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Perceptions about lung health in Nepal before and after an educational session

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RESEARCH

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Abstract

Background
In Nepal tuberculosis, outdoor and indoor air pollution, cigarette smoking, smoking during pregnancy, poor working and health conditions in industries are common. Perceptions about various aspects of lung health among non-medical personnel working in medical schools in Nepal have not been previously studied.

Method
The study was carried out during January 2009. Basic demographic information was collected. Participants' perceptions about various aspects of lung health were studied by noting their agreement with a set of 50 statements using a modified Likert-type scale. The median total score and scores of various subcategories were calculated. The scores were compared among various subgroups of respondents using appropriate non-parametric tests. After noting the deficiencies a structured interactive session to correct them was conducted. Participant perceptions were studied immediately after the session using the same questionnaire and the scores compared to those before the session.

Results
Fifty-one respondents completed the questionnaire before the education session and 31 did so post-session. The majority of respondents were female, less than 40 years of age, either Brahmins or Chhetris, belonged to middle socioeconomic group; high school educated and used gas at home for cooking. The median total score was 182 before the session and increased to 218 post-session (maximum possible score 250). There was a significant increase in the scores of different subcategories also.

Conclusion
Non-medical personnel in a Nepalese medical school had good knowledge and understand of various aspects of lung health which further improved following an educational session.

Key Words
Educational session, Lung Health, Nepal, Non-medical personnel

Background

Nepal is a developing country in South Asia situated between India and China. Tuberculosis (TB) is one of Nepal's major public health problems. About 45% of the population is infected with TB, out of which 60% are in the age group who are part of the productive workforce. Introduction of Directly Observed Treatment Short course (DOTS) has reduced the number of deaths; however, 8,000-11,000 people continue to die every year from TB [1]. Developing countries like Nepal face the problems of outdoor as well as indoor air pollution [2]. The main sources of air pollution in Kathmandu, the biggest city and capital of Nepal, are industries and vehicles. Other minor sources are domestic cooking fuels, refuse burning and resuspended dust particles. The major source of indoor air pollution in Nepal is biomass fuel. There were significant associations between biomass smoke pollution and respiratory symptoms such as cough; phlegm; breathlessness; wheezing; and chronic respiratory diseases such as COPD and asthma [3].

In Nepal, data shows 39.5% of males and 23.8% of females smoke with about 7000 million cigarette sticks consumed in Nepal in 2000 [4, 5]. Cigarette smoking during pregnancy is associated with an increased risk of maternal and infant mortality in rural Nepal [6].

Non-medical personnel working in hospitals like other healthcare workers are at increased risk of tuberculosis [7] and influenza A [8] among other respiratory infections. Improved knowledge and the ability to put their knowledge

into practice can protect workers from respiratory and other infections and improve their lung and general health. Perceptions about various aspects of lung health among non-medical personnel working in medical schools in Nepal have not been previously studied. These individuals as educated and informed members of society can play an important role in promoting measures to reduce air pollution and improve lung health practices in Nepal. Hence the present study was carried out at KIST Medical College (KISTMC), a new medical school in Lalitpur district of the Kathmandu valley, Nepal. The institution is committed to excellence in holistic healthcare, education and research. The study primarily aimed to obtain perception about lung health among non-medical personnel, design an educational program in the light of deficiencies noted and empower participants to better protect their lung health at work and at home. The educated participants could have spread their improved knowledge among others in the community but this was not a primary objective of the study. The objectives of the study were to:

a. Obtain baseline perception about lung health among non-medical personnel working in KISTMC
b. Plan and conduct an educational session considering the deficiencies noted and
c. Measure perception again after the educational session.

Method

The study was carried out among non-medical personnel from KISTMC during January 2009. Participants were recruited by notices pasted on notice boards and by directly interacting with the personnel. Written informed consent was obtained. Basic demographic information like gender, age, native place, place where they reside in the Kathmandu valley, ethnic/caste group, post held in the organization, socioeconomic status (self-declared), number of family members, number of rooms in house and fuel used for cooking was collected. Non-medical personnel were a heterogeneous group of individuals ranging from finance, engineering, administration, secretarial services, maintenance and housekeeping. In Nepal the society is divided along caste and ethnic lines. The higher Hindu castes, the Brahmins and Chhetris are well educated and usually hold high positions and skilled jobs. The Newars are also an ethnic group (originally from the Kathmandu valley) which is highly educated and economically strong. Nearly 70% of the non-medical personnel in the institution are women. This has been reflected in the participant selection also. Personnel willing to participate and to give written consent were included.

Defining socioeconomic groups was difficult. The classification was mainly based on the monthly income of the family. In a previous study [9] done in 2002 the authors had used income to differentiate patients into different groups. After allowing for inflation participants with a monthly family income less than 4000 Nepalese rupees (NRs) (1 Nepalese rupee = 74 US$) were considered as low socioeconomic group, those between 4000 to 10000 NRs as middle and those above 10000 NRs as belonging to high socioeconomic group. The participants were asked to divide themselves into groups according to their monthly income. The limitations were no other parameters were considered. Number of family members was not taken into account and the information was not cross checked by the authors. Participants' perception about various aspects of lung health was studied by noting their agreement with a set of 50 statements using a modified Likert-type scale. The questionnaire originally designed in English was translated into Nepali by the authors. The translated questionnaire was then compared with the original one by two individuals conversant in both English and Nepali and not involved in the study. Participants could attempt either the English or the Nepali version of the questionnaire according to their preference. The English version of the questionnaire is shown as an additional file. The validity and reliability of the translated questionnaire were not studied. Ethical approval for the study was granted by the Institutional Research Committee of KIST Medical College via notification number KISTMC-BS/04. In addition permission to involve employees in the study was also obtained from the management of the institution. The questionnaire used is shown in the Appendix.

Statements were grouped together into different categories like anatomy & physiology, occupational, lung diseases, practices, air pollution and improved lung health. Each statement was put into the subgroup into which it fitted best but the statement may also be applicable and relevant to other subcategories. Statements 1 and 2 dealt with anatomy and physiology of the lungs, statements 5, 11, 12, 20, 41 and 46 dealt with occupational issues while 6,7, 14, 15, 16, 17, 18, 27, 28, 29, 33, 35, 36, 37, 38 and 45 dealt with lung diseases. The subject of 'air pollution' was covered by statements 9, 10, 22, 23, 39, 40, 42, 43, 44, 49 and 50 while 'lung health' was covered by statements 13, 21, 24, 25, 26, 34 and 48. Statements 3, 4, 8, 19, 30, 31, 32 and 47 were grouped under the 'social' category. To reduce stereotyped responses certain statements were negative and were reverse scored while calculating the final score. The median total score and scores of various subcategories were calculated. The scores were compared among various subgroups of respondents using appropriate non-parametric tests. Mann-Whitney U test was used for scores distributed among two groups of respondents and Kruskal-Wallis test for the others. A p value less than 0.05 was taken as statistically significant. Statistical Package for Social Sciences (SPSS) 13.0 for windows was used for statistical analysis. The statistical tests were reviewed by a biostatistician.

The median scores of individual statements were also calculated to know areas in which respondents' perception was low. The deficiencies were noted and a structured interactive session to remedy them was designed. One of the authors (KUD) was the chief facilitator for the session. The session was a structured interactive one held over a

two hour period with a break of 10 minutes in the middle. The chief facilitator in the first session had an interactive discussion using power point slides about various lacunae noted among participants as regards knowledge and perception about lung health. Issues covered in all questions were mentioned but the primary focus was on questions and areas which were answered wrongly by a large number of participants. The second half was a question and answer session where the facilitators answered questions from the audience. Participant perception was studied immediately after the session using the same questionnaire. The order in which the questions were presented was changed. The post-session scores were compared to those before the session using appropriate non-parametric tests. Free text comments of participants were invited. The comments were tabulated and common ones noted.

Results

Fifty-one respondents completed the questionnaire before the education session while only thirty-one did so after the session. Table 1 shows the demographic characteristics of respondents before and after the educational session. Majority of respondents were female, less than 40 years of age, either Brahmins or Chhetris, belonged to middle socioeconomic group, were educated to at least high school level and used gas at home for cooking.

Table 2 shows the median total scores and the median scores of subcategories according to demographic characteristics of respondents before the educational session. The 'occupational subcategory score was high among individuals from a lower socioeconomic background and the 'improved lung health' score was also higher in this group. The 'lung diseases' subcategory score was highest among individuals who had 7 to 10 members in the family. No other significant differences in scores were seen. Table 3 shows the median total scores and the median scores of subcategories according to demographic characteristics of respondents after the educational session. The median improved lung health score was higher among others and Brahmins/Chhetris but low among Newars. The total score was also lower among Newars but the difference was not statistically significant.

Table 4 shows the total median score and score of different subcategories before and after the educational session. Significant improvements were noted in the total score and score of different subcategories. Among the free text comments some participants expressed their gratitude to the study organizers for tackling this important topic and for arranging the educational session.

Table 5 shows the median scores of individual statements before and after the educational session. The scores of many statements increased after the session but in a few statements the score decreased. Coming to the scores of individual statements those of statements 2, 11, 24, 26, 27, 28, 32 and 37 improved after the sessions.

Discussion

The number of female respondents was higher compared to males. This is in accordance with the greater number of female employees in the institution. Giving information to women may have implications regarding passing on to and use of this information by the community. Women may be more likely to pass on this information to other women. We are not sure whether they will pass on this information to male members of the family and if this is done whether the information will be listened to and acted upon. The status of women in Nepalese society varies according to a number of factors among them education, socioeconomic status and ethnic and caste group. Non Hindu groups generally have a higher status of women and their greater involvement in family affairs. Most employees were young. The non-medical personnel included administrative staff, house keeping staff and general helping staff. Most were only educated to the school level. At the time of the study the institution had just started functioning and number of staff was low.

The median score for the 'occupational' subcategory was higher among individuals belonging to the lower socioeconomic class. Many of these individuals are from housekeeping and cleaning and many of the issues covered in the questionnaire dealt with cleaning and handling of waste. It is surprising to note that knowledge of measures to improve lung health was also higher in this group. Our understanding was that being uneducated and from a lower socioeconomic group they would have lesser knowledge about these issues. It may be that many of the questions dealt with issues they come across in their daily work and with personal protection measures accounting for the higher scores.

A variety of issues and factors related to lung health were covered in the study. The population covered in the study was also diverse ranging from housekeeping and cleaning staff to administrative and office staff. Previous studies had looked at only specific diseases or specific issues related to lung health. Certain issues associated with smoking were also covered in this study.

TB was among the lung diseases covered in the study. Participant knowledge of TB was satisfactory though only basic issues were covered. A study in Iraq among health care workers had shown that knowledge was good but in contrast practice was poor [10]. The authors had noted among health care workers, 95.5% had good knowledge about TB which was significantly associated with age and job duration. By contrast, health care workers' practice was poor: only 38.2% handled suspected TB cases correctly. They concluded that the national TB programme in Iraq had a good impact on knowledge of TB patients and health care workers. The majority of healthcare workers had a diploma qualification. The authors have explained the discrepancy between knowledge and practice by stating that at the time of the study Iraq had suffered from sanctions for over 12

years resulting in shortage of supplies and health services and the workers could not effectively put their knowledge into practice. In Peru to combat TB both professional health care providers (HCPs) such as doctors and nurses, and non-professional HCPs such as community health workers (CHWs) are used. HCPs practicing in 30 clinical settings were surveyed in a recent study for their knowledge and attitude towards TB management [11]. Seventy-three HCPs were surveyed and 15% were professionals. The mean knowledge score was 10.0 ± 1.9 (maximum 14) with professional HCPs scoring higher than other HCPs (11.7 ± 1.1 vs. 9.7 ± 1.9), $p < .01$). Knowledge gaps included identification of patients at high risk for TB, assessment of treatment outcomes, and consequences of treatment failure. In Taiwan, a training course resulted in significant improvement in level of TB knowledge among health workers [12]. The authors concluded that training workshops in TB control were effective for promotion of knowledge and elimination of stigmatization in first-line caregivers.

Statements 14 and 35 dealt with antibiotic misuse and the growing problem of resistance. It is heartening to note that reversed scores of statement 14 were high though the score declined slightly after the educational session. Use of antibiotics in respiratory infections is a major problem the world over and one of the major reasons for development of resistance. In a study carried out in nine developed and developing nations interviewees believed that most respiratory infections, except the common cold, require antibiotic therapy, and 11% of them had to exaggerate their symptoms to get an antibiotic prescription from their physician [13]. A total of 5379 subjects (initial target: 5400) were interviewed, including 1798 working adults, 1766 older adults, and 1815 mothers. Twenty percent of interviewees first tried traditional remedies while 32% obtained a medicine/s directly from the pharmacist. Sixty-nine percent of the patients claimed to have taken the course until the end and 75% claimed that they actually took all the daily doses [13]. Majority believed that antibiotics are required for respiratory infections. Antibiotics overall had a positive image among the public. A large percentage of mothers had concerns about their child taking antibiotics and nearly a quarter of the mothers saved a part of the course of antibiotics for future use.

Many statements in our questionnaire dealt with the issue of indoor air pollution. In the US a study on women's experience of exposure to household chemicals was conducted [14]. Participation in the study led the women to conclude that synthetic chemicals can be detected in household air and dust, most homes contain a variety of different chemicals, even banned substances like the pesticide DDT could be detected and many household sources of pesticide exposure are unregulated and understudied. A recent review had concluded that indoor air pollution from biomass fuels disproportionately affects women and children and is a significant cause of global morbidity and mortality [15]. The authors concluded that the subject is neglected and further research is required. In Jordan, a study showed alarming rates of smoking in homes, the extent of knowledge was moderate but higher among those exhibiting symptoms and those with children. Cleaning practices associated with healthy home environments were reported at a high rate [16].

In our study many statements explored the issue of smoking. Environmental tobacco smoke (ETS) has become an issue of concern and in Norway, a developed Scandinavian country households reporting exposure of children to ETS fell from 32% in 1995 to 18% in 2001 [17]. Health-risk awareness had significantly increased in households containing smokers. In surveys in 1995 and 2001, the probability of children being exposed to ETS was positively correlated with the number of parents smoking, and inversely correlated to strength of health-risk awareness, negative attitudes towards ETS and length of household education. In the US, most women were aware that smoking causes respiratory disease (99%), lung cancer (99%), heart disease (96%), and pregnancy complications (91%) [18]. However, only few women were aware of the health risks of smoking that are specific to women, such as infertility (22%), osteoporosis (30%), early menopause (17%), spontaneous abortion (39%), ectopic pregnancy (27%), and cervical cancer (24%). The authors concluded that public health measures are necessary to increase knowledge of smoking risks which are specific to women.

Our study had limitations. A number of issues related to lung health were covered. The number of participants in the study after the educational intervention was low. The questionnaire was tested for comprehensibility and ease of understanding among two individuals. Pre-testing and validation was not done. The sample size was low. Participant knowledge and perception was studied immediately after the educational session. Due to technical and logistic problems assessment was not carried out after this. Retention of knowledge and its effect on future behaviour change was not studied. Also the statements were grouped into subcategories based on the subgroup into which it fitted the best but the statement may also be applicable and relevant to other subcategories.

Conclusion

Non-medical personnel in a Nepalese medical school had good knowledge and perception about various aspects of lung health which was further improved following an educational session. The study was carried out at the initial stages of establishment of the institution and follow up studies are required. Similar studies in other Nepalese medical schools and teaching hospitals will be useful.

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PEER REVIEW

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CONFLICTS OF INTEREST

The authors declare that they have no competing interests

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Figures and Tables

Table 1: Demographic characteristics of respondents before and after the educational session

Characteristic		Before the session (n = 51)	After the session (n =31)
		Number (percentage)	Number (percentage)
Gender	Male	8 (15.7)	2 (6.5)
	Female	43 (84.3)	29 (93.5)
Age (years)	20-30	35 (68.6)	16 (51.6)
	30-40	14 (27.5)	11 (35.5)
	> 40	2 (3.9)	2 (6.5)
Ethnic/caste	Newar	12 (23.5)	5 (16.1)
	Brahmin/Chhetri	27 (52.9)	20 (64.5)
	Others	10 (19.6)	4 (12.9)
Socioeconomic Group	Low	14 (27.5)	11 (35.5)
	Middle	32 (62.7)	20 (64.5)
	High	0	0
Education	School	40 (78.4)	19 (61.3)
	+ 2	5 (9.8)	4 (12.9)
	Bachelor	4 (7.8)	2 (6.5)
	Masters	0	1 (3.2)
Fuel used	Gas	45 (88.2)	24 (77.4)
	Kerosene	2 (3.9)	3 (9.7)
	Firewood	4 (7.8)	2 (6.5)
Number of rooms	<4	24 (47.1)	17 (54.8)
	4-6	19 (37.3)	8 (25.8)
	7-10	6 (11.8)	3 (9.7)
	>10	2 (3.9)	0
Number of family members	<4	7 (13.7)	4 (12.9)
	4-6	34 (66.7)	16 (51.6)
	7-10	9 (17.6)	7 (22.6)
	>10	0	0
Post	Unskilled	42 (82.4)	23 (74.2)
	Skilled	9 (17.6)	6 (19.4)

Table 5: Scores of individual statements before and after the educational session

Statement	Median score before the session	Median score after the session
One (function lungs)	5	5
Two (one lung)	3	4
Three (Passive smoking)*	5	4
Four (smoke pregnancy) *	5	5
Five (masks sweeping)	5	5
Six (TB major killer)	5	4
Seven (TB patients isolated) *	5	5
Eight (Yoga lung health)	5	5
Nine (air pollution lung disease)	5	5
Ten (Polluting industries Kathmandu)	5	5
Eleven (sputum disposed with other wastes) *	3	5
Twelve (carpet industry lung disease)	5	5
Thirteen (using handkerchief not necessary) *	5	5
Fourteen (antibiotics useful in cough & colds) *	5	4
Fifteen (bird flu by eating chicken) *	5	3
Sixteen (friends with TB patient)	5	3
Seventeen (DOTS TB treatment)	5	5
Eighteen (Ascending slowly altitude sickness)	5	4
Nineteen (Musicians lung function)	5	5
Twenty (stone quarries lung disease)	5	5
Twenty-one (attending training program)	5	5
Twenty-two (planting more trees)	5	5
Twenty-three (Smoking in public places)	5	5
Twenty-four (Film actors/actresses smoke) *	4	5
Twenty-five (ventilation in kitchens)	5	5
Twenty-six (wood proper cooking fuel) *	2	4
Twenty-seven (coughs & colds children)	4	5
Twenty-eight (fish therapy asthma) *	1	5
Twenty-nine (dust & lung disease) *	5	5
Thirty (breathing exercises)	4	5
Thirty-one (cigarette companies & sports)	4	4
Thirty-two (bidis safer than cigarettes) *	4	5
Thirty-three (jhankris cure TB)	5	5
Thirty-four (Lung health important to us)	5	5
Thirty-five (Drug resistance TB)	5	5
Thirty-six (AIDS & TB)	5	5
Thirty-seven (TB patients in hospital)	4	5
Thirty-eight (asthma common in winters)	5	5
Thirty-nine (safa tempos clean)	5	5
Forty (old vehicles removed)	5	5
Forty-one (wet cloth at entrance trap dust)	5	5
Forty-two (automobile exhaust & lead)	3	5
Forty-three (Kathmandu more polluted in winters)	3	5
Forty-four (sunlight kills germs)	5	5
Forty-five (common cold & droplets)	5	5
Forty-six (wet mopping safer)	5	5
Forty-seven (breathing & meditation)	5	5
Forty-eight (measures to reduce pollution)	5	5
Forty-nine (bicycles encouraged)	5	5
Fifty (thermal power plants)	1	1

Appendix: Perceptions about lung health among non-medical personnel working in a medical college in the Kathmandu valley

Gender:	Age:
Place of origin:	Place of residence in Kathmandu valley:
Ethnic/Caste group:	Post held:
Socioeconomic status:	Number of family members:
Number of rooms in house:	Fuel used for cooking:

For the following statements score using the following key (1 = strongly disagree with the statement, 2= disagree with the statement, 3= neutral, 4= agree with the statement, 5= strongly agrees with the statement.) Use whole numbers only.

1) The main function of the lungs is to provide oxygen to the body.
2) A person can carry out his daily activities without much trouble if one lung is removed.
3) Passive smoking (inhaling smoke exhaled by others) does not significantly increase the risk of lung cancer.
4) A mother can smoke during pregnancy.
5) Use of mask while sweeping the floor is a good practice.
6) Tuberculosis is one of the major killers in Nepal.
7) Persons suffering from tuberculosis should be permanently isolated from society.
8) Yogic exercises improve lung health.
9) Air pollution is a major cause of lung diseases.
10) Polluting industries in the Kathmandu valley are not spending enough money on pollution control measures
11) Sputum from hospital patients can be disposed along with other wastes.
12) Workers in carpet industry have an increased risk of lung diseases.
13) Using a handkerchief while coughing or sneezing is not necessary.
14) Antibiotics are useful for treating coughs and common colds.
15) Bird flu can spread by eating chicken.
16) I am comfortable being friends with a person suffering from tuberculosis.
17) DOTS is a strategy used for TB treatment.
18) Ascending slowly can reduce the risk of altitude sickness.
19) Musicians playing wind instruments require good lung function.
20) Workers in stone quarries have an increased risk of lung diseases.
21) I will be interested in attending a training program on lung health.
22) Planting more trees is an important step towards improving lung health.
23) Banning smoking in public places is necessary.
24) It is OK if film actors and actresses smoke.
25) Proper ventilation in kitchens can reduce the risk of lung diseases.
26) Wood is a proper cooking fuel.
27) Coughs and colds among children is a common problem in Nepal
28) Fish therapy is effective in treating asthma.
29) Dust does not play a role in causation of lung diseases.
30) I regularly carry out breathing exercises to reduce mental stress and to improve lung function.
31) Cigarette manufacturers should not be allowed to sponsor sports events.
32) Bidis are safer than cigarettes.
33) Treatment by dhamis-jhankris can cure tuberculosis.
34) Issues of lung health are of importance to non-medical personnel also.
35) The TB germ is becoming resistant to the commonly used anti-TB drugs.
36) AIDS is making TB a more dangerous disease.
37) TB patients can be admitted in the KIST Medical College hospital.
38) Asthma is more common in winters.
39) Safa tempos are a clean mode of transportation.
40) Old vehicles which do not meet pollution control requirements should be removed from the road.
41) Using a wet cloth at the entrance of rooms can reduce the amount of dust inside.
42) Automobile exhaust is a major source of lead.
43) The Kathmandu valley is more polluted in winters.

44) Sunlight is lethal to various disease causing microorganisms.
45) Common cold spreads through air droplets.
46) In hospitals wet mopping is safer than dusting using a broom.
47) Control and regulation of breathing is an important component of many forms of meditation.
48) I will strongly support measures which will ensure that my children grow up in a less polluted city.
49) The use of bicycles in the Kathmandu valley should be strongly encouraged.
50) I am in favour of installation of thermal power plants in and around the valley to meet the power crisis.

Any other comments:

Thank You for participating. It is very much appreciated.

Table 2: Median total scores and subscale scores according to selected demographic characteristics before the educational session*

Scores Characteristics	Total	P value	Anat-physiology	P value	Occupational	P value	Lung diseases	P value	Social	P value	Air pollution	P value	Improved lung health	P value
Gender Male	172.5	0.422	5.5	0.869	20	0.233	58	0.550	28	0.244	41.5	0.484	18.5	0.351
Female	187		6		25		60		32		41		28	
Age 20-30	181	0.644	6	0.670	22	0.315	60	0.428	31	0.774	40	0.670	27	0.895
30-40	189		6		27		55.5		31		40		28.5	
> 40	191.5		6.5		23.5		62		33.5				23	
Socioeco Low	192	0.071	6	0.083	**27**	**0.008**	59.5	0.389	31	0.451	41.5	0.632	**30.5**	**0.013**
Middle	172.5		5		**20.5**		60.5		30		40		**22.5**	
Members <4	170	0.366	5	0.307	20	0.432	**62**	**0.011**	29	0.796	44	0.587	19	0.584
4-6	188		6		24		**59**		32		40.5		28	
7-10	191		6		25		**64**		31		37		28	

*** Each statement was put into the subgroup into which it fitted best but the statement may also be applicable and relevant to other subcategories**

**** B/C stands for Bahun/Chhetri**

Table 3: Median total scores and subscale scores according to demographic characteristics after the educational session*

Scores Characteristics	Total	P value	Anat-physiology	P value	Occupational	P value	Lung diseases	P vale	Social	P value	Air pollution	P value	Improved lung health	P value
Gender Male	221	0.783	7	0.520	32	0.348	73.5	0.211	32.5	0.430	47	0.968	29	0.479
Female	218		8		30		66		35		47		31	
Age 20-30	219.5	0.187	9	0.687	30	0.888	67	0.258	35	0.247	47	0.093	32	0.252
30-40	215		8		30		64		33		47		31	
> 40	231		8		28		71		38.5		51.5		34	
Ethnic Newar	198	0.054	7	0.186	29	0.205	62	0.095	33	0.295	42	0.086	27	0.057
B/C**	219.5		8		30		59		33.5		48.5		32	
Others	221		10		29		60.5		37		47		32	
Rooms <4	218	0.902	8	0.982	30	0.409	66	0.885	34	0.886	47	0.645	33	0.097
4-6	216.5		8.5		29.5		67.5		34.5		46		29	
7-10	218		9		29		67		34		47		29	

* Each statement was put into the subgroup into which it fitted best but the statement may also be applicable and relevant to other subcategories

** B/C stands for Bahun/Chhetri

Table 4: Total median score and scores of different subcategories before and after the educational session*

Median Score	Total	Anat-Physio (Max. score 10)	Occupational (Max. score 30)	Lung disease (Max. score 80)	Social (Max. score 40)	Air pollution (Max. score 55)	Improves lung health (Max. score 35)
Pre-session	182	6	23	60	31	41	28
Post-session	218	9	30	67	34	47	31
P value	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001

* Each statement was put into the subgroup into which it fitted best but the statement may also be applicable and relevant to other subcategories