

# A study on usefulness of Re-Orientation of Medical Education (ROME) posting in enhancing the research oriented knowledge among undergraduate medical students.

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**Abstract:** *Introduction: Re/research orientation of medical education (ROME) has been practiced in many medical colleges for a long. However a few studies have assessed the change in knowledge and attitude of medical students after completion of ROME posting. Material and Methods: Students who undertook a ROME posting in Pondicherry Institute of Medical Sciences during 2013 were requested to complete a pre- and post-posting structured pretested questionnaire (n=102). The response rate for pre- and post-posting questionnaire was 93.2% (n=95) and 87.6% (n=89). 87 students completed both pre- and post-questionnaire and were included in the analysis. Results: Among the 87 students 64.4% (n=56) were girls. The change in knowledge of the medical students regarding research methodology was significant (p=0.001) and the study shows a positive attitude of medical students for providing community based primary health services in rural areas, especially in boys. Conclusions: ROME posting is able to impart a change in knowledge and attitude of medical students and as undergraduate curriculum should be implemented in all the medical colleges.*

**Keywords:** medical education, re-orientation, attitude, research

## 1. Introduction

Considering the need to achieve relevance, quality, cost-effectiveness and equity in health care throughout the world; the forty-eighth World Health Assembly recommended need for medical schools to improve their contribution to changes in the manner of health care delivery through more appropriate education, research and service delivery, including preventive and promotional activities [1].

As early as the mid-fifties, the health and medical education of the South-East Asia region recognized the urgent necessity for readjustment of medical education to the actual needs of the region; and that there are important trends in medical education for reorientation of the basic medical education methods, including the shift in emphasis to the preventive and community approach [2]. According to the SEAR Committee Report in the year 1976; doctors produced by the medical institutions must be 'close to the community' and be trained to work in 'real life situations' prevailing in areas [2]. As health begins with the community, the problems that persist in the community need to be highlighted and various reasons to be sought thereafter.

For this purpose, the ROME scheme (Re-Orientation of Medical Education) was implemented by the Srivastava Committee in the year 1977 and ever since it has been implemented, this scheme has produced competent doctors, fully equipped with the knowledge in the practice of medicine [3]. The concept of ROME has gained importance owing to the fact that it gives medical students an opportunity in their early years to widen their horizon as far as promoting health in the community is concerned [4]. Some institutions have replaced the re-orientation to research orientation of medical education

as the former was dealt with during regular family health studies in department of Community Medicine [5].

As India lacks young professionals in medical research, this training will also improvise research activities among medical students and open doors for a research oriented medical education in future [4]. Unlike training at the postgraduate level where student have to write a dissertation/thesis as an essential component of the course, it took many years to establish research oriented educational programme at the undergraduate level in our medical college where ROME scheme has been introduced for more than last 5 years as part of the undergraduate student curriculum. The scheme is implemented through the Department of Community Medicine where students of 6<sup>th</sup> semester MBBS are posted for a full month period.

Along with the introduction and implementation of ROME in curriculum, continuous interest of medical students is also important for the effectiveness of scheme in future, as the purpose of ROME is not over with the posting itself. To have an insight in the ROME posting, we did a study to assess the usefulness of posting by observing the change in knowledge and attitude of medical students towards reoriented/research oriented medical education after one month of posting. Specifically we assessed the change in knowledge of medical under-graduate students regarding some aspects of research and interest among medical students to provide community based health care services.

## 2. Methodology

### 2.1. Study design and setting

Considering the need to achieve relevance, quality and cost, this study was conducted among one hundred final year (part-1)

MBBS students of Pondicherry Institute of Medical Sciences, Puducherry, in India. The period of study was from the 1<sup>st</sup> of February to 5<sup>th</sup> of March, 2013.

## 2.2. Questionnaire for knowledge assessment

A Pretested semi-structured questionnaire was used to collect data from all the participating medical students. The questionnaire included questions regarding contextual meaning of word ROME, preferred place and period for the posting, knowledge regarding various aspects of research like research methodology and study designs {cross-sectional, case-control, cohort, randomized controlled trial (RCT) etc.}, data collection, data entry, data cleaning, analysis, report writing and data dissemination. At the start of the posting, all the students were given a predesigned pretested questionnaire to assess them regarding their knowledge and attitude for ROME posting.

Under the ROME scheme, students were posted for full time in the department of Community Medicine for 30 days. During the posting, the entire batch was divided into 4 groups and two faculty and 2-3 Postgraduates were assigned the responsibility of supervising the group. To improve the performance of the students, short duration (2 days) training workshops on research methodology including biostatistics and medical ethics was conducted by the competent faculty. Students were also provided training on interview techniques, use of statistical soft-wares (Microsoft office excel worksheet, SPSS), selection of appropriate statistical tests. Then each batch was asked to design one community based research project of public health importance under guidance and supervision of faculty/post graduates. This was followed by community visits and data collection for two weeks. Interns posted in the department of community Medicine were also involved for facilitating/guiding/supervising the process of quality data collection. In the subsequent week, students entered the collected data in Microsoft office excel worksheet and after data cleaning, used SPSS software to analyze their data. All these activities were guided by faculty and statistician. A community based health interventions was done by all the students in the respective communities based on the problems identified after their studies. Finally a report of the respective project was prepared and submitted. This was followed by competition among the 4 groups in the presence of all the teaching faculties for best group project award which not only boosted their research interest but also enhanced their presentation and communication skills.

## 2.3. Data collection

Data were collected from all the participating medical students on the start as well as end of the posting. On the last day of posting, all the students were given the same predesigned pretested questionnaire, which was used on start of the ROME posting. Feedback was taken to find the most interesting as well as most difficult part of the posting. Considering the need to all the data collected from the students was entered in Epi-data software and data cleaning was done.

## 2.4. Statistical analysis

Students absent during ROME posting and not present either at start or end of posting were not included in the analysis. Data was entered into Microsoft Excel spreadsheet 2007. Both before and after results were analyzed using SPSS Vs 16.0. Mean and Median were calculated for continuous variables and

proportion was calculated for discrete variables. We applied McNemar test to analyze if a variable changed significantly from before to after the posting. For each outcome we compared proportional difference (after - before) between the two groups using McNemar test.

## 3. Results

Among over 100 students, ninety-six final year (part-1) undergraduate medical students responded the pre-test questionnaire and for 89 students data were collected during the post-test. Only those students who were present during the study(n=87) and at the time of pre-test as well as post-test were included in the analysis.

Among 87 students, 64.4% (n=56) were girls. Although ROME posting is a regular activity, only 83% (n=69) students were correctly aware of the contextual meaning of the term. One third of participating students were having knowledge about research methodology (pre-test) which increases to 85% (post-test). Before starting the study, cohort study design was the most common about which the students were aware and after the posting majority (76%) was aware of cross-sectional study design. 60.2% (n=50) of students knew regarding data entry at the start of ROME whereas 97.6% (n=81) students knew data entry after completion of ROME posting. (Table 1) Similarly, 15.7% (n=13) of the students knew regarding data analysis before ROME posting as compared to 89.2% (n=74) after ROME posting. Only 43.3% (n=36) of the students knew about report writing as compared to 90.4% (n=70) of students who knew about the same after ROME posting.

Table 1: Knowledge and awareness among medical students regarding ROME and research methodology

Variable	N (%)	N (%)	P value
ROME meaning	69 (83.1)	83 (100.0)	<0.01
Research methodology	29 (34.9)	71 (85.5)	<0.001
Cross-sectional	14 (16.9)	63 (75.9)	<0.001
Case control	12(14.5)	21(25.3)	<0.01
Cohort	17 (20.5)	30 (36.1)	<0.01
RCT	3 (3.6)	3 (3.6)	0.1
Data Entry	46(55.4)	81(97.9)	<0.01
Data Analysis	13 (15.7)	74 (89.2)	<0.001
Report Writing	36 (43.4)	70(90.4)	<0.01

For preferred place of posting, 69% (n=57) of students preferred rural communities as compared to 31% (n=26) those preferred urban communities. Fifty eight percent (n=48) students realize that data analysis was the most difficult part of ROME posting, whereas only 33.7% (n=28) felt that before posting was started. Similarly, 63.9% (n=53) and 51.8% (n=43) felt that data entry was the easiest part of the study. (Table 2). Majority, 88% (n=73) of the study participants were interested in research before the posting and 94% (n=78) of the students felt so after the study. All participants had interest in health care for community after the study whereas 95.2% (n=79) of the students felt interest in providing health care of the community before the study.

**Table 2:** Attitude and interest of medical undergraduate students for Research/community oriented medical education

Variable	(Pre-test)	(Post test)
	N (%)	N (%)
Rural community as preferred posting place	57(68.7 )	59 (71.1)
Urban community as preferred posting place	26(31.3)	24 (28.9)
Preferred Duration (30 days)	53 (63.1 )	47 (56.6)
Most Difficult is data analysis	28 (33.7)	48 (57.8)
Most easiest is data entry	53 (63.9)	43 (51.8)
Research in community	73 (88.0)	78 (94.0)
Health care in Community	79 (95.2)	83 (100.0)

Regarding research methodology knowledge, there was an overall improvement as 85.5% (n=71) students agreed that they had a better idea regarding study methodology as compared to 34.9 % (n=29) before and after the study respectively. Majority (88.9%) of the study participants felt that they had benefits as far as public health training was concerned.

#### 4. Discussion

This study was an assessment of usefulness of the ROME posting to medical students. In our study, a total of 83 students were included in the analysis as they were present during the posting period as well as completed the pre- and post-test/posting questionnaire. Among them majority were girls. Although the proportion of girl medical students is less in India, being a private Institute in South India could be one of the reasons for higher proportion of girl student.

There was an overall improvement in the knowledge and awareness of medical students about research methodology. After the posting all the participated medical students were correctly aware of contextual meaning of ROME. There was a significant improvement in the knowledge regarding research methodology. Also, students showed a significant improvement in the knowledge and awareness about various study designs (cross-sectional, case-control, cohort) but there was no improvement in knowledge about randomized controlled trial which can be due to not teaching the RCT methodology in detail during training as well as during the posting as the main focus of the posting is to research orientation of medical students to various simple study designs. Almost all the participants (97.9%) learnt about data entry during the posting as this was part of their project and they did data entry. There was a highly significant ( $p < 0.001$ ) improvement in the knowledge regarding data analysis which was considered as the most difficult part of the research project. All the participants contributed to the report writing and their knowledge was enhanced significantly by exposure to research work during re-orientation of medical education posting.

#### 5. Conclusions

The ROME Scheme which has long ago been forgotten from the history of medical training should be included as an integral part of the undergraduate medical curriculum. The scheme introduces the practice of 'learning with experience' and hence it brings forth a younger generation with a better view of public health and it's various aspects as well as help the policy makers make better decisions as far as the health of the nation is concerned. Entire programme was sponsored by the students themselves. We observed that students took keen interest in learning and applying the principles of epidemiology and biostatistics to solve a given public health problem. We firmly believe that such activities can go a long way in encouraging students to undertake research activities not only during their undergraduate but also during their postgraduate days.

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