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Original Research Article

Knowledge Attitude and Practices Regarding Clinical Research among Medical Teachers, Interns and Postgraduates in a Tertiary Care Teaching Hospital

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Abstract:

Background: Clinical research plays a pivotal role in advancing evidence-based medical practice, yet knowledge, attitude, and practice (KAP) toward it among medical professionals remain variable. Assessing these domains is essential to identify gaps that may hinder effective participation in research activities.

Objectives: To assess the knowledge, attitude, and practices regarding clinical research among medical teachers, postgraduate students, and interns in a tertiary care teaching hospital in Thiruvananthapuram, Kerala.

Methods: A cross-sectional analytical study was conducted among 116 medical professionals from clinical and non-clinical departments at the SUT Academy of Medical Sciences over three months. Participants included medical teachers, postgraduates, and interns who provided informed consent. Data were collected using a pretested semi-structured questionnaire assessing sociodemographic variables and KAP regarding clinical research. The data were analyzed using SPSS version 20, and results were expressed as frequencies, percentages, and means with standard deviations. Associations were tested using Chi-square and Fisher's exact tests, with $p < 0.05$ considered significant.

Results: Most participants (63.8%) were aged 20–30 years, with a near-equal gender distribution. Knowledge regarding the necessity of clinical research was high (90.5%), while only half correctly identified regulatory authorities and consent requirements. Attitudes were largely positive, with 91.4% believing clinical research benefits mankind and 88.8% supporting inclusion of ICH-GCP training in postgraduate curricula. In practice, 60.3% had participated in clinical research, though only 36.2% had attended GCP workshops and 25.9% had registered studies under CTRI. The most frequently cited barriers were lack of funds (62.1%) and time (60.3%).

Conclusion: The study reveals a generally favorable attitude toward clinical research but highlights moderate knowledge and suboptimal practice levels among participants. Strengthening institutional training, mentorship, and support systems could enhance active research engagement and improve the quality of academic research output.

Keywords: Clinical Research, Knowledge, Attitude, Practice, Medical Education, Research Barriers.

Introduction

In modern healthcare systems, clinical research continues to be a crucial pillar for expanding medical knowledge, enhancing patient care, and directing evidence-based practice. Although its importance is well acknowledged, there are ongoing difficulties in putting this concept into regular practice, especially at teaching hospitals. The interaction of knowledge, attitudes, and practices (KAP) among the pertinent stakeholders is a crucial factor in determining success in this field. The trio of medical instructors, postgraduate trainees, and interns constitutes a fundamental workforce in clinical research operations within the setting of a tertiary-care teaching hospital. Therefore, a thorough investigation of their attitudes, skills, and behaviors is necessary, particularly in light of the growing need for clinician-investigators who can advance both patient care and academic research.

Enhancing clinical research capability has become increasingly important in low- and middle-income nations like India. However, obstacles to active investigator-initiated research continue to exist despite changes in policy and increased infrastructure. Numerous research have found that physicians, trainees, and students had low rates of consistent practice, mixed attitudes, and moderate to poor knowledge levels.

For example, Pallamparthy et al. discovered that medical trainees, both undergraduate and graduate, had only moderate expertise and were hampered by a lack of resources and time. [1] In a similar vein, Dhodi et al. found low research engagement and knowledge gaps in both teachers and students at a tertiary-care hospital in Mumbai. The complexity of institutional, cultural, and pedagogical factors impacting research engagement in teaching hospitals is highlighted by these findings. [2]

In addition to providing patient treatment, medical educators are also in charge of educating the upcoming generation of doctors. In addition to improving institutional academic output, their research participation serves as an example of a scholarly culture for students. However, research indicates that a large number of faculty members may have low research productivity due to a lack of institutional support, formal research training, or committed time. Post-graduate trainees may find it difficult to do meaningful research due to the demands of their curriculum, clinical workload, and lack of protected research time. [3]

Although they frequently have little exposure to research topics and serve as the entry point into clinical practice, interns may develop a lifelong research interest. Therefore, to properly customise interventions, it is essential to capture KAP among this diverse group. Despite the existing evidence, there is a paucity of research from South Indian settings. Thus, we decided to take up this study.

Objective: To study the knowledge, attitudes and practices regarding clinical research among medical teachers, interns and postgraduate medical students

Methods

Study design, setting and study period: We conducted a cross-sectional analytical study among personnel working in various clinical and non-clinical departments in the SUT Academy of Medical Sciences, Thiruvananthapuram, over a period of 3 months.

Study Participants: The study participants were recruited based on the inclusion criteria of all medical teachers, interns, and postgraduate students from various clinical and non-clinical departments enrolled at the institute. We only enrolled individuals who gave their consent and excluded individuals who were not willing to give consent. The questionnaire was administered either through social media or personally during college hours; those who were absent for three consecutive days/attempts to reach them were excluded.

Sample Size: The sample size was calculated based on a previous study by Johar et al, who estimated the knowledge regarding clinical research among medical professionals to be 46%, with 5% relative precision, and 95% CI, the sample size was calculated to be 116 individuals based on OpenEpi software version 3.01. [4] The study was undertaken after obtaining ethics approval from the Institute Ethics Committee of SUTAMS. Written informed consent was obtained from all individuals after explaining the objectives of the study. A pretested semi-structured questionnaire was used to record all the sociodemographic characteristics, questions about knowledge, attitudes and practices regarding clinical research.

Data Analysis: Data was entered into excel and analyzed using SPSS 20. Numerical variables were expressed as mean ± standard deviation, while categorical variables were summarised as frequency and proportions. Comparison between the outcome variable and the independent variable was done using Chi-square test or the Fischer exact test. A P-value <0.05 was considered statistically significant.

Results

We finally recruited around 116 medical professionals who answered our questionnaire. The table below shows the distribution of general characteristics among study participants. Table 1 shows the general characteristics of the 116 study participants. The majority of participants (63.8%) were in the 20–30 age range, followed by 25% in the 31–50 age range and 11.2% beyond 50. With 50.9% of the population being male and 49.1% being female, the gender distribution was nearly equal. Interns constituted the largest category (44.8%), followed by postgraduate students (22.4%) and medical professors (32.8%).

Table 1: General characteristics of the study participants (N=116)

Characteristics	Frequency (%)
Age group (in years)	
20–30	74 (63.8)
31–50	29 (25.0)
>50	13 (11.2)
Gender	
Male	59 (50.9)
Female	57 (49.1)
Designation	
Medical teachers	38 (32.8)
Postgraduate students	26 (22.4)
Interns	52 (44.8)

Table 2: Knowledge of clinical research among study participants (N = 116)

Knowledge item	Correct response n (%)
1. Awareness of clinical research unit	70 (60.3)
2. Necessity of clinical research for medical professionals	105 (90.5)
3. Correct authority for new drug approval (DCGI/ICMR)	58 (50.0)
4. Mandatory document for enrolment (ICF)	66 (56.9)
5. Correct consent process in paediatric research	64 (55.2)
6. Phase I trials in healthy volunteers	73 (62.9)
7. Post-marketing surveillance = Phase IV	87 (75.0)
8. Meaning of ICH-GCP	69 (59.5)
9. Voluntary participation and right to withdraw	90 (77.6)
10. Randomization concept	72 (62.1)
11. Placebo-related ethics	85 (73.3)
12. GCP not applicable in pre-clinical phase	76 (65.5)
13. Non-inferiority / equivalence trials	55 (47.4)
14. Reporting of adverse events	84 (72.4)

The participants' understanding of clinical research is shown in Table 2.

The majority of participants correctly identified the need for clinical research (90.5%) and the voluntary nature of involvement (77.6%), indicating a moderate level of understanding overall. There was also a high level of knowledge on placebo-related ethics (73.3%) and post-marketing surveillance as Phase IV (75%). However, only almost half correctly identified the appropriate consent procedure in pediatric research (55.2%) and the regulatory authority (50%).

The average number of right answers was 7.1 out of 14, indicating room for improvement in the comprehension of clinical trial methodology and regulations.

Table 3: Attitude toward clinical research (N = 116)

Attitude statement	Agree (Yes) n (%)
1. Clinical research benefits mankind	106 (91.4)
2. Participation improves disease understanding	101 (87.1)
3. Conducting trials is wasteful (disagree)	90 (77.6)
4. Clinical research burdens postgraduate students	78 (67.2)
5. ICH-GCP training should be in PG curriculum	103 (88.8)

The participants' opinions toward clinical research are summed up in Table 3.

The vast majority concurred that clinical research advances knowledge of diseases (87.1%) and benefits humanity (91.4%). The majority agreed that ICH-GCP training should be part of the postgraduate curriculum (88.8%) and disagreed that research is a waste of time (77.6%).

Despite good sentiments toward its value, 67.2% of postgraduate students thought that undertaking research increased their burden, indicating a mixed perception of feasibility.

Table 4: Practice of clinical research among study participants (N = 116)

Practice item	Yes n (%)
1. Read an article on clinical research	85 (73.3)
2. Ever participated in a clinical trial	70 (60.3)
3. Attended ICH-GCP workshop	42 (36.2)
4. Registered a study under CTRI	30 (25.9)
5. Willing to participate in future trials	101 (87.1)

The clinical research practices of the participants are highlighted in Table 4.

60.3% had taken part in a trial, and nearly three-fourths had read an article about clinical research (73.3%). Just 25.9% of participants had filed a study with the Clinical Trials Registry of India, and only 36.2% of participants attended ICH-GCP courses.

However, 87.1% of participants expressed a strong desire to take part in future studies, demonstrating a desire to participate more actively in research if given the chance and institutional support.

Table 5: Perceived barriers toward clinical research (N = 116)

Barrier	n (%) selecting
Lack of interest	47 (40.5)
Lack of funds	72 (62.1)
Lack of time	70 (60.3)
Lack of awareness	64 (55.2)
Difficulty in patient follow-up	51 (44.0)

The perceived obstacles to performing clinical research are listed in Table 5.

Lack of money (62.1%) and time (60.3%) were the most often mentioned difficulties, followed by ignorance (55.2%) and trouble following up with patients (44%). Of those surveyed, 40.5% expressed no interest. These results imply that although there is interest in research, structural and practical impediments such insufficient financing, time restrictions, and inadequate training continue to be significant barriers to active research engagement.

Discussion

Research productivity and ethical standards in academic institutions are directly impacted by medical professionals' knowledge, attitude, and practice (KAP) about clinical research. The purpose of this study was to assess medical instructors, postgraduate students, and interns at a tertiary care teaching hospital in Thiruvananthapuram, Kerala, about their knowledge, attitudes, and behaviors regarding clinical research. The results show a generally modest level of knowledge, a favourable attitude, but subpar research practices.

The majority of participants in the current study (63.8%) were between the ages of 20 and 30, and the gender distribution was about equal (50.9% male, 49.1% female). The highest representation (44.8%) were interns, followed by postgraduate students (22.4%) and medical lecturers (32.8%). In a cross-sectional survey of medical faculty and trainees in West Bengal, Choudary et al. (2021) found a similar demographic profile, with 62% of participants being male and 61% being under 30 [5].

About 90.5% of participants in the current study agreed that research is essential for medical practitioners, and 60.3% of participants were aware that there is a clinical research unit. Only 50% of respondents properly identified the regulatory body (DCGI/ICMR) in charge of approving new drugs, while 56.9% correctly identified the informed consent form as a required document. Numerous research conducted throughout India have revealed similar results: 46% of medical professionals have sufficient awareness of clinical research legislation and ethical requirements, according to Pillai et al. (2023) [6]. A study conducted in India by Divya et al. (2022) among resident doctors found that residents had a fair knowledge of medical research, but its application into practice was limited. [7] The current study showed a favourable view of clinical research. 88.8% of respondents supported including ICH-GCP training into postgraduate curricula, 87.1% said participation increases understanding of disease, and the majority (91.4%) agreed that research benefits humanity. Just 22.4% of respondents thought clinical trials were unnecessary, and 67.2% concurred that postgraduates are burdened by research. According to a study by Bergmann et al. (2022), altruistic motives and trust in treating physicians were predominant motives for clinical trial participation. [8] The current study showed that about 60.3% had taken part in a clinical trial, 25.9% had registered a study with the Clinical Trials Registry of India (CTRI), and 36.2% had attended an ICH-GCP training. In other Indian contexts, similar practice discrepancies have been observed. According to a survey by Shanmukhappa et al. (2020), showed that personal interest (60.15%) and job requirement

(46.61%) were the top facilitators for research. [9]. On the other hand, a study conducted in Saudi by Alfahmi et al. (2025) found that training interventions to enhance research knowledge and practice among postgraduate trainees were crucial [10].

Lack of funding (62.1%), lack of time (60.3%), and lack of awareness (55.2%) were the most commonly mentioned barriers in the current study. Notable issues were patient follow-up difficulties (44%) and disinterest (40.5%). These results are consistent with the institutional and systemic difficulties seen in Indian medical academia. [9,11] In environments with limited resources, the problem of insufficient funding for research is especially important. Low participation rates result from the lack of specialised research grants or incentives for faculty and trainees at the majority of Indian medical colleges. [12] The problem is further exacerbated by inadequate mentoring and the lack of set deadlines for finishing research. In order to successfully address these obstacles, the results of this study strongly encourage the establishment of grant facilitation units, protected research time, and institutional research cells.

One of the study's strengths is that it included a wide range of participants, including interns, postgraduates, and medical teachers, providing a thorough grasp of research awareness across academic levels. The methodological rigour was increased by the use of a validated questionnaire and strong statistical analysis. Credibility and commitment to research ethics were guaranteed by informed consent and ethical approval. However, the study's single-centre cross-sectional design restricts generalizability and makes causal inference impossible. Recall or social desirability bias may have been induced by self-reported data.

Conclusion

The results of this study provide important new information about the level of research literacy among medical staff in a Kerala tertiary care teaching hospital. Although the participants showed a favourable attitude toward research and a satisfactory awareness of its value, there were clear gaps in their practical engagement and regulatory knowledge. Effective involvement is nevertheless hampered by institutional issues like a lack of time, money, and mentorship. In order to foster a sustainable research culture in Indian medical academia, it is imperative that formal training in research methods be strengthened, ICH-GCP seminars be held on a regular basis, and research engagement be encouraged.

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