

RECRUITMENT OF STUDENTS AS VOLUNTEERS IN RESEARCH: A CROSS-SECTIONAL SURVEY OF MEDICAL STUDENTS AND FACULTY TO ASSESS PERCEPTION OF THE ETHICAL PRINCIPLES INVOLVED.

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ABSTRACT

Background: Students are an easily accessible and convenient source of volunteers for research by faculty in the medical field and are often invited to volunteer. Are medical students under pressure to participate in faculty research? Moreover, an increasing number of students are carrying out research projects for which they may recruit fellow students as volunteers. Does this dual role of a student as researcher and participant in research pose additional ethical dilemmas? **Materials and Methods:** In an attempt to answer the above questions and to assess awareness regarding the ethical issues involved in such research, we carried out a questionnaire-based survey of medical students and faculty of a tertiary care Institute in Central India. **Results:** Out of the 163 respondents, (87.1%) of the faculty, but only 48.4% students, responded that students would feel compelled to volunteer for a faculty who is currently teaching them. A much smaller percentage (38.6% of the faculty and 31.2% students) answered that there would be pressure to participate if the faculty researcher was not currently involved in their teaching. A total of 60% of the faculty and 41.9% of the students felt that if a research project has a student investigator; students will be more willing to participate, while 29% of the faculty replied they would approve such projects more readily as members of an Ethics Committee. **Conclusion:** Fear of poor marks on refusal to participate and a better student- faculty relation are major incentives for students to volunteer in faculty research. Having student investigators may increase student volunteerism.

Key words: Student volunteers, research, vulnerable

INTRODUCTION:

In today's 'publish or perish' environment, research is an integral part of a medical teacher's work. Research in a medical institute is broadly of two kinds, educational research and medical research. Medical research, in turn, may be observational or experimental, that is, a clinical trial. In case of educational research, medical students are the natural choice as volunteers,

since this kind of research generally needs to be carried out in them. But medical students are also commonly recruited for observational medical studies which can be carried out on healthy subjects. This practice of recruiting students as volunteers in research by the faculty is not peculiar to medical institutes. College or university students across various disciplines are

often recruited as volunteers for research by faculty which requires human volunteers. This is because they are easily available in large numbers, accessible and convenient to recruit.(1,2) Other advantages of college students as volunteers include the fact that they fall within a narrow age range that is 18 to 25, and usually equal numbers of both sexes are available.

In addition to participating in research merely as volunteers or subjects, an increasing number of medical students are now carrying out or assisting in small research projects. The Indian Council of Medical Research initiated the Short Term Studentship Program in 1979 to promote research among medical undergraduates. Every year hundreds of medical students carry out small research projects in the medical field, upon the successful completion of which they receive a scholarship and a certificate. As a result, a number of research proposals submitted to human ethics committees in medical institutes which have undergraduate training programs are for student projects where both the researcher and the participants are students. But undergraduate students do not carry out research on their own. A mentor, who is a faculty member, is always required, in which case, all the ethical issues of faculty-initiated student research come into play, perhaps with an added peer pressure from fellow students. Students generally select as mentor faculty who are currently teaching them. In addition, students find it easier to recruit their own batch mates. Therefore such studies are more likely to involve a mentor faculty who has direct and current teaching responsibilities towards the volunteering students. Does having a student as an investigator alter the researcher-volunteer relationship? If so, in what way? How should an ethics committee respond to such proposals? Should the ethical principles be relaxed? We did not find any literature dealing with ethical issues peculiar to this situation. We therefore decided to undertake a cross-sectional survey to assess awareness regarding this issue of the dual role of a student as researcher and participant.

MATERIALS AND METHODS

Study Design and Site: The study was a questionnaire based survey of medical teachers and medical students in AIIMS Bhopal, a tertiary care institute in Central India. The questionnaire consisted of both closed and open ended questions regarding participant views on various issues involved in student participation in research.

Data Collection: All third year MBBS students and Medical teachers of AIIMS Bhopal were invited to participate. Participants were contacted by one of the investigators or student volunteers and invited to fill out the questionnaire and consent forms. Participants were free to fill out the questionnaire and hand it back at the same time or keep it with them to be filled at leisure.

Statistical Analysis: This was an exploratory study. Results have been expressed as percentages. To compare the responses of faculty versus students, or faculty trained in research ethics versus those without training, Pearson's chi-square test was applied only in the questions with a yes/no response. The significance level was set at $P < 0.05$.

Ethical Clearance: The study was initiated after approval by the Institutional Human Ethics Committee. To avoid undue compulsion to participate, only those students who had completed their Pharmacology curriculum were invited to participate. To keep the responses confidential, participant could sign and seal the consent form in a separate envelope. No names or initials were required on the questionnaire.

RESULTS:

Profile and Research Experience of Participants

Out of a total of approximately 100 medical teachers and 150 third year medical students, 163 participated in the survey, making a response rate of 65.2%. The respondents included 70 medical teachers (25 Faculty plus 45 Residents) and 93 medical students of third year MBBS (Bachelor of Medicine and Bachelor of Science) course. There was nearly equal distribution of men and

women among the respondents, with 81(35 faculty and 46 students) being men. Among the faculty 16 (22.9%) were from Pre-clinical departments that is, Anatomy, Biochemistry or Physiology; 14 (20%) were from Para-clinical specialties that is Microbiology, Pathology, Pharmacology, Forensic Medicine or Community and Family Medicine; while a majority (39 or 55.7%) were from the Clinical specialties.

Only 17 (24%) faculty members had undergone some training in Research Ethics, mostly (20%) in the form of a Workshop and/or a Continued Medical Education (CME) program. For the Medical students, a lecture cum practical session on ethics of medical research is conducted by the Department of Pharmacology during routine curriculum for all batches of Medical students in the fifth semester.

As expected, a majority of the faculty, that is 57 (81.4 %, n=70), had carried out at least one research study (Table 1). Of these 25 (35.7%) had undertaken research with students as volunteers. Among these, 20 faculty (28.6%) had recruited students while they were directly involved in teaching them. Among the students, 58 (62.4%) had participated in research as volunteers. Half of these had participated in studies where a student was an investigator. Only 19 students said they were recruited for a study by a faculty member who was directly involved in their course.

Opinion regarding Ethical Issues involved in Student participation as volunteers in Research:

A large and significantly higher proportion (61, 87.1%) of faculty responded that students would feel compelled to participate in a study if a faculty who is currently teaching them asks them to volunteer (Table 2). On the other hand, only 45 (48.4%) students said that they would be compelled to participate in such a situation. This percentage came down considerably, particularly in case of faculty respondents, in a situation where the faculty who was *not* currently teaching the students asks them to volunteer. Only 27 (38.6%) teachers and 29 (31.2%) students felt that there would be pressure to participate in

such a case, and the differences in response of the faculty and students were not statistically significant ($p > .05$).

Overall, the major reasons for pressure to participate when a faculty who was directly teaching was involved were belief that participations may improve a student's relation with the faculty (38%) and the fear of poor marks on refusal to participate (33.1%). But a significantly higher proportion of the faculty felt that the above were reasons for participation as compared to the students ($p < 0.001$). Also, a significantly larger percentage of faculty (38.6) felt that students may expect better marks if they participate, as compared to only 6.4% of the students.

In cases where faculty was not currently teaching nor going to do so in future, the overall responses were nearly equally distributed over all three compelling factors suggested, that is a spouse or friend of the faculty may be involved in teaching (16%) or do so in the future (17.8%) or that a spouse/friend of faculty may hold an administrative post dealing directly with students (18.4%). (Table 3)

Other reasons to participate mentioned by the students included the belief that by volunteering as a participant, a student would be indirectly helping in the research and get firsthand experience of research.

A considerable number, that is 42 (60%) of the faculty felt that if a research project has a student investigator, students will be more willing to participate (Table 4). On the other hand, among students the response was almost equally distributed between an increased willingness to participate (41.9%) and no difference in participation (39.9%). Wanting to help the student carrying out the research was the main reason cited by the faculty (47.1%) as well as the students (39.8%) in a project with a student investigator. Fear loss of confidentiality was the main reason for reluctance to participate in a project with a student investigator, cited by 10% of the faculty and 5.4% of the students ($p > 0.1$)

When asked for their opinion about an acceptable policy regarding recruitment of students by faculty for educational research,

again there was agreement between the teachers and the taught, with a total of 44.2% participants stating that it should be allowed only when students are no longer being taught or evaluated by the faculty (Table 5). Similarly, regarding an acceptable policy for recruitment of students by faculty observational research other than educational research, 39.3% of total participants felt that it is all right if it is cleared by the Institutional Human Ethics Committee (IHEC) and students are no longer being taught by the faculty. A significantly higher proportion of faculty (34.8%) felt that it is all right to carry out non-educational research with student volunteers if it is cleared by IHEC compared to only 18.3% of the students.

When asked if as a member of an Ethics Committee, the participants would clear a project which involves students as volunteers more readily if the investigator was also a student, a majority (47, 68.1 %) of the faculty said it would make no difference or that they would not clear such projects more readily. Only 20 (28.6%) answered in the affirmative, that is they agreed they would be more ready to grant ethical clearance to such studies. This question was posed only to the faculty.

DISCUSSION

Many studies on human physiology and psychology have been conducted on university or college students, simply because these students are readily available to a researcher in a medical institute. Although the same studies could be conducted using the general population of young adults, the ease of recruiting university and college students has made them a commonly used participant group. Participating in research as a volunteer may also benefit the students. Even though a student volunteer may not actually be carrying out any procedure or technique themselves, it may give them an opportunity to observe these at close quarters. Participating in the research process may indeed help promote interest in research.

Although there may be benefits for both parties, the practice of using student volunteers in

medical research is not without controversy. (2-5) Most guidelines on Ethics of human research including the ICMR Ethical Guidelines for Biomedical Research on Human Participants (6), NIH Protecting Human Research Participants,(7) and the CIOMS International Ethical Guidelines for Biomedical Research Involving Human Subjects,(8) list students as vulnerable groups. This is due to the fact that students may be in dependent relationships with the researcher such that their ability to consent voluntarily is compromised or limited. Even though a researcher may feel confident that he or she would not let the students' decisions about participation affect his/her opinions or actions towards them, the students might feel pressured to participate simply because the researcher is in a position of authority. In fact as participants in research, students are considered captive if that research is conducted by researchers who are in hierarchically superior relationships with them, that is, their teachers.(9)

Potential loss of confidentiality is another issue. In particular, when personal or sensitive data is collected by faculty researchers through interviews, the students may not only feel uncomfortable but also fear loss of confidentiality. A survey of the 37 psychology departments offering courses accredited by the Australian Psychological Society showed that 68% of departments recruited students as research subjects, with larger departments being more likely to do so. Most of these departments obtained their student subject pools from introductory courses. Student research participation was strictly voluntary in just above half of the departments (57%), while 43% of the departments have failed to comply with normally accepted ethical standards. (2)

In our survey, we found that out of the 25 faculty members who had used student volunteers, 20 faculty, which amounts to as many as 80% of those who had carried out research in students, had recruited students while they were directly involved in teaching them. But only 19 students said they were recruited for a study by a faculty member who was directly involved in teaching them. Since 20 research studies cannot

be carried out in 19 students, most of the faculty research must have been conducted before joining the current institute.

A large majority (87%) of the faculty felt that students would feel compelled to participate in a study if a faculty who is currently teaching them asks them to volunteer. On the other hand only about half (48.4%) of the students felt that they would be compelled to participate in such a situation. It is therefore likely that the fear of pressurizing the students is probably more perceived than real. However, in a situation where a faculty was no longer directly involved in teaching, only 38.6% of the faculty felt that there would still be a pressure to participate, while among the students this percentage was 31.2% students.

Fear of poor marks on refusal to participate and the belief that participation may improve a student's relation with the faculty were the most commonly cited reasons for student participation in faculty research when a faculty who was directly teaching was involved. This is keeping with known motives for student volunteers. In Indian Medical Universities there is no incentive in terms of course credit for volunteering in research, so that motive was not included in our survey.

When asked about their opinion regarding an acceptable policy for recruitment of students by faculty for research, the opinion of the students was consistent with their response to the pressure to participate. That is, 46.2% of the students had answered that there would be pressure to volunteer for a faculty who was involved in teaching them, and an almost equal proportion (48.4 % in case of educational research and 43% for other research) replied that student volunteers should be recruited only when students are *no longer* being taught or evaluated by the faculty. But only 42-43% of the teachers responded that research should be allowed only when students are *no longer* being taught or evaluated by the faculty, even though 87% had felt there would be pressure to participate in such a situation.

Medical students are also increasingly turning investigators or co-investigators; hence we tried

to gauge how a student investigator would influence student volunteering and ethical clearances for faculty research. In our survey, the influence of having a student investigator on student volunteering in research was also perceived to be more by the faculty than the students. While as many as 60% of the faculty felt that students would volunteer more readily in projects undertaken by fellow students, only about 42% of the students felt so. Moreover, nearly one-third of the faculty (28.1%) answered that they would be more ready to grant ethical clearance to faculty research on students if one of the investigators was also a student.

CONCLUSION

Expectation of preferential treatment if they agree or fear of disapproval or retaliation if they refuse, continue to be issues of concern when medical students participate in research. Such influences are greater when a researcher is actually teaching and evaluating the prospective volunteers. Having a student as an investigator may influence participation of fellow students as volunteers, as well as approval by ethical committees. In comparison to students themselves, a larger proportion of teachers perceived these influences to play a role in student participation in faculty research. Therefore it is imperative that medical students, teachers as well as ethics committee members be sensitized to these ethical issues involved in research involving students as volunteers.

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Table 1: Research Undertaken and Participation by Study Participants

S No.	Faculty n=70	Number (%)
1.	1-3 Research studies	36 (52.2)
2.	> 3 Research studies	21 (29)
3.	Research in student volunteers	25 (35.7)
4.	Research in students while teaching them	20 (28.6)
Students n=93		
1.	Volunteered for research	58 (62.4)
2.	Volunteered for research with student investigator	29 (31.2)
3.	Volunteered for research with faculty who was teaching them (2 have not selected an option)	19 (20.4)

Table 2: Perceived reasons for students Volunteering in Faculty Research by teaching faculty

S No.	Question	Response (%)		p value (Chi square)
		Yes	No	
	Would students feel compelled to participate in a study if a faculty currently teaching them, asks them to volunteer?			< 0.0001
1.	Faculty (n=70) 1 has not selected any option	61 (87)	8 (11.4)	
2.	Students (n= 93) 5 have not selected any option)	45 (48.4)	43 (46.2)	
	Total n=163	106 (65.0)	51 (31.3)	

	Perceived Reasons for Participation	Faculty (%) n=70	Students (%) n=93	Total* (%)	p value (Chi square)
1.	Students may fear poor marks if they refuse to volunteer	41 (58.6)	23 (24.7)	54 (33.1)	< 0.0001
2.	Students may expect better marks if they participate	27 (38.6)	6 (6.4)	33 (20.2)	< 0.0001
3.	Students may feel it will improve their relation with the faculty	42 (60)	20 (21.5)	62 (38.0)	< 0.0001
4.	The faculty may hold an administrative post dealing directly with students	21 (30)	17 (18.3)	38 (23.3)	0.1177

*One person could select more than one option

Table 3: Perceived reasons for students Volunteering in Faculty Research by non-teaching Faculty

	Question	Response (%)		p value (Chi square)
		Yes	No	
	Would students feel compelled to participate if a faculty <i>not</i> currently teaching them and will not do so in the future, asks them to volunteer?			0.4316
1.	Faculty n=70 (2 have not selected any option)	27 (38.6)	41 (58.6)	
2.	Students n= 93 (2 have not selected any option)	29 (31.2)	62 (66.7)	
	Total n=163	56 (34.4)	103 (63.2)	

	Perceived Reasons for Participation	Faculty (%) n=70	Students (%) n=93	Total* (%)	p value (Chi square)
1.	Spouse/friend of faculty may be currently teaching	17 (24.3)	9 (9.7)	26 (16.0)	0.0212
2.	Spouse/friend of faculty may teach in the future	16 (22.9)	13 (14.0)	29 (17.8)	0.2076
3.	Spouse/friend of faculty may hold an administrative post dealing directly with students	16 (22.9)	14 (15.0)	30 (18.4)	0.2853

* One person may select more than one option

Table 4: Influence of Student Investigator on Student Volunteers and Perceived Reasons

S No.	Question	Response			
		More (%)	Less (%)	No difference (%)	More and less (%)
	If a research project has a STUDENT Investigator, will students be MORE or LESS willing to participate?				
1.	Faculty n=70	42 (60.0)	8 (11.4)	15 (21.4)	4 (4.3)
2.	Students n=93 (1 not selected any option)	39 (41.9)	4 (5.7)	37 (39.9)	8 (8.6)
	Total n= 163	62 (52.5)	12 (7.4)	31 (26.3)	8 (8.6)

S No.	Reasons for increased willingness to participate	Faculty n=70 (%)	Students n=93 (%)	Total n=163 (%)	p value
1.	To help the student carrying out the research	33 (47.1)	37 (39.8)	70 (42.9)	0.4027
2.	Do not want to seem unhelpful	14 (20)	4 (4.3)	28 (17.2)	0.0036
3.	It will depend on whether the investigator student is a friend	0	6 (6.4)	6 (3.7)	0.0376
4.	If it is a senior there will be compulsion to volunteer	0	6 (6.4)	6 (3.7)	0.0376
	Reasons for decreased willingness to participate				
1.	Fear loss of confidentiality	7 (10)	5 (5.4)	12 (7.4)	0.4375
2.	May not trust a student to be able to carry out procedures required	3 (4.3)	4 (4.3)	7 (4.3)	0.9730
3.	May not want to help the student carrying out the research	3 (4.3)	2 (2.2)	5 (3.1)	0.7651

Table 5: Opinion about Policies regarding Recruitment of Students by Faculty for Research

I.	What in your opinion is an acceptable policy regarding recruitment of students by faculty for Educational Research ?	Faculty n=70 (%)	Students n=93 (%)	Total n=163 (%)	p value (Chi square)
1.	Such research can be carried out only in students, so there are no ethical issues involved	10 (14.5)	14 (15.0)	24 (14.7)	0.8910
2.	It should be allowed only when students are no longer being taught or evaluated by the faculty	29 (42)	43 (46.2)	72 (44.2)	0.6509
3.	No faculty should be allowed to carry out any research including Educational Research on students of the same institute	12 (17)	21 (22.6)	23(20.2)	0.5103
		Not sure-7, Not selected any option- 3			
II.	What in your opinion is an acceptable policy regarding recruitment of students by faculty Observational Research other than Educational Research?				
1.	It is all right if it is cleared by EC	24 (34.8)	17 (18.3)	41(25.2)	0.0316
2.	It is all right if it is cleared by EC and students are no longer being taught by the faculty	24 (34.8)	40 (43.0)	64 (39.3)	0.3335
3.	No faculty should be allowed to carry out any non-educational research on students of the same institute	8 (11.4)	23 (24.7)	31(19.2)	0.0523
		Not sure - 8 , not selected any option- 2			