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Comparative study of knowledge and practices regarding tuberculosis amongst the nursing staff of medical college and peripheral health care unit

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ABSTRACT

Background: One of the major risk factor for tuberculosis (TB) includes working in close proximity to the patients. Recent evidence suggests that nursing professionals are vulnerable to tuberculosis not only because of elevated exposure, but also because of misinformation and lack of updated data regarding knowledge about the disease. Our study aimed to gather knowledge and health care practices related to TB amongst nurses in a medical college and that of a peripheral health care unit. The objectives of the study were to compare the level of knowledge regarding tuberculosis and practices related to it in nursing staff of a Medical College and nursing staff working at peripheral health care unit.

Methods: This cross-sectional study was conducted in a rural medical college and a training centre for health professionals of Himachal Pradesh over a period of 3 months (w.e.f. October–December, 2014). A total of randomly selected staff nurses of medical college and nurses working at different levels of peripheral health care unit attending training at the Training Centre, Chheb Kangra were included in the study. A structured questionnaire was framed to collect data regarding tuberculosis and its practices.

Results: It was observed that nursing staff posted in Medical College had less knowledge as compared to the nursing staff of a peripheral health care unit. Amongst the nursing staff of the periphery the best knowledge was observed in staff posted at Community Health Centre and lowest in staff posted at PHC. In Medical College to our surprise nursing staff of surgery and obstetrics and gynae had superior knowledge as compared to Medicine ward.

Conclusions: Training under RNTCP should be targeted not only towards nurses working in peripheral health units but also in nurses working in medical colleges.

Keywords: TB, knowledge, Peripheral health units, Medical college

INTRODUCTION

The genus Mycobacterium belongs to the family Mycobacteriaceae which has 80 species and the most familiar species is *Mycobacterium tuberculosis*. One of

the major risk factor for tuberculosis (TB) includes working in close proximity to the patients. The risk is very high with prolonged indoor exposure to a person with sputum positive pulmonary tuberculosis. Lack of public health infrastructure in developing countries like

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India particularly has aggravated the problem.² Investigations in countries in Africa, Asia, and South America have documented increased risk of TB disease or infection in health care workers compared with the general population.³

The treatment and prevention of infection is the responsibility of all the staff but particularly of those responsible for direct patient care. Nursing staff is first level professional person and are responsible for direct patient care. They assist in ward management and are responsible for supervision, teaching and training of nursing students. They also impart health education to patient as well as his/her family members and other contacts. Nevertheless, the risk to staff is never zero so health care workers and other staff can develop TB, regardless of previous infection status or BCG vaccination. Recent evidence suggests that nursing professionals are vulnerable to TB not only because of elevated exposure, but also because of misinformation and lack of updated data regarding knowledge about the disease.⁴ Our study aims to gather knowledge and health care practices related to TB amongst nurses in a medical college (which is a teaching centre for MBBS, MD/MS, nursing and other Para clinical courses) and that of a peripheral health care unit.

Aims and objectives

To understand the level of knowledge regarding tuberculosis and practices related to it in nursing staff of a Medical College and nursing staff working at peripheral health care unit.

METHODS

Study type

It was a questionnaire based cross-sectional study.

Study site

The study was carried out in 2 study areas. First was a rural medical college Dr.Rajendra Prasad Government Medical College, (DRPGMC,Kangra at Tanda) and second was a training centre for health professionals(Family Welfare Training Centre Chheb, Kangra).

Study duration

It was conducted over a period of 3 months (w.e.f. October–December, 2014).

Inclusion criteria

The first group included 50 randomly selected staff nurses of DRPGMC, Tanda of various specialities like Medicine, Surgery, Gynaecology and Obsetretics and Paediatrics. The second group included 50 randomly selected nurses working at different levels of peripheral health care unit attending training at Regional Health and Family Welfare Training Centre, Chheb Kangra. Informed consent was obtained from all the study participants after explaining the procedure of the study with the help of information sheet along with the questionnaire.

Exclusion criteria

Those who were not willing to participate or did not return the questionnaire within the stipulated time were excluded.

Data collection

A structured questionnaire was framed to gather data. The questioner consisted of 4 parts- socio-demographic profile of nurse, knowledge regarding TB, health care practices and infection control measures regarding TB.

Data analysis

Data collected was entered in Microsoft excel sheet 2007 and analysis was done using Epi info 7. Ethical approval was obtained from the hospital ethical authority of Dr. RPGMC Tanda prior to the start of the project. Consent was taken from those who were willing to participate in the study.

RESULTS

A total of 100 participant staff nurses were enrolled for the study, 50 working at peripheral health institution (PHI) and 50 working at a medical college (MC).

The average age of the nurses working at PHI was 35.2 years while that of nurses working in MC was 34.5 years. The average work experience of the nurses working at PHI was 10.6 years while that of nurses working in MC was 11.8 years.

Table 1 shows the demographic details of the participants of both the groups along with their knowledge mean scores. It was observed that knowledge mean score was highest in age group of 21-30 years irrespective of the staff posted at periphery or in a medical college. Higher knowledge Mean score 13.4 and 13.1 of staff who had higher qualification of BSc nursing both posted at periphery and medical college respectively. PHI nursing staff with work experience of 5-10 years had higher knowledge mean score of 13.5 and 12.2 of staff at medical college.

It was found that Higher mean score was observed of staff both at PHI (mean score- 15.3) and medical college (mean score-12.8) who had undergone training for RNTCP within last 12 months.

It was observed that staff posted at community health centre had highest mean score (13.6), followed by staff at regional hospital, while staff posted at Primary Health Centre had lowest means score (12.5) as depicted in Table 2.

Table 1: Demographic characteristic of participants (100).

	Periphery(50)		Medical college(50)			
	Number (%)	Mean score±SD	Number (%)	Mean score±SD		
Age (years)						
21-30	18 (36)	13.5±3.2	24 (48)	11.9±3.2		
31-40	17 (34)	12.5±2.1	15 (30)	11.8±3.3		
41-50	15 (30)	12.9±1.6	7 (14)	10.2±3.2		
>50	0	-	4 (8)	12±2.7		
Educational qualification						
GNM	46 (92)	12.9±1.9	44 (88)	11.2±3.3		
Graduation	4 (8)	13.4±1.3	6 (12)	13.1±1.7		
Work experience						
<5	14 (28)	13.4±1.9	13 (26)	11.2±3.1		
5-10	13 (26)	13.5±1.5	22 (44)	12.2±3.3		
10-15	8 (16)	11.8±2.5	1 (2)	16±0		
>15	15 (30)	13.1±1.4	14 (28)	10.2±2.7		
Training in RNTC	Training in RNTCP in last 12 months					
Yes	3 (6)	15.3±3.0	6 (12)	12.8±4.1		
No	47 (94)	12.8±1.6	44 (88)	11.2±3.1		

Table 2: Mean knowledge score of nurses posted in PHI.

Place of posting of peripheral nursing staff	No (%)	Mean score±SD		
PHC	17 (34)	12.5±1.7		
СНС	14 (28)	13.6±1.9		
Civil hospital	10 (20)	12.8±1.9		
Regional hospital	9 (18)	13.3±1.8		

Table 3: Mean score of nurses posted in various wards in medical college.

Place of posting of medical college nursing staff	No (%)	Mean score±SD	
Medicine ward	21 (42)	10.4±3.1	
Surgery ward	14 (28)	12.4±2.1	
Obs and gynae ward	9 (18)	12.1±3.2	
Paediatric wards	6 (12)	12.2±5.2	

Table 4: Knowledge and practices regarding tuberculosis.

	Periphery staff (50)		Medical college staff(50)	
Knowledge and practices regarding tuberculosis	Correct answer		Correct answer	
	Number	%	Number	%
Tuberculosis and its transmission	46	92	40	80
High risk group	33	67	16	34
Symptoms and signs	39	78	37	74
Diagnosis	30	60	26	52
Programme	50	100	48	96
Categorisation	26	52	23	49
DOTS	9	18	2	4
Cause of drug resistance	24	48	27	54
MDR TB	34	68	31	62
Disposal of sputum	12	24	24	48
Dietary advice	48	96	46	92
Infection control practices	29	60	14	28

It was observed that mean score of nursing staff posted at medicine ward was two points lower than staff posted in Surgery, Obstretics and Gynaecology, Paediatrics as is evident from Table 3.

Overall it was observed that peripheral nursing staff had higher mean score of 13 as compared to mean score of 11.5 of nursing staff at medical college as shown in Figure 1.

The results are summarised and it was observed that only 80% of medical college staff had knowledge of

tuberculosis and its transmission as compared to 92% PHI nursing staff.

Table 4 shows knowledge of the participants regarding tuberculosis and its transmission, sign and symptoms, identification of high risk groups, program for tuberculosis, categorization, regarding DOTS, causes of drug resistance and MDR-TB and knowledge regarding infection control practices in hospital, safe disposal of sputum.

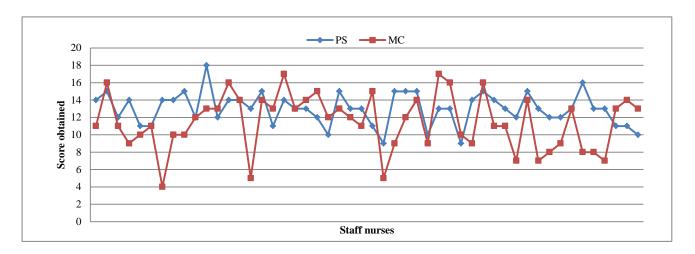


Figure 1: Knowledge and practice regarding tuberculosis.

DISCUSSION

Preventing TB in health care facility and in community is crucial especially in the context of increasing incidence of tuberculosis and MDR TB from developing countries. In 2009 tuberculosis was reported as the second most common infectious cause of death worldwide. RNTCP is the state run TB control initiative of the Government of India which provides training to all health care workers with the aim to help in early detection and prompt treatment of case of TB. Also it helps in understanding the basics of TB, Multi drug resistant (MDR) TB and Extensively drug resistant (XDR) TB generating community awareness on TB.

It is a well-known fact that knowledge of nursing staff in a health care unit is the direct indicator of patient care and patient safety component of quality services. This study was undertaken with the aim to know the knowledge of TB and infection control practices related to it in nursing staff of medical college and peripheral health units.

It is well known that the most successful intervention in TB control is early detection and appropriate treatment of TB patient. High TB knowledge and awareness are necessary to reach those targets and are integral part of

the new World Health Organization Stop TB Strategy. The results obtained showed poor knowledge regarding TB in both the groups.

Striking feature observed was that the minimum knowledge amongst nurses in both the groups was in senior grade nurses who were in the age group of 41 to 50 years with a work experience of 21 to 30 years. This was alarming because they are the ones who are constantly involved teaching and training programmes of nursing students and junior nurses. This is similar to finding of a cross-sectional study done at Peru in health professionals. If their knowledge is so poor one wonders what quality of teaching they will be imparting to the juniors.

Secondly, to our surprise it was observed that nurses working in peripheral institutes had better knowledge (65%) as compared to those working in a medical college (57%). This indicates that training and continuous medical education regarding TB under RNTCP is better in peripheral health unit than in medical college. Similar results have been observed in Vietanese health care providers where workers working at district level showed less knowledge as compared to community health care providers. As expected nurses with diploma in nursing

had less knowledge as compared to those having graduation in nursing. Also, it was observed that nurses who had previous training in RNTCP showed a better response than the nurses who didn't have any training under RNTCP within the last 12 months.

Large gap in knowledge regarding high risk group for tuberculosis (50%) and in identification of signs and symptoms of tuberculosis (less than 40%) is a cause of concern. The consequences of inadequate TB treatment are of serious concern for RNTCP. In our study only 24% of peripheral nursing staff and 27% of medical college nursing staff could identify the reason for resistance in tuberculosis. These knowledge gaps are similar to what had been reported by other investigators. ^{10,11}

It is observed that tuberculosis burdens are significantly increased by a variety of risk factors such as HIV, diabetes and malnutrition. In our study it was observed that just 67% of peripheral staff and 34% medical college nursing staff were able to identify these risk factors.

Another vital aspect was regarding hospital infection control practices, in which only 60% and 28% of peripheral staff and medical college staff had correct knowledge.

Since nurses are the first professionals to have contact with infected patients they are at maximum risk of acquiring TB, so training programme will help in not only reducing this risk but will also help in control and spread of TB. This reinforces our stand that continuous orientation and reorientation programmes regarding TB and its control measures are must for any country.

CONCLUSION

It is recommended that health care provider especially nurses in any health care setting should be well aware of TB and its infection control measures. RNTCP training should be targeted not only towards nurses working in peripheral health units but also in nurses working in medical colleges. There is a strong need of continuous orientation and reorientation training and workshops regarding TB which should be targeted towards senior grade nurses and nurses with diploma in nursing. This will not only increase the knowledge of nurses on TB but will also help in control of spread of TB in health care workers, contacts of TB patients and in community. Collaboration between government doctors and private practitioners should be encourages to increase awareness and RNTCP can also take help from mass media (television, radio, newspapers, internet and digital services for the same.

Limitations

Less number of participants and cross sectional study.

Funding: No funding sources Conflict of interest: None declared

Ethical approval: The study was approved by the

Institutional Ethics Committee

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