

# A CASE STUDY TO ASSESS, ASCERTAIN THE COGNIZANCE AMONG HEALTH PROFESSIONALS THEREBY ENSURING PATIENT SAFETY PARADIGM SHIFT TOWARD NO PREVENTABLE HARM IN THE SELECT HEALTH AND WELLNESS CENTERS AND THEIR FIRST REFERRALS CENTERS OF UTTARAKHAND

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## **ABSTRACT**

In India, health is a state subject and the states need to take additional and concrete measures to improve patient safety with the support of the central government. It is seen that the use of digital health technology can contribute to evidence generation and for accelerating interventions, including strengthening recording and reporting system .*Ayushman Bharat* Programme: Health and Wellness Centres and Pradhan Mantri *Jan Arogya Yojana* have potential to improve patient safety at all three levels of care, through mechanisms such as the implementation of standard treatment guidelines and treatment flows as well as accreditation of healthcare facilities

The hospital is a vital part of a social and medical organization whose aim is to provide healing and preventive health care to full residents and whose outpatient services reach the family and their home environment, as well as the Center for the Training of Health Workers and Biological Research (WHO) Management is the process of designing and maintaining an environment in which individuals, operating together in communities, accomplish successfully selected objectives . Management functions are the same in all types of organizations, whether the industrial industry or the hospital-like service sector.

## **1. INTRODUCTION**

Health is an important factor in the development of human resources, which will play a vital role in the improvement of human qualities, which are the active agents of economic development. So, any indicator of a nation's achievement in growth must impact the nation's state of personal wealth. *Health is a "state of complete social, mental and physical well-being but not merely the absence of disease or deformity," according to the World Health Organization* (1).

Safety of patient health is one of the pillars of healthcare. Adverse effects are seen when the service provided is of low quality. Several countries are engaged in improving patient safety and the efforts have demonstrated that though the healthcare system differs from country to country, challenges and solutions are almost the same. It should be of utmost importance for healthcare providers to give healthcare safely to the people.

In today's scenario of complex health providing scenario with pressure to treat patients as soon as possible, the challenge is to provide healthcare safely. In such a high-pressure environment, things tend to get wrong and patient safety can be compromised. In such an environment, the aim is to avoid "avoidable harm" to the patient, during the period of patient care <sup>1</sup>.

Patient safety can be defined as "the reduction of unnecessary harm associated with healthcare to an acceptable minimum". Unsafe health services are increasingly being recognized amongst the classical barriers to access to healthcare, I, e., physical, financial, and information access. In the case of unsafe care, trust in the healthcare system is eroded in people's minds. This may lead to alteration in availing healthcare and can increase expenditure, demotivates healthcare workers and can harm the population as a whole .

The government of India has undertaken several initiatives for improving the quality of healthcare and improving patient safety. The release of the National Patient Safety Implementation Framework (NPSIF, 2018-2025) is a major development, which with six objectives, 21 priorities, and 81 interventions intend to integrate key patient safety initiatives in India. NPSIF has recommended six strategic objectives regarding the establishment of institutional framework/mechanisms; assessment and reporting of adverse events; competent health workforce; infection prevention and control; safety in programmatic and clinical domains and patient safety research <sup>7</sup>. The NPSIF aim and objectives are aligned with Regional Strategy for Patient Safety in the WHO South-East Asia Region (2016-2025) endorsed by the 68<sup>th</sup> Regional Committee of WHO South-East Asia Region.

## **2. RESEARCH METHODOLOGY**

### **Objectives of the study:**

- To study the awareness among health professionals about patient safety.
- To find out the basic knowledge of health professionals about biomedical waste and drug safety.
- To find out the level of satisfaction of the healthcare professional about job satisfaction and their basic problems.

### **Type of study design**

### **Material and Methods**

**Area of study-** This particular study was planned at district Chamoli of Utrakhand including 3 blocks named Karanprayag, Pokhri, Gairsain.

**Duration of Study-** 9 months, including 4 months for data collection (June 2009-February 2020)

**Study population:** doctors, staff nurses and paramedics (who directly or indirectly are part of clinical works). The total strength of skilled manpower or population/universe is 189.

**Sampling units-** hospital staff who are directly/ indirectly involved in clinical works like a doctor, staff nurse, ANM, pharmacists, etc.

**Determining sample size-** As our population is known and based on previous studies done and conduct of a pilot study to estimate the value of the probability of success, researcher apply the formula to calculate sampling size

$$n = \frac{(N)(Z)^2(P)(q)}{(N)(e)^2 + (Z)^2(P)(q)}$$

n=minimum required sample size

N=population size=189

Z= level of confidence (alpha) =95%=1.96

e= level of significance (beta) =5%=0.05

P= probability of success=60%=0.6

q= probability of failure= 40=0.4

**Sampling Technique-** Nonprobability sampling technique (snowball sampling) where the initial group of respondents was selected randomly. Subsequently, respondents were selected based on referrals or information provided by the initial group of respondents.

**Source of data-** 102 health professionals between 24-58 years of age, both sex selected for the study.

**Study groups-** They were classified into 3 groups based on job profile doctors, staff nurses, paramedical. Again as they are from different classes of health facilities so researchers subdivided them according to their hospital types e.g. HWCs, PHC, CHC, and SDH.

#### **Inclusion criteria-**

- Working in a public hospital of district Chamoli (UK).
- directly or indirectly involved in the treatment or clinical services, preference was given to doctors and staff nurse

**Exclusion criteria-** The following subjects will be excluded from the study

- private hospital and its staff
- the non-technical staff of the hospital
- district hospital staff

**Data collection:** Data for this study was collected using a questionnaire developed by the researcher. The questionnaire was divided into the following parts (a) personal information (b) job satisfaction (c) awareness about patient safety (d) physical safety of work station medication safety (e) patient right (f) infection control and (g) feedback. There were some open-ended and close-ended questions and the majority of questions were of scoring types.

### 3. Results and Discussion

Health and Wellness centres are envisaged to deliver with an expansion of primary care service which addresses the basic primary health care need of the entire population in their area thus creating access, quality, universality, and equity in service delivery. The present study was done to evaluate and analyse the current status of awareness about patient safety and preventable harm among healthcare professionals at HWCs and the next level hospital health care providers where they refer cases like PHC and CHC now upgraded as SDH Karanprayag in Uttarakhand. In this study researcher used primary data. Data for this study were collected using a questionnaire developed by the researcher. The questionnaire was divided into parts- personal information, job satisfaction, awareness about patient safety, the physical safety of work station medication safety, patient right, infection control, and feedback. There were some open-ended and close-ended questions and the majority of questions are of scoring types. List of 102 health personals including specialists, medical officers, mid-level health providers, staff nurse/ ANMs, pharmacists, and various paramedical staff from three blocks (karanprayag, pokhri, gairsain) of district chamoli is prepared. Respondents present heterogeneous patterns as they are from different strata of IPHS norms i.e. from HWCs, PHC, CHC, and SDH. Part one consisted of personal information and details of respondents. In the second part, respondents were asked to answer about difficulty at work station and this was an open-ended question so those respondents feel friendly to answer the next level of questions. Interestingly most of them have transport issues at the top and security issues with this.

The second question was about awareness about patient safety and very unfortunately this was unfilled/ unanswered or filled with irrelevant answers, only very few are aware of patient safety and even most of them don't know about medical error. To know about their awareness about patient safety in this section one open-ended question was set but most respondents didn't fill it, either they don't want to share their experience or simply avoiding this question.

The third part of the questionnaire was about the physical safety of hospital and infrastructure and under these categories, most of them respond in satisfactory/ average marking, interestingly and unluckily mean of transport of an emergency patient to ER room is by manual supports most of them haven't ramp or road.

The fourth section was about medication safety and again very few were aware of the high alert medication and the lesser percentage was familiar with lookalike sound-alike medication and those who even know the term are not capable to give example. This is not a good sign for the health system.

In the next section, we asked about patient rights as in the last stage of labour what they are doing and a very large number of respondents including doctors even LMO said that they refer patients and most of them don't have an ambulance facility.

As we asked about immunization services and though have immunization facility at their hospital most of them don't have powers back up to maintain the cold chain and putting a big question on quality of vaccination.

Under section seven we asked some basic questions about infection control like biomedical waste, color coding dustbin, spill management, needle prick protocol, and the response was mixed and satisfactory but need to improve.

Finally, we expect feedback from respondents about patient safety and valuable suggestions but as most of them were unaware of term patient safety so they answered their problems, very few gave fruitful points.

**Statistical Analysis:**

The results were analysed using descriptive statistics and making comparisons among the various groups. Categorical data were summarized as in proportions and percentages (%)

Confidence interval: This tells about the predictive range of population proportion. It depends on the level of confidence which may be taken as either 95% or 90%.

The  $(1 - \alpha)100\%$  confidence interval of a parameter is calculated by using the formula

$$(1 - \alpha)100\% CI = \left( \left[ p - z_{\alpha} \cdot \sqrt{\frac{pq}{n}} \right], \left[ p + z_{\alpha} \cdot \sqrt{\frac{pq}{n}} \right] \right)$$

Where  $p$  is the sample proportion,  $q$  is the conjugate proportion and  $n$  is the sample size.  $z$  shows the *SNV* distribution whose value is taken at 5% level of significance.

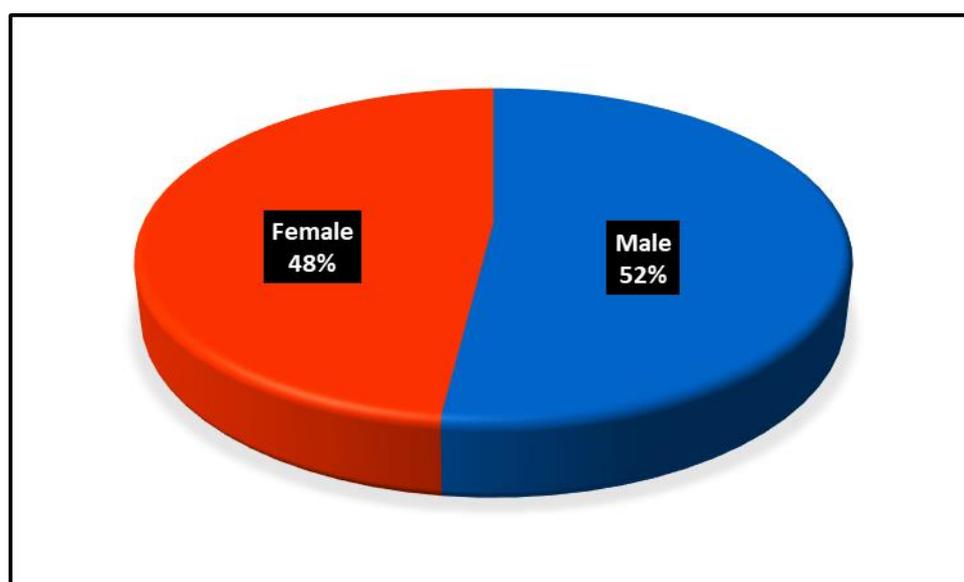
UCL is abbreviated for Upper confidence limit while LCL for Lower confidence limit.

The p-value was taken significant when less than 0.05 ( $p < 0.05$ ) and Confidence interval of 95% was taken.

The result is summarized in the following tables & graphs:

**Table – 1: Distribution of Respondents according to Gender**

Respondents	No.	%
Male	53	52.0
Female	49	48.0
Total	102	100.0

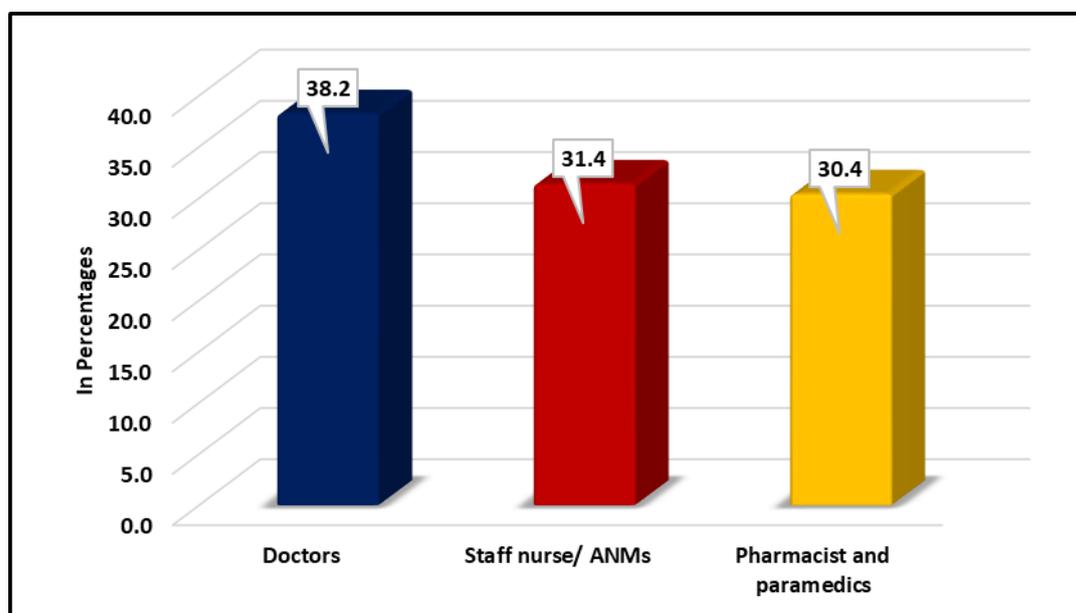


Among the total 102 respondents, 53 (52.0%) were males while rest 49 (48.0%) were females. Hence males & females were almost in equal proportion.

**Table – 2: Distribution of Respondents according to Profession**

Respondents	No.	%
Doctors	39	38.2
Staff nurse/ ANMs	32	31.4
Pharmacist and paramedics	31	30.4
Total	102	100.0

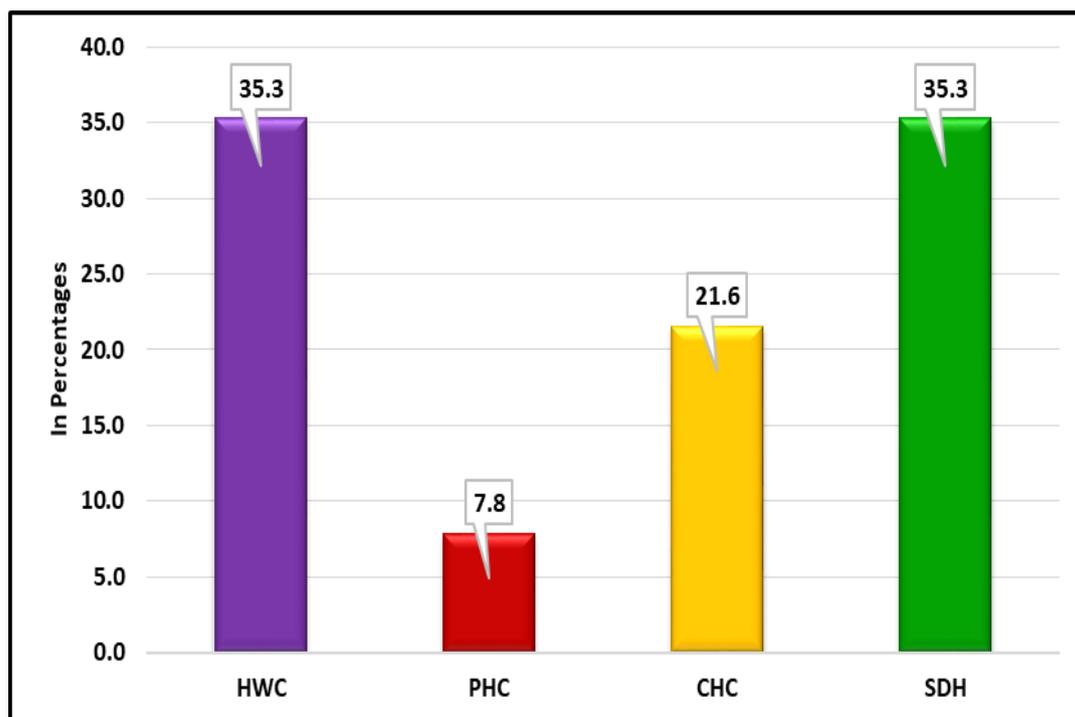
Among the total 102 respondents, 39 (38.2%) were doctors, 32 (31.4%) were staff nurses/ANM's and rest 31 (30.4%) were pharmacists and paramedics. Hence doctors were in a relatively larger proportion while the rest two categories were almost in equal proportion.



**Table – 3: Distribution of Respondents as per IPHS norms**

Respondents	No.	%
HWC	36	35.3
PHC	8	7.8
CHC	22	21.6
SDH	36	35.3
Total	102	100.0

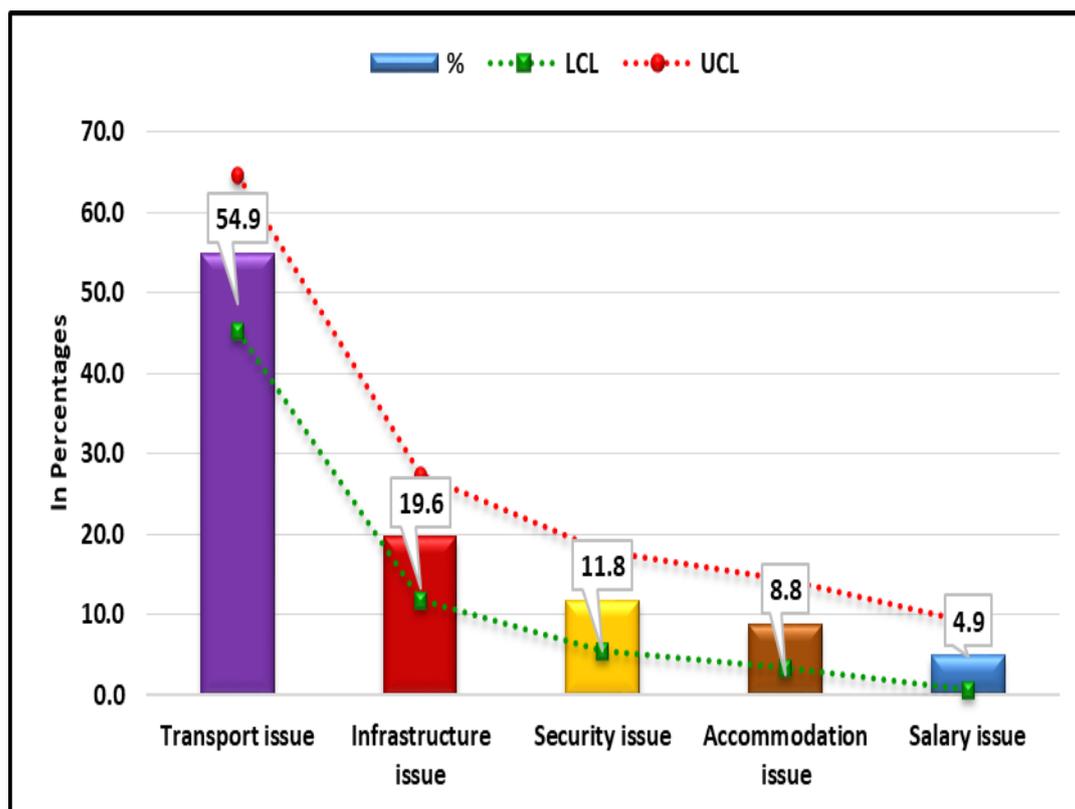
Among the total 102 respondents, the majority were from HWC and SDH with 36 (35.3%) individuals each. 22 (21.6%) were from CHC and at least 8 (7.8%) were from PHC.



**Table – 4: Distribution of Respondents as per Principals' complaint or problem**

Principal complaint	No.	%	95% CI	
			LCL	UCL
Transport issue	56	54.9	45.2	64.6
Infrastructure issue	20	19.6	11.9	27.3
Security issue	12	11.8	5.5	18.0
Accommodation issue	9	8.8	3.3	14.3
Salary issue	5	4.9	0.7	9.1
Total	102	100.0	100.0	100.0

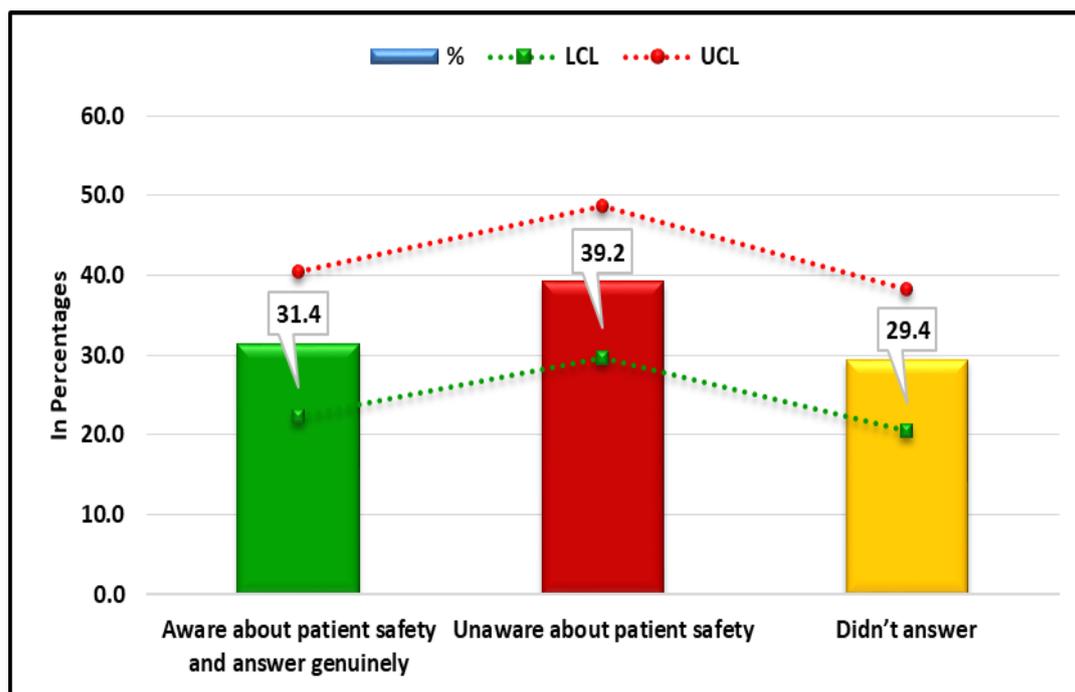
Among the total 102 respondents, the majority (54.9%) was facing transport issues followed by the infrastructure issues as complaints by 20 (19.6%) respondents. Other big issues were security (11.8%), accommodation (8.8%), and salary (4.9%). So in the reference population, it was expected with 95% confidence that transport problem lies within the range 45.2% - 64.6%, infrastructure problem lies with some lower range of 11.9% - 27.3% and so on.



**Table – 5: Awareness among health professionals about patient safety and medical error**

Awareness about patient safety and medical error	No.	%	95% CI	
			LCL	UCL
Aware of patient safety and answer genuinely	32	31.4	22.4	40.4
Unaware of patient safety	40	39.2	29.7	48.7
Didn't answer	30	29.4	20.6	38.3
Total	102	100.0	100.0	100.0

Among the total 102 respondents, only 32 (31.4%) were aware of patient safety and answered genuinely. So, among the study population, the awareness about patient safety was expected to be lying within the range 22.4% - 40.4% with 95% confidence. Further 40 (39.2%) were unaware about patient safety rules (95% expected confidence range 29.7% - 48.7%) and 30 (29.4%) didn't answered it.

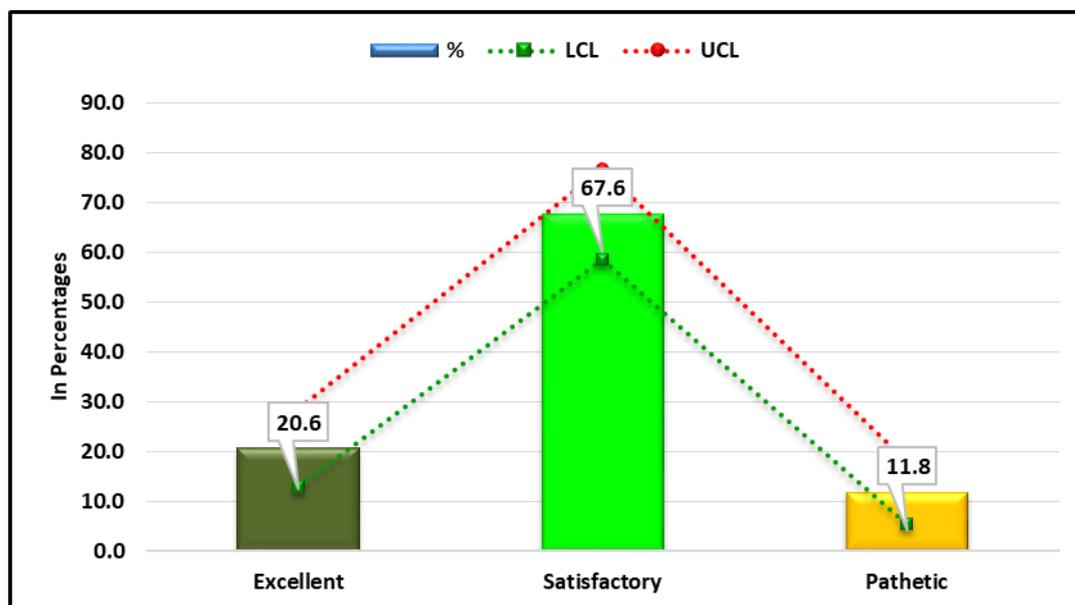


**Table – 6: Awareness among health professionals about physical safety**

Awareness about Physical safety	No.	%	95% CI	
			LCL	UCL
Excellent	21	20.6	12.7	28.4
Satisfactory	69	67.6	58.6	76.7
Pathetic	12	11.8	5.5	18.0
Total	102	100.0	100.0	100.0

Among the total 102 respondents, 21 (20.6%) had excellent awareness of physical safety. So among the study population, the awareness of excellent level about physical safety was expected to be lying within the range 12.7% - 28.4% with 95% confidence. Further 69 (67.6%) had satisfactory awareness about physical safety. So, among the study population, the awareness of satisfactory level about physical safety was expected to be lying within the range of 58.6% - 76.7% with 95% confidence. On the other hand, 12 (11.8%) had a pathetic awareness of physical safety. So, among the study population, the awareness of the pathetic

level about physical safety was expected to be lying within the range 5.5% - 18.0% with 95% confidence.



**Table – 7: Awareness among health professionals about medication safety**

Awareness about medication safety	No.	%	95% CI	
			LCL	UCL
Aware	32	31.4	22.4	40.4
Not aware	40	39.2	29.7	48.7
Unanswered	30	29.4	20.6	38.3
Total	102	100.0	100.0	100.0

Among the total 102 respondents, only 32 (31.4%) were aware of medication safety and answered genuinely. So among the study population, the awareness about medication safety was expected to be lying within the range 22.4% - 40.4% with 95% confidence. Further 40 (39.2%) were unaware about medication safety rules (95% expected confidence range 29.7% - 48.7%) and 30 (29.4%) didn't answered it.

#### 4. CONCLUSION

The study was conducted with aim to assess Assess, Ascertain the Cognizance among Health Professionals thereby ensuring Patient Safety. Our study observed considerable variance in the attitude of health workers with major issue being lack of resources at their wellness centers.

Our study had equal number of males vs. female respondents. Maximum respondents were doctors, followed by staff nurses / ANM's, pharmacists and paramedics.

Major issues concerning the participants were transport issues (54.9%) followed by the infrastructure issues (19.6%). Other issues encountered were security (11.8%), accommodation (8.8%) and salary (4.9%).

Of all the participants, only (31.4%) were aware about patient safety and answered genuinely. Among the participants the awareness about patient safety was expected to be lying within the range 22.4% - 40.4% with 95% confidence. 39.2% of the participants were unaware about patient safety rules (95% expected confidence range 29.7% - 48.7%) whereas 29.4% participants did not answer the question.

Only 20.6% of participants had excellent awareness about physical safety. Furthermore, 67.6% had satisfactory awareness about physical safety. Among the study population the awareness of satisfactory level about physical safety was expected to be lying within the range 58.6% - 76.7% with 95% confidence. However, 11.8% participants had pathetic awareness about physical safety, the awareness of pathetic level about physical safety was expected to be lying within the range 5.5% - 18.0% with 95% confidence.

Out of all participants, only 31.4% were aware about medication safety and answered genuinely. Among the study population the awareness about medication safety was expected to be lying within the range 22.4% - 40.4% with 95% confidence. Furthermore 39.2% were unaware about medication safety rules (95% expected confidence range 29.7% - 48.7%) and 29.4% participants didn't answer the question.

49.0% of respondents were aware about infection control/biomedical waste. So, among the study population the awareness about infection control/biomedical waste was expected to be lying within the range 39.3% - 58.7% with 95% confidence. Furthermore 21.6% were unaware about infection control/biomedical waste (95% expected confidence range 13.6% - 29.6%) and 29.4% didn't answered the question.

Of all he respondents, 37.3% were aware about patient safety and medical error. So, among the study population the awareness about patient safety and medical error was expected to be lying within the range 27.9% - 46.6% with 95% confidence. 33.3% were unaware about patient safety and medical error overall (95% expected confidence range 24.2% - 42.5%) and 29.4% participants didn't answer the question. Conclusively the awareness about patient safety and medical error was below 50% in the study population.

Therefore, it was observed that awareness about patient safety was lacking and avoidable error in patient management was high. This study pointed out major issues faced by the healthcare staff at peripheral level.

It is recommended that major changes in policy should be done so as to improve patient safety and periodic training should be given to health workers to improve overall healthcare and reduction of avoidable errors.

## REFERENCES

1. Last JM, Wallace RB (editor) Maxcy Rosenau-Last public health and preventive medicine- 13th ed. Connecticut Appleton & Lange 1992 page 1066-8.
2. Willson RN. The social structure of a general hospital in medicine and society. The annals of the American Academy of Political and social sciences. 1963;346:67
3. WHO technical report series No 261, 1963
4. Park K Park's text book of preventive and social medicine 20th ed. Jabalpur, Banarsidas Bhanot. 2009

5. [http://en.wikipedia.org/wiki/Mayo\\_Hospital](http://en.wikipedia.org/wiki/Mayo_Hospital)
6. Davies RL, Macaulay HC.(ed) Hospital planning and administration. Geneva. WHO. 1966.
7. WHO Technical report series 1957 122, 17
8. Smith BA. Hospital costs and utilization. In: Davies RL, Macaulay HC.(ed) Hospital planning and administration. Geneva. WHO. 1966.
9. Rhea JC, Ott JS, Shafritz JM. The dictionary of health care management. New York. Facts On File. 1988
10. Doty P, Liu K, Wiener J.. An over of long-term care Health Care Financing Review. 1985; 6(3): 6 9 - 7 8 . [abs.sagepub.com/cgi/content/refs/30/2/143](http://abs.sagepub.com/cgi/content/refs/30/2/143)
11. Sand R, Parnell RW. Ed. The Advance to Social Medicine; Eng. trans. by Rita Bradshaw. New York-London: Staples Press, 1952. 655 pp. <http://www.sciencemag.org/cgi/content/citation/117/3027/19-a>
12. 2012, M. (2012). Review Meeting with Secretaries of States-RNTCP. 11 & 12 September 2012 RNTCP 2. Sutton BS, A. M. (2009).
13. The Cost of Intensified Case Finding and Isoniazid Preventive Therapy for HIV-infected Patients in Battambang, Cambodia. *Int. J. Tuberc. Lung Dis.* 13(6),
14. Sutton BS, Arias MS, Chheng P, Eang MT, Kimerling ME. The Cost of Intensified Case Finding and Isoniazid Preventive Therapy for HIV-infected 713–718
15. A.Kochi. (2001 ). The Global Tuberculosis Situation and the New Control Strategy of the World Health Organization. *Bull World Health Organ*, 79(1):71-75
16. Aggarwal JK, C. B. DOTS Expansion under the Umbrella of IMA: Success Story continues along with Early Teething Difficulties. *J Indian Med Assoc.*, 107(7):453-5
17. Ahmed J, A. M. (2009 Feb;59(2)). Public-Private Mix Model in enhancing Tuberculosis Case Detection in District Thatta, Sindh, Pakistan. .
18. Akshay, V. (December 2010). A Study of PPP Models for Social Healthcare Insurance. Kochi, Kerala: CPPR- Centre for Public Policy Research
19. AMRO. (n.d.). Background Paper on Partnership for Health Development. AMRO 4th Global Meeting of Heads of WHO Country Offices. AMRO
20. AP, S. R. (June 2009). AP State Report under NRHM. Hyderabad: GOAP 9. Aparajithan Srivathsan et al., M. S. (n.d.). Healthcare in India: Caring for more than a Billion. IBM Research Team Strategic Insights, hc2015