workers with age group, education level of workers, Years of working as sanitation workers and there is no association between post- test attitude score regarding prevention of common respiratory problems among sanitation workers with gender, marital status, residential area, religion, type of sanitation workers, employment status worker and previous knowledge.

Table 6 Association between demographic variable and post-test knowledge score

Demographic variables		Knowledge Levels		Chi Squre Value	df	P-value
		Moderate	Adequate			
Age group	18-29 years	12	6	3.576	3	0.311 NS
	30-39 years	7	9			
	40-49 years	7	11			
	50-60years	5	3			
Gender	Male	22	20	0.029	1	0.866 NS
	Female	9	9			
Marital status	Married	19	13	7.066	3	0.07 NS
	Unmarried	6	12			
	Divorced	0	2			
	Widow	6	2			
Education level	Not literate	11	6	6.102	3	0.107 NS
	Primary education	12	19			
	Secondary education	1	2			
	Higher secondary education	7	2			

Residential area	Rural	13	7	2.136	1	0.144 NS
	Urban	18	22			
Religion	Hindu	23	23	0.245	2	0.885 NS
	Christian	5	4			
	Muslim	3	2			
Type of sanitation worker	Street sweeper	20	16	0.545	1	0.46 NS
	Domestic waste collector	11	13			
Employment status worker	Permanent employee	6	6	0.018	2	0.991 NS
	Contractual employee	14	13			
	Part time employee	11	10			
Years of working	Less than 1 year	7	6	0.544	3	0.909 NS
	1-5 years	15	15			
	6-10 years	7	5			
	More than 10 years	2	3			
Previous knowledge	Yes	13	7	2.136	1	0.144 NS
	No	18	22			

*p-value < 0.5; NS= NOT SIGNIFICANT

Table7 Association between demographic variables and post-test attitude score
N=60

Demographic variables		Attitude Levels		Chi Squre Value	df	P-value
		Neutral	Positive			
Age group	18-29 years	5	13	8.114	3	0.044*
	30-39 years	4	12			
	40-49 years	12	6			
	50-60years	4	4			
Gender	Male	20	22	2.041	1	0.153NS
	Female	5	13			
Marital status	Married	14	18	3.829	3	0.281 NS
	Unmarried	7	11			
	Divorced	2	0			
	Widow	2	6			
Education level	Not literate	4	13	9.163	3	0.027*
	Primary education	16	15			
	Secondary education	3	0			
	Higher secondary education	2	7			
Residential area	Rural	6	14	1.68	1	0.195 NS
	Urban	19	21			
Religion	Hindu	20	26	1.056	2	0.59 NS
	Christian	4	5			
	Muslim	1	4			
Type of sanitation worker	Street sweeper	16	20	0.286	1	0.593 NS
	Domestic waste collector	9	15			

Employment status worker	Permanent employee	3	9	4.114	2	0.128 NS
	Contractual employee	15	12			
	Part time employee	7	14			
Years of working	Less than 1 year	3	10	8.403	3	0.038*
	1-5 years	17	13			
	6-10 years	2	10			
	More than 10 years	3	2			
Previous knowledge	Yes	6	14	1.68	1	0.195 NS
	No	19	21			

*P<0.05; NS= NOT SIGNIFICANT

Discussion

Objective – 1: To assess sanitation workers' existing knowledge and attitudes toward the prevention of common respiratory disorders

The knowledge and attitude score on the prevention of common respiratory disorders among sanitation employees was examined in this study.The pre-test knowledge mean score was 15.38 with mean % 51.26 and SD 1.678 similarly in post-test mean score was 20.37 with mean % 67.9% and SD 2.571. The pre-test attitude mean score was 22.47 with mean % 44.94 and SD 3.596 similarly in post-test mean score was 46.02 with mean % 92.04% and SD 1.557.

In pre-test 33.3% (20) of participants were having moderate knowledge and 66.7% (40) were having inadequate knowledge level, similarly in post-test 48.33% (29) of participants were having adequate knowledge and 51.67% (31) were having moderate knowledge level. In pre-test 71.67% (43) of participants were having neutral attitude and 28.33% (17) were having negative attitude level, similarly in post-test 58.33% (35) of participants were having positive attitude and 41.67% (25) were having neutral attitude level.

Girish Degavi et al (2021)A cross-sectional quantitative study design was used to assess knowledge, attitude, and practise, as well as associated factors, regarding the prevention of occupational risks and health hazards among sanitary workers at Bulehora University. The results show that 64 percent of the study samples had good knowledge of how to avoid occupational health risks. Only 8.9% of solid trash collectors exhibited good behaviour in terms of preventing occupational health hazards, whereas 76.4 percent had a positive attitude. As a result, the research indicated that strategies for implementing basic occupational health services, as well as ensuring the provision of personal protective equipment and overseeing solid waste collectors, are required.[11]

Objective – 2: To evaluate the effectiveness of Health Teaching Program regarding prevention of common respiratory problems among sanitation workers

The data represent Effectiveness of Health Teaching Program regarding prevention of common respiratory problems among sanitation workers. The difference between the mean pre-test and post-test knowledge scores of sanitation work is

4.99 and the t-value is 11.675 with the df,59 and the p-value is 0.000, which is significant at the 0.05 level. Similar to the sanitation work, there is a difference in the mean pre-test scores and post-test attitude scores of 23.55 and t-value is 44.740 with the df,59 and p-value is 0.000, which is significant at the 0.05 level.

Kalpana Ramesh (2016)On 40 workers, a pre-experimental investigation with an evaluative method was carried out. The findings show that prior to the implementation of the Video Assisted Teaching Programme (V.A.T.P), the workers had insufficient knowledge, a moderate level of respiratory symptoms, and a lower peak expiratory flow rate, whereas after the implementation of the teaching programme, the workers' knowledge and peak expiratory flow rate improved, and their respiratory symptoms decreased. As a result of the study, workers' knowledge and respiratory state about certain respiratory disorders greatly improved, with a mean percentage difference indicating the effectiveness of V.A.T.P.[12]

Objective – 3: To find the association of post- test knowledge and attitude score regarding prevention of common respiratory problems among sanitation workers with selected demographic variables

The obtained chi square value for knowledge score with socio demographic variable for Age in year (x^2 = 3.576, p-value 0.311), Gender (x^2 = 0.029, p-value 0.866), Marital status (x^2 = 7.066, p-value 0.07), Education level (x^2 = 6.102, p-value 0.107), Residential area (x^2 = 2.136, p-value 0.144), Religion (x^2 = 0.245, p-value 0.885), Type of sanitation worker (x^2 = 0.545, p-value 0.46), Employment status worker (x^2 = 0.018, p-value 0.991), Year of working (x^2 = 0.544, p-value 0.909), Previous knowledge (x^2 = 2.136, p-value 0.144) are not significant at 0.05 level of significance, hence the research hypothesis H_3 was is rejected for all the variables and null hypothesis is accepted.

The obtained chi square value for attitude score with socio demographic variable for Age in year (x^2 = 8.114, p-value 0.044), Education level (x^2 = 9.163, p-value 0.027), Year of working (x^2 = 8.403, p-value 0.038), are significant at 0.05 level of significance. Hence, the research hypothesis H_3 is accepted and null hypothesis is rejected. Other variables such as Gender (x^2 = 2.041, p-value 0.153), Marital status (x^2 = 3.829, p-value 0.281), Residential area (x^2 =1.68, p-value 0.195), Religion (x^2 = 1.056, p-value 0.59), Type of sanitation worker (x^2 = 0.286, p-value 0.593), Employment status worker (x^2 = 4.114, p-value 0.128), Previous knowledge (x^2 = 1.68, p-value 0.195) are not significant at 0.05 level of significance, the research hypothesis H_3 was is rejected for these 7 variables and null hypothesis is accepted.

Dr A.K. Khatri, et al. This cross-sectional study was conducted in 2017 among 200 sanitation employees employed by the Indore Municipal Corporation at random (IMC). According to the findings, 71 percent of sanitation employees were between the ages of 31 and 49, and the majority (63 percent) were females. 96 percent had one or more health issues, the most prevalent of which were respiratory issues (87 percent). Personal protection equipment (PPE) was known by 85 percent of the research participants, yet none of them utilised it. If IMC supplied PPE, 98 percent said they would use it. In the event of illness, just 57

percent went to the doctor.Thus, the study concluded that high prevalence of health problems among sanitation workers.[13]

Summary

The present study was under taken "A study to assess the effectiveness of Health Teaching Program in terms of knowledge and attitude regarding prevention of common respiratory problems among Sanitation workers at selected areas of Gurugram, Haryana." The 60 Sanitation Workersat selected areas of Gurugram i.e Rewari Agarsen Chowk, Haryana were included for this study. Socio-demographic variables, Structured knowledge questionnaire and Attitude (Likert's) scale tool used for data collection later health teaching programme was administered after 7 days post test was taken. The sample was chosen using a process known as purposive sampling.

Conclusion

The study attempted to assess the knowledge regarding prevention of common respiratory problems among Sanitation Workers at selected areas of Gurugram, Haryana. The findings revealed that the mean percentage of post-test is more than the pre-test. The difference between pretest and post-test knowledge score is 4.99 and attitude score is 23.55. This showed that Health Teaching Program was effective in improving the knowledge and attitude regarding prevention of common respiratory problems among Sanitation workers.

Nursing Implications

Nursing Education:

- The nurse or health worker can educate the sanitation worker about the preventive method of the occupational hazards.
- Administration of health teaching programme must be emphasized to other field worker to improve the health status by providing different type of education method so common people also aware about the different occupation hazards.

Nursing Practice

- The nursing personnel have to plan for a periodic health checkup for the sanitation worker.
- They can be encouraged to teach the sanitation worker regarding PPE.
- Nursing personnel periodically should assess the health condition of the sanitation worker family member also.

Nursing Research

- This study will serve as a valuable reference material for further investigators.
- Large-scale studies can be conducted.

- Research should be continued on need of the practices and effectiveness of health teaching programme among various occupational setup also.

Nursing Administration

- Teaching program can be given to administrator through the various channels of communication regarding the hazard and its prevention.
- It is important for the nurse administrators to facilitate program to improve the knowledge of nurses regarding occupation health.
- Nurse administrator should develop the in-service education program regarding occupation health services for sanitation worker & other industry worker.

Limitations

1. The study confined to 60 Sanitation workers.
2. The study is limited to Sanitation workers at selected areas of Gurugram, Haryana
3. The study is limited to respiratory problem only.

Recommendation

The following suggestions are given based on the experience acquired throughout this investigation and the data obtained:

- The study may be conducted with a high sample size
- Study can be conducted as a real experimental investigation.
- A similar study could be performed for various preventive measures among Sanitation workers.
- Another study can be conducted on skin problems among Sanitation workers at selected areas of Gurugram, Haryana.

References

[1] Municipal Corporation of Gurugram, https://www.gurugramonline.in/city-guide/municipal-corporation-of-gurugram.

[2] Home | Department of Social Justice and Empowerment, Ministry of Social Justice & Empowerment, Government of India. Available at: http://socialjustice.nic.in

[3] The print, 282 deaths in last 4 years: How Swachh Bharat Mission failed India's manual scavengers, Dhaval Desai, 27 January, 2020 01:01 pm.

[5] Health, Safety and Dignity of Sanitation Workers An Initial Assessment, World Bank, ILO, WaterAid and WHO, © 2019 International Bank for Reconstruction and Development / The World Bank, 1818 H Street NW, Washington, DC 20433.

[6] Tindall Bailliere, Watson's Clinical Nursing and related Sciences, Edited By Mike Walsh, Sixth Edition, Published by Elsevier Limited, Page no. 196.

[7] Phipps, Monahan, Marek and Neighbors, Medical Surgical Nursing, Health and Illness Perspective, Seventh Edition, Published by Mosby, Page n0. 480.

[8] Abonmai, K., Dular, S. K. and Chhillar, R. (2021) "Effectiveness of Video Assisted Teaching [VAT] in Terms of Knowledge and Self-expressed Stigma Regarding COVID-19 and its Preventive Measures among Housekeeping Staff at Selected Hospital, Gurugram, Haryana: A Pre-experimental Study", *Journal of Pharmaceutical Research International*, 33(60B), pp. 854-864. doi: 10.9734/jpri/2021/v33i60B34688.

[9] Ajit Kumar Lenka,Health, Work, and State Response Toward Person Engaged in Sanitation Work: Some Issues and Challenges, Springer Nature Singapore Pte Ltd, 2019. Available at: https://doi.org/10.1007/978-981-13-8421-9_17.

[10] RentelaSreevani, Basics in Nursing Research and Biostatistics, First Edition, 2019, Published by Jaypee Brothers Medical Publishers (P) Ltd, Page no. 187-193.

[11] Girish Degavi et al (2021), Occupational hazards and its relation with health-seeking and practicing behaviors among sanitary workers in Southern, Ethiopia, International Journal of Africa Nursing Sciences 15 (2021) 100339, Available online 28 July 2021, https://doi.org/10.1016/j.ijans.2021.100339

[12] Mrs.Kalpana Ramesh, Effectiveness Of Video Assisted Teaching Programme (V.A.T.P.) On Selected Respiratory Problems In Knowledge And Respiratory Status Among Workers In Selected Spinning Mill, PondicherryJournalofNursing, ol9Issue2MAY–AUG16.

[13] Dr A.K. Khatri, et al. Health Problems among Sanitation Workers in Indore City and Their Knowledge, Attitude & Practices Regarding Preventive Measures Taken at Workplace: A Cross- Sectional Study, journal of medical science and clinical research, JMSCR Volume 06 Issue 05 May 2018: Page 178-183. DOI: https://dx.doi.org/10.18535/jmscr/v6i5.28