Perceptions, Attitudes, and Practices toward Research among Medical Students in Their Clinical Training in Pakistan.

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Abstract:

Education of health science is an integral aspect of medical training. This intersectional study examined the attitudes of research students in Pakistan, their understanding of research, and their experience in research studies. Research based on perceptions, attitude, and practices towards that research among medical students in their clinical training in Pakistan. This research data is based on primary and quantitative data collected by usingquestionnaire related to the perception, attitudes, and practices of a medical student in Pakistan. For this purpose, 603 medical students who contributed to the various fields of medicine have completed a self-administered email questionnaire. Results describe that there is an associated impact between perceptions of student and their training factors. For measuring the data analysis, using SPSS software and creating specific results included a one-way ANOVA test, the one-sample test analysis, and the fitness of models. Results founded that there is a significant link between practices and student clinical training. Another one is attitude shows an inverse relationship in between student training performance. The majority (97.9%) respond that research is essential and enhances health and 86.9% said it helps to develop a potential academic career.

Keywords:

Perception (P), Attitude (A), Practices (P), clinical Training (CT), Medical Student (MS), Pakistan (P)Research Type: Research paper

Introduction:

In every country's medical field, research is a necessary part and plays a vital role because it is impossible to progress in health without the help of research.It is essential to understand the fundamentals of medical sciences and published research for any medical practitioner during clinical training. Physicians play a significant role in clinical training and translational science and research by prescribing the significance of clinical experiments, increasing participation in clinical analysis, and ease the conscription of research members. Clinical practice and training are an essential part of medical education because they give medical students a chance to increase their knowledge and develop learning theories, intellectual

skills, and psychomotor skills. All healthcare employees need to provide extensive patient care, and for this purpose, primary research education is compulsory. It is impossible to deny the importance of scholars' and researchers' research activities because these are the vital elements of medical education (undergraduate and postgraduate).

Regarding incorporating research elements in Pharmacy and medical education, a significant change has been noticed worldwide, including in Pakistan, for the previous ten years. Due to these changes, there is an increase in the interest among medical students to carry out research and print their research work globally. Different studies have described that understanding research activities at the student level is strongly related to the students' future profession. It is also difficult to research the student level because of various difficulties such as deficiency of time, financial problems, and lack of support from the respective departments. Still, all Pharmacy and medical students of all countries perform their research nationally and internationally regardless of all these problems. Researchers' positive attitudes and chances towards study and provision of best facilities from faculties will assist medical students in becoming future medical and healthcare scientists. The research in medicine and clinical training programs for undergraduate students globally has many potential advantages, such as assessment skills, logical thinking, and excellent and constructive attitude among medical students towards medical research (FM Custers, 2002).

A considerable difference is present between developed and developing countries based on medical research information and medical students' contribution towards medical research. It is studied that, researchers determined that only 25.8% of the students being informed or have knowledge of research plans. 78.8% of the students consider that medical field research is essential and essential for them. The students who understood and practiced medical research are significantly better than those with no research experience. Studies revealed that in Germany, a developed country significant percentage, about 70%, of medical students were engaged in medical research. (R. Agha, A. 2019). Before completing the MD degree, 66% of students have at least one publication. On the other hand, studies showed that developing countries such as Croatia did not show a positive attitude towards medical research and limited medical research information. Pakistan has made significant changes in the healthcare department for the last twenty years to become an international center of health tourism and medical treatments. Still, unfortunately, the number of students engaged in research is limited.

This research is based on perception, attitude, and practices towards medical students in their clinical training in Pakistan. We supposed that in Pakistani medical educational sectors, the involvement of research among students is also restricted and narrow. The medical students of Pakistan have determined or less participation than other international countries all around the world. Variation in Western countries policies that support the research experience had a beneficial and good effect in Pakistan because it provoked and allowed medical students to perform their training in these Western countries as well to gain more research experience. (R.M. Harden, 1998)

The study courses are part and parcel to develop or increase medical students' participation in the research area. A good association should also be present between faculty members and the research students. The study of research is included in these three: biostatistics, epidemiology, and community medicine courses. Medical students also undergo high stress and depression during clinical training, which causes psychological issues that directly or indirectly affect the patient's health. The clinics' instructors should give complete support and guidance to the medical research students to reduce this stress and assist in a better clinical experience.

This research paper is divided into five sections; the first section presents an introduction related to perception, attitude, and medical practices. The second section describes that literature review with previous research in section three presents methodology and data sampling techniques. Section four offers the result and discussion about the research study and explains the overall conclusion in the last section.

Literature Review:

Researchers indicated that great interest is present in the fresh graduates and undergraduate medical students towards research. The Pharmacy students have a positive attitude toward the research publications, and a large number of medical students wanted to engage themselves in research activities.

Health research priorities for developing countries in South Asia contribute just 1.2% of the global repository of health science. This is evidence of the pitiful number of medical practitioner scientists who generate a stagnation at the professional level of clinical and basic knowledge. There may be insufficient testing, fewer financial incentives, and time spent on research work as the potential explanation for such a situation.(SI. Shehnaz, J et, al 2012)

Research in the Patan Academy of Health Sciences, Nepal, has been stipulated as the medical degree competencies. Still, no analysis has yet been performed to evaluate the results. (L. Eyal, R. et, al 2006)

Research faculties should take essential research measures to overcome the barriers against research methodology. The medical students of Pakistan have a positive attitude towards medical research. Studies by different scholars determined a significant decrease in the number of doctors between the period of 1970 to 1980. Thus, Wyngaarden stated the physician's scientist as endangered species in his report. Since then, the government of all countries and different associations have adopted various measures to provoke physicians' participation in the research field and determined the barriers from medical research. One of Germany's methods to improve the research field that study was made mandatory for medical students to get the MD degree.(S. Gupta, A et, al 2014)

In addition to others, modern medical education, a study has gained mandatory significance. Medical schools prepare research students to achieve accreditation and excellence in their careers, as research is also oriented to postgraduate studies' research initiatives. Research is not only aimed at documenting evidence-based medical practice but is also helping to bring discoveries into and out of the medical fraternity. Medical students have increased trust in

applying the scientific method and infer findings and explanations and applications as needed in academic and practical exposure to their research. The research culture of medical students has a long way to go to combat potential health problems.(KA Bin Abdulrahman 2008)

Methodology:

For all variables in the questionnaire, descriptive frequency analyses were performed. Chi-squared tests were performed to examine the connection between perception, attitude, and practices.

For statistical analysis, version 16 of SPSS has been used. Average and standard deviation are numerical variables (SD). The Chi-squared test was used to evaluate the correlations of various categorical variables. The attitude and practice towards researchconcerning various s variables such as their perceptions, attitude, age, sex,and degree of formation have been associated with many logistical regressions. The statistical interpretation was based on P-value less than 0.05.

Data Sampling:

This study is focused on primary data analysis of beliefs and attitudes using SPSS tools for measuring and assessing the data and critically analyzing the findings.The research considers that perception, attitude, and practices are independent variables, and students' clinical training is regarded as a dependent variable. This research study measures the relationship between perception, attitude, and practices in the medical student for clinical training in Pakistan.

Variables:

Sr. No	Details	Notation
1	Independent Variable	IV
2	Perception	P
3	Attitude	A
4	Practices	P
5	Dependent Variable	DV
6	Student clinical training	SCT

Hypothesis development:

H0= There is no associate relation between perception, attitude, and practices in the medical student for clinical training in Pakistan.

H1= There is a significant relationship between perception and student clinical training.

H2= There is associated relation between attitude and student training.

H3= There is a significant relationship between student practices and student clinical training in Pakistan.

Results and descriptions:

One-way ANOVA:

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Perception	Between Groups	1.619	4	.405	.369	.831
	Within Groups	656.858	598	1.098		
	Total	658.478	602			
adequate training in research methodology (attitude)	Between Groups	8.148	4	2.037	2.368	.052
	Within Groups	514.509	598	.860		
	Total	522.657	602			
Adequate time in pursue research (practices)	Between Groups	10.140	4	2.535	2.144	.074
	Within Groups	706.934	598	1.182		
	Total	717.075	602			
Adequate training in reviewing scientific literature	Between Groups	36.540	4	9.135	7.767	.000
	Within Groups	703.310	598	1.176		
	Total	739.851	602			
research mentors are easily available	Between Groups	23.908	4	5.977	4.810	.001
	Within Groups	743.050	598	1.243		
	Total	766.959	602			
many opportunities to present research in my medical school (student clinical training)	Between Groups	17.526	4	4.381	3.695	.006
	Within Groups	709.104	598	1.186		
	Total	726.630	602			

Table-1

The above result describes that one-way ANOVA test analysis with the help of some of the squares values, the vales of df, mean square, f-statistic, and significant level. The perception is an independent variable; its sum of square value is 1.619. The rate of df is four also that the mean square values show that 0.405, which shows 40% average value of mean the significant level is 0.831 which means that 83% significant level. Attitude consider as another variable; it's 8.1, the value of 2.36, and its rate is 0.74, shows a 74% significant level. All results show a positive relationship between independent and dependent variables.

Model fitness analysis:

Model Fitting Information

Model	-2 Log Likelihood	Chi-Square	df	Sig.

Intercept Only	1576.994			
Final	1553.260	23.734	33	.882

Link function: Logit.

Table-2

The above table presents that model fitting information related to the model fitness analysis with the help of chi-square values at the rate of significance. According to this result, the value of 2 log-likelihood is 1576.994 is when intercept only, and its final value is 1553.260 respectively. The rate of chi-square is 23.734 the significant value is 0.882 shows an 88% significant rate. The chi-square value is positive so, the model is fit for analysis and accepts that all alternative hypothesis.

Goodness-of-Fit

	Chi-Square	Df	Sig.
Pearson	1940.610	1947	.537
Deviance	1446.828	1947	1.000

Link function: Logit.

Table-3

The above table represents the goodness of fit values in the Pearson model and deviance model; the chi-square values are 1940.610 and deviance value is 1446.828 its significant values are 0.537 and 1.00, respectively.

Pseudo R-Square

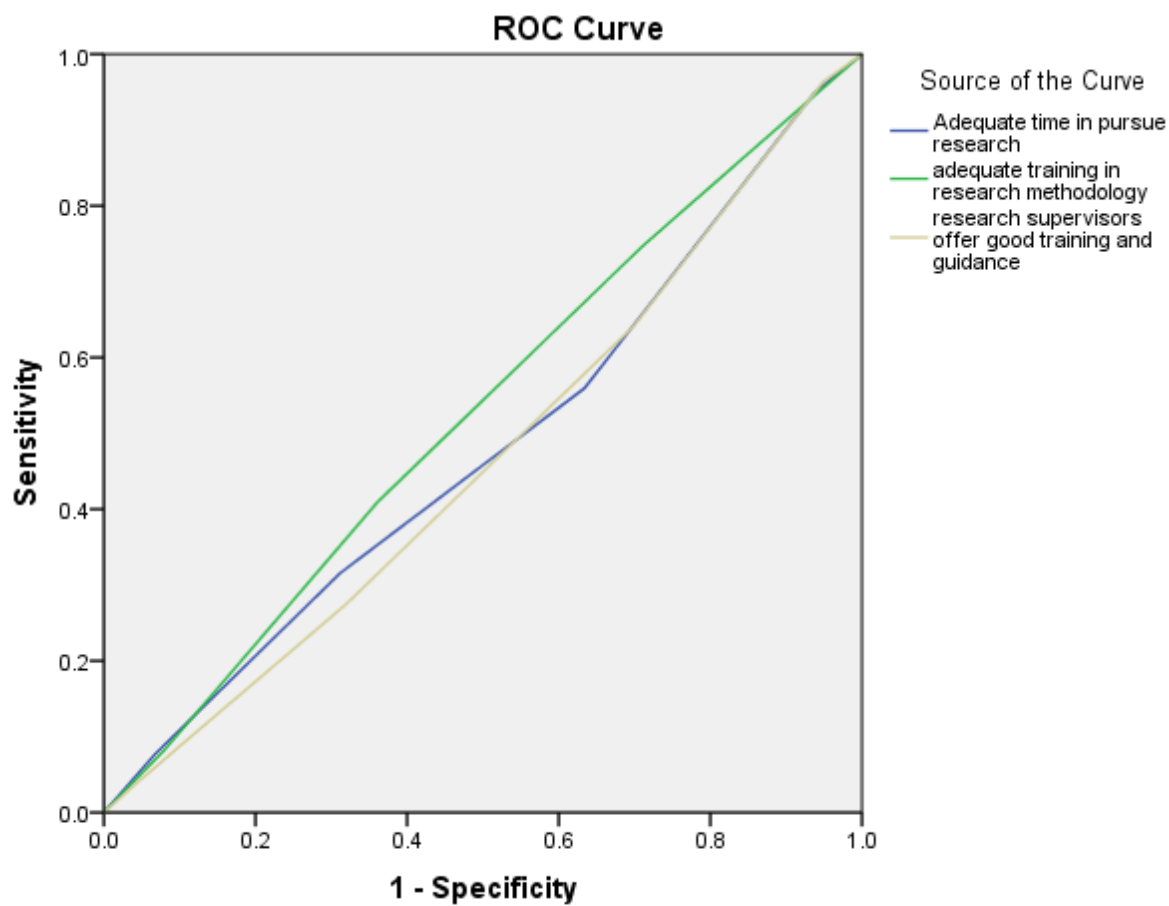|	
Cox and Snell	.039
Nagelkerke	.041
McFadden	.014

Link function: Logit.

Table-4

The above results show that Pseudo R-square its all rate shows that as positive 0.039, 0.041, and 0.014 respectively. The pseudo square shows the performance of cox and snell model in the research study.

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
Adequate time in pursue research	603	2.9353	1.04586	.04259
adequate training in research methodology	603	3.1791	.93177	.03794
Adequate time in pursue research	603	2.4030	1.09140	.04445
Adequate training in reviewing scientific literature	603	2.3930	1.10860	.04515

research mentors are readily available	603	3.0083	1.12872	.04597
research supervisors offer good training and guidance	603	2.9851	.94786	.03860
many opportunities to present research in my medical school	603	2.5141	1.09865	.04474
there are many opportunities to publish research during medical school	603	2.8756	1.17396	.04781
I will receive acknowledgment for contribution in research if I am involved in their conduction	603	3.0896	.73268	.02984
I believe that research is important in the medical field	603	2.5721	1.06719	.04346
conducting research should be mandatory	603	2.6617	.89941	.03663
Advanced research methodology should be a part of the medical school curriculum	603	3.0066	.85490	.03481
research experience should be an essential criterion for acceptance in residency	603	2.5373	1.03101	.04199

Table-5

The results indicate that the one-sample strategy is related to every selected question in this research. The one-way sample analysis measures that performance is related to perception and attitude towards medical students; the total number of observations is 603. The results indicate that values of mean, standard deviation, and standard error of the mean. According to these results, the overall rate of the mean value is positive and significant, and its standard deviation values also positively deviate from the mean, with the rates are 0.85490, 1.031, 1.06, respectively.

Diagonal segments are produced by ties.

The curve presents that sensitivity levels and also shows that specificity level in between perception, attitude, medical trainingin diagonal segments and produced by ties. The curve shows a positive relation between perception, attitude, and medical student training in Pakistan.

Area Under the Curve

Test Result Variable(s)	Area
Adequate time in pursue research (perception)	.481
adequate training in research methodology (attitude)	.527
research supervisors offer good training and guidance Medical student training)	.469

The test result variable(s): Adequate time in pursuing research, adequate training in research methodology, research supervisor's offer good training and guidance has at least one tie between the positive actual state group and the negative actual state group. Statistics may be biased.

Table-6

The above table describes the test results of variables including perception, attitude, and student training in Pakistan. The perception area shows that 0.481, which means show 48%

cover the area in a curve. The attitude considers as an independent variable its covers 52% area in student's medical training. Another one is the student training part shows that 46% are in a curve.

Conclusion:

This research is based on perception, attitude, practices towards research in medical students because to improve health services in all countries of the world; health research is an essential part. Health research training is a significant part of medical education since research by students may lead to an institution's published results. Critical thinking and thinking skills must be invigorated; medical students and practitioners must cultivate a positive attitude during their medical careers towards science research. However, not all trainees want to take time to do studies from clinical school. Consequently, during the higher medical education of a trainee, it is necessary to ensure that opportunities for study are included in the clinical function. A clinical program may be exposed to a period of research training to explore more important career choices. In addition, the development of research culture among future clinical leaders is just as critical as the recruitment of future academic leaders. There is also general agreement that academic clinics are in crisis. The increasing sense of disconnection between study and clinical practice, the depletion of clinical lecturer positions, and the closing of universities are all signs of malaise. A deficiency of well-trained and skilled nursing personnel was highlighted in this crisis as a significant factor.

The model enhances academic learning, acquires skills, promotes students' research interest, reduces the obstacles to research by students, and allows better use of limited resources.(BS. Malau-Adult, et, al 2019)(D. Shah, Ret al. 2015).Our research focused on medical residents' perceptions and practices in research training. Study in practices can promote interest in an academic career and enhance competitiveness for potential bursaries, other academic places, and office-based research. Research training in Pakistan is being integrated into curricula and residency programmers in the Medical School to develop an expert doctor's foundation. Medical training aims to prepare physicians in their capacity as doctors, educators, and clinical investigators to meet practice demands. This research-based on perception values, the level of attitude towards that research of medical student in clinical training in Pakistan. For measuring the results, the analysis uses different techniques which run from the SPSS software. Overall results concluded that the perception and practices show that positive relationships with student training in medical and attitude show inverse link in between them.

The process of developing skilled, well-qualified physicians such a transformation allows the faculty to make up for constant learning evaluations, insufficient resources, and other insufficiencies.

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