

Effects of environment and education on knowledge and attitude of nursing students towards leprosy

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The objective of this cross-sectional comparative study was to find the effects of environment and education on knowledge and attitude of nursing students towards leprosy. Data were collected, using a pretested questionnaire, from the first year and third year students of a School of Nursing attached to a leprosy specialty hospital and also from a comparable School of Nursing attached to a general hospital. The results showed that trainees acquired more knowledge on leprosy during training in both schools of nursing. However, those trained in leprosy hospital environment had higher knowledge and attitude scores than those trained in general hospital environment. The attitude of the trainees attached to leprosy hospital was favourable even before they had formal training in leprosy. Those trained in the general hospital showed more favourable attitude after training compared to before training. School of Nursing attached to leprosy hospital provided an atmosphere conducive to learning and understanding more about leprosy. The trainees retained what was learnt because of regular association with patients affected by leprosy. For employment in hospital or community based services or research related to leprosy, nurses trained in a leprosy hospital would have added value of knowledge and attitude.

Key words : Nursing education, Knowledge, Attitude, Leprosy, Karigiri

Introduction

After integration of the national leprosy programme into general health system, particularly in endemic areas, it is absolutely necessary that the health staff (especially nurses) have adequate knowledge and proper attitude towards leprosy patients to ensure wholistic care. During their

training period, nurses have to assimilate the information provided in theory classes and apply the same in clinical settings while caring for patients (Kalaimathi 2010). Therefore, the academic and physical environment should be conducive to both providing good knowledge as well as to develop proper attitude. Once they

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leave the portals of their schools of nursing all that they learn during the training period is the basis for accumulated knowledge and moulding of proper attitude towards patient care.

Studies on knowledge and attitude on leprosy are not new even date back many decades (Silvapandian et al 1972). These are essential for understanding the community before starting any meaningful intervention programme (Rao and Bhusari 1992, Yowan et al 2002, Yan and Chun-zhi 2006, John and Rao 2009). Such studies were also conducted to serve as baseline, to plan for intervention and also for evaluation of effectiveness of intervention. They help in refinement of patient care policies and procedures (Chudasama and Solanki 2009).

Awofeso (1992) studied final year students of 10 schools of nursing in Nigeria and found that their basic knowledge was below average and they had a negative perception of leprosy. Briden and Maguire (2003) assessed the knowledge and attitudes towards leprosy amongst health care workers in Guyana and found that they were inadequate. Similar findings on general health workers were reported from Shandong province (Chen et al 2000). Rao et al (2007) studied the knowledge, attitude and practices of leprosy among medical officers in Hyderabad urban district of Andhra Pradesh and found that they were low. A comparative study among patients and community members in Uttar Pradesh showed that literates had a better, though still poor level of knowledge. Multivariate analysis also confirmed significant association of literacy with both knowledge and attitude (Barkataki et al 2006). Although the roles of literacy and gender were studied, the roles of passive environment and standard training and education were not studied.

General nursing and midwifery courses are going on in many schools of nursing attached to various hospitals. When such a school of nursing is attached to a specialty hospital, the trainees may get more information on that specialty. Hence,

although the syllabus covered is exactly the same, there is a possibility that those nurses getting trained in a school of nursing attached to a leprosy hospital get more knowledge and develop a more favourable attitude towards leprosy compared to those trained in a school of nursing attached to a general hospital. A study was, therefore, conducted with the objective of determining the effect on environment and education on knowledge and attitude of nursing students towards leprosy. This is attained through the following sub-objectives: (i) to find out short term and long term effects of environment on knowledge and attitude of nursing students on leprosy and (ii) to determine levels of knowledge and attitude of nursing students due to education.

Materials and Methods

Data for this cross-sectional comparative study were collected from students of a School of Nursing attached to a leprosy hospital and also from a comparable School of Nursing attached to a general hospital. Both the schools follow exactly the same syllabus for training of nurses. In April 2010, the first year and third year students of both the institutions were simultaneously administered the pre-tested questionnaire. At the time of the study, first year students had nearly 9 months exposure to the environment of their respective hospitals but had no formal education on leprosy. Third year students had nearly three years of exposure to environment and had full opportunity of leprosy education as the syllabus on leprosy was already covered.

In the School of Nursing attached to the leprosy hospital, all the 20 students of the first year and 19 students of the third year were taken into the study. In the school of nursing attached to general hospital in both the years there were only 19 students. All of them were taken into the study. A pre-tested questionnaire consisting of 50 questions/items was administered to these students to ascertain their knowledge and attitude. Of these, first 43 questions on knowledge covered cause, prevalence, initial

signs, treatment and duration of treatment, reactions and so on. The next 7 items were on attitude. A score of 1 was given for each correct answer/favourable attitude.

Definitions

Leprosy hospital: A hospital specialised in the management and treatment of persons affected by leprosy.

Environmental effect: The difference between the scores of those getting training in the leprosy hospital and general hospital.

Education effect: The difference between the scores of the third year students and first year students.

Short term: Duration of training covered by first year students at the time of the study - about 9 months.

Long term: Duration of training covered by third year students at the time of the study - about 3 years.

Statistical tools used were mean, standard deviation, t-test for independent samples, 95% confidence interval for difference between the means and multiple linear regressions.

Results

Table 1 giving short term environmental effect showed that all the three mean scores of those getting training in leprosy hospital were significantly higher than those getting training in general hospital. The confidence intervals confirm these. On the whole, those getting training in the leprosy hospital were able to correctly answer about 26 (60.4%) questions on knowledge compared to about 17 (39.5%) by those trained in the general hospital even within the short term of exposure to their respective environments. Again, those who were getting training in the leprosy hospital exhibited favourable attitude on about 6 (85.7%) items compared to about 3 (42.9%) of their counterpart. The areas in which the trainees attached to leprosy hospital scored better compared to others were: causative agents, contagiousness of the disease, vaccine availability and curability. Both the groups of trainees knew about 'skin smear test' as a diagnostic test for the disease. Long term environmental effect showed that the mean knowledge score and total score of those (third year students) getting training in leprosy

Table 1 : Short term environmental effect knowledge, attitude and total scores of first year students

	Group*	N	Mean	SD	t**	95% CI***
Knowledge score	1L	20	26.05	5.18		
	1G	19	17.26	4.53		
Difference			8.79		5.62	5.62 - 11.95
Attitude score	1L	20	5.60	1.27		
	1G	19	3.05	1.64		
Difference			2.55		5.41	1.59 - 3.50
Total score	1L	20	31.65	5.66		
	1G	19	20.31	4.74		
Difference			11.33		6.74	7.93 - 14.74

***Group: 1L** - First year leprosy hospital, **1G** - First year general hospital

** All t are significant, P<0.001

*** 95% confidence interval of difference between means

**Table 2 : Long term environmental effect: knowledge, attitude and total scores
third year students**

	Group*	N	Mean	SD	t**	95% CI**
Knowledge score	3L	19	33.26	5.09		
	3G	19	26.58	3.01		
Difference			6.68		4.93	3.94 - 9.43
			(P<0.001)			
Attitude score	3L	19	5.78	1.08		
	3G	19	5.00	1.56		
Difference			0.78		1.81	0.09 - 1.67
			(P=0.08)			
Total score	3L	19	39.05	5.15		
	3G	19	31.58	3.73		
Difference			7.47		5.12	4.52 - 10.44
			(P=0.001)			

*Group: **3L** - Third year leprosy hospital, **3G** - Third year general hospital

** t and 95% confidence interval of difference between means

hospital were higher than those getting training in general hospital (Table 2). In fact, those getting training in the leprosy hospital were able to answer correctly about 33 (76.7%) questions on knowledge compared to about 27 (62.8%) by those trained in the general hospital even after completing their syllabus and long term of exposure to their respective environments. However, the mean attitude score of those getting training in the leprosy hospital was not significantly different from those getting training in the general hospital. Those getting training in the leprosy hospital obtained a mean attitude score of 5.78 (82.6%) compared to the score of 5 (71.4%) of their counterpart.

The education effects are given in Table 3 for the leprosy hospital and in Table 4 for the general hospital. The knowledge score and total score of those getting training in the leprosy hospital respectively were higher in the third year than the first year (P<0.001). Specifically, among those getting training in the leprosy hospital, those in the third year were able to correctly answer about

33 (76.7%) questions on knowledge compared to about 26 (60.5%) by those in the first year. Among the third year students the areas in which the trainees of leprosy hospital scored higher than the first year trainees were: initial signs of leprosy, availability of vaccine, curability, surgical treatments, drugs for treatment and for reaction and whether the leprosy sufferers could lead a normal life.

Of those getting training in the leprosy hospital, the mean attitude score of the third year trainees was 5.79 (82.7%), which was not significantly different from those of the first years 5.6 (80%). Among those getting training in the general hospital (Table 4) the knowledge score and total score respectively were higher in the third year than in the first year (P<0.001). Specifically, among those getting training in the general hospital, the third year students were able to correctly answer about 26 (60.5%) questions on knowledge compared to about 17 (39.5%) by the first year students. The areas in which third year trainees scored better than the first years were: causative agents, initial signs, diagnostic tests,

Table 3 : Education effect: School of Nursing attached to leprosy hospital first and third year students - knowledge, attitude and total scores

	Group*	N	Mean	SD	t**	95% CI**
Knowledge score	1L	20	26.05	5.18		
	3L	19	33.26	5.09		
Difference			7.21 (P<0.001)		4.38	3.88 - 10.55
Attitude score	1L	20	5.60	1.27		
	3L	19	5.79	1.08		
Difference			0.19 (P = 0.62)		0.49	0.58 - 0.96
Total score	1L	20	31.65	5.66		
	3L	19	39.05	5.15		
Difference			7.40 (P<0.001)		4.26	3.88 - 10.92

*Group: 1L - First year leprosy hospital, 3L - Third year leprosy hospital

** t and 95% confidence interval of difference between means

Table 4 : Education effect: School of Nursing attached to general hospital first and third year students - knowledge, attitude and total scores

	Group*	N	Mean	SD	t**	95% CI***
Knowledge score	1G	19	17.26	4.53		
	3G	19	26.58	3.01		
Difference			9.32		7.47	6.78 - 11.84
Attitude score	1G	19	3.05	1.65		
	3G	19	5.00	1.56		
Difference			1.95		3.74	0.89 - 3.00
Total score	1G	19	20.32	4.75		
	3G	19	31.58	3.73		
Difference			11.26		8.13	8.45 - 14.07

*Group: 1G - First year general hospital, 3G - Third year general hospital

** All t are significant, P<0.001

*** 95% confidence interval of difference between means

treatment, reactions, MCR footwear, duration of treatment and correction of deformities.

Of those getting training in the general hospital, the mean attitude score of the third year trainees was 5.0 (71.4%) which was significantly higher

than that of the first year 3.05 (43.6%) trainees (P<0.001). In attitude, significant improvements were found for the items: willingness to talk to leprosy patients, willingness to offer a glass of water, willingness to sit beside a person with

leprosy, willingness to establish matrimonial connections with the affected family. All the third year trainees in both the groups indicated that they would maintain normal relationship with leprosy sufferers. So, education increased the knowledge, attitude and hence, total score among the nurses trained in the general hospital. Multiple linear regression analysis showed that the total score (third year) was significantly influenced by both the environment and education ($P=0.00$) equally. So, also the knowledge score ($P=0.00$). But, the attitude score was influenced more by environment ($\beta = 0.481$) than by education ($\beta = 0.303$).

Discussion

Most of the studies on knowledge and/or attitude on leprosy were conducted on health workers or general public, found that their knowledge were inadequate and concluded that refresher training or special health education was necessary to strengthen the health delivery system (Rao and Bhusari 1992, Yan and Chun-zhi 2006, Chudasama and Solanki 2009, John and Rao 2009). This study is unique as it determined the increase in the knowledge and change in the attitude of nursing trainees due to exposure to regular teaching in the schools of nursing and also due to the environment to which they were exposed. Those trained in School of Nursing attached to the leprosy hospital had higher knowledge and more favourable attitude than those trained in the School of Nursing attached to general hospital. School of Nursing attached to leprosy hospital environment provides encouraging atmosphere to learn and understand leprosy better. This resulted in acquiring more knowledge than what was taught following the syllabus prescribed in the course and also helped in retaining what was taught to them due to regular association with the patients affected by leprosy.

There was no change in the score on attitude towards leprosy between the first years and the third years in the school of nursing attached to leprosy hospital because even initially the score on attitude was high (85.7%) and therefore, the scope for further significant increase in score was

less. Perhaps, those who had favourable attitude towards leprosy joined the nursing course in a leprosy hospital and also they accumulated more favourable attitude during the short term exposure to the leprosy environment. One of the reasons for less increase in the attitude score may be the number of questions/items on attitude was small and therefore, there was no possibility of substantial increase in the attitude score later. The initial favourable attitude found among the first year students can be assumed to be the result of social marketing campaign taken up by the government, non-governmental organizations, and various media aiming towards changing the attitude of general population (Brown 2006).

Education, given in the schools of nursing increased the knowledge on leprosy and helped form favourable attitude; however, the effect on knowledge and attitude were higher among those trained in the leprosy hospital environment than in the general hospital environment.

Leprosy is more a social problem than just a medical disease. Therefore, the health care workers or hospital staffs who play a critical role in shaping the attitudes of their patients and their families should have adequate knowledge and favourable attitude. Then, they can be effective agents of change. Nurses, a large group of health professionals, should have sufficient knowledge and a positive attitude, if effective health care is to be delivered to the patients suffering from the disease.

It is recommended that for employment in hospital or for community based services or research in leprosy, nurses who are trained in leprosy hospitals be given preference. They will have the added value of adequate knowledge and better attitude.

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