Original Article

Altruism, an attitude of unselfish concern for others – an analytical cross sectional study among the Medical and Engineering students in Bangalore

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Abstract

Introduction: Altruism is disinterested and selfless concern for the well-being of others. Intentional and voluntary actions that aim to enhance the welfare of another person in the absence of any external reward. With the background of increasing mistrust between the medical profession, media, and the public and increasing incidents of violence against doctors in India, there is a growing feeling that altruism in medicine, if not dying is at least declining. **Aim and Objective:** To assess altruistic attitudes among Medical and Engineering students in a Medical and Engineering College in Bangalore and to determine the factors influencing altruistic behavior among these students. **Methodology:** An analytical cross-sectional study was conducted among 200 medical and 200 engineering students studying in medical and engineering college, respectively. The survey contained a structured pre-validated questionnaire containing general information and the Altruism personality scale items for measuring altruistic tendency in students. **Result:** Among the participants from both the backgrounds doing simple altruistic acts, were more frequent than risk taking altruistic acts. Altruism deceases with increasing years of study in medical college. **Conclusion:** Good Medicine stands on the basis of interactions between people. Few changes in the existing curriculum for medical professionalism which should emphasize on skills such as empathy towards patients, communication, good doctor patient relationship, emotional intelligence and professional ethics and values is desired. Doing this study in a medical and engineering college setting would introduce the topic of altruism among the students and give them a chance to self-analyze their altruistic nature and bring about positive changes towards human altruism.

Keywords: Altruism, empathy, professional ethics

Introduction

Altruism is disinterested and selfless concern for the well-being of others. Intentional and voluntary actions that aim to enhance the welfare of another person in the absence of any external reward.[1] The term "altruism" was introduced as a term opposite to "egoism" by a French philosopher Auguste Comte as a guide to working in the interests of others.[2] The concept of altruism is an inherent part of Medical professions and it is a long-standing tradition since the days of Hippocratic Oath or even before.[3] It is been said that medicine was conceived in sympathy and was born out of necessity. While Medicine is a vocation, altruism is a definite pre-requisite for the same. No other professional course requires such a pre-requisite. The unquestioning status and gratitude given to healers in olden times has been replaced by increasing demands and expectations from doctors. These days, medicine has become increasingly accountable; patient-centeredness is a priority thus

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doctors are subjected to commercial drivers and performativity metrics.[4] In recent times medical profession has assumed a consumer–provider model. As doctors are making an appraisal of cost and benefit of medical profession and growing cases of medical malpractice. There is a growing feeling that altruism in medicine, if not dying is at least declining.[5] With the background of increasing mistrust between the medical profession, media and the public and increasing incidents of violence against doctors in India, understanding the roots of altruism in medicine becomes essential.[6] It is important to assess, does an altruistic attitude still exists among medical students who are training to be professionals in our country. And is altruistic attitude of our medical students comparable with that of their contemporaries is an interesting question.[7] In India very little research has been done on altruism in college students and no studies have been conducted to compare medical student's altruism with any other professional course students. Hence this study will be conducted with the objective of assessing Altruistic attitudes among medical students and to compare them with engineering students who are the next most popular professionals in our society.[8]

Aim

To assess altruistic attitudes among Medical and Engineering students in a Medical and Engineering College in Bangalore

Objective

1. To assess the level of altruism among Medical and Engineering students in Bangalore
2. To compare the level of altruism of Medical and Engineering students
3. To determine the factors influencing altruistic behavior among these students.

Methodology

An analytical cross-sectional study was conducted in a Medical college and an Engineering college situated in Bangalore. This Medical College admits 150 students per year. Admission happens from Karnataka state merit list, linguistic minority colleges merit list and few through management quota. Students from all over India are studying in this medical college. A total of 600 medical students from first year to fourth year were available in this medical college. Fifty students from each year (1st to 4th) were included in the study and they were selected randomly using random number table. A total of 200 medical students were included in the study. The Engineering College admits around 200 students per year including all the branches of engineering. Majority of the Admission happens from Karnataka state merit list and very few management quota students are studying in this college. A total of 800 students were available in this college. Among them 50 students from each year (1st to 4th) were included in the study randomly using random number table. A total of 400 students participated in the study.

Inclusion criteria

Students selected from 1st year to 4th year in Medical and Engineering College who are willing to participate.

Exclusion criteria

Interns in medical college were not included in the study and those who were not willing to participate were excluded.

Study process

A structured questionnaire containing two parts was designed. The first part contains general information and demographic details of the students like age, sex, year of study, place of origin, religion, and type of schooling. The second part included the Altruism personality scale items for measuring altruistic tendency in students.[9] This Self report altruism scale is a validated scale for measuring human altruism among college students and studies show that the internal consistency of this scale extremely high ($\alpha = 0.89$) and also has high degree of validity and reliability ($r = 0.78$).[10]

The original scale contains 20 items. Two of the twenty items were found not to be relevant to Indian context. They were omitted in this study. The questionnaire also included few questions to assess factors influencing altruism in students such as parents, peers, or a role model's influence through their participation in charity and other altruistic activities. After obtaining permission from the head of the institutions of both the colleges the study topic was explained to the students and after taking informed consent from students who are willing to participate, the self-administered questionnaire was handed to them, which had to be returned after filling. The data collected was entered in MS excel and analyzed using micro soft excel and SPSS.

Statistical analysis

Descriptive statistics is used as basis for statistical analysis. Frequency and Percentage is used for categorized variables. In this study we have used the altruistic personality scale with 18 items which will have Likert scale of response ranging from never (0) to very often (4). First step is to reduce the dimensionality of the data; these 18 variables will be entered in factor analysis model. Second step is to recognize the pattern in data clusters on the basis of common shared dimensions. On the basis of scores obtained from the factor analysis k – means cluster analysis which is a non-hierarchical partitioning will be performed to assess the optimal number of clusters. To do factor analysis we require a sample variable ratio of 10:1, which means to analyze 18 variables 180 samples size, is required. Sample size of 400 in this study is adequate to make up for the required sample variable ratio to do factor analysis. The student's characteristics in each segment will be analyzed to understand the extent and pattern of altruism and the factors influencing altruism in students. Altruism among Medical and Engineering college students will be compared using Chi square test.

Ethical clearance

Has been taken from institutional ethical committee.

Ethical consideration

Informed consent from students was to be taken.

Autonomy – Participation by students was on voluntary basis.

Confidentiality – The student's names were not recorded.

Result

Among the 400 students who participated in the study 200 were medical students and the rest 200 from engineering courses. The response rate was 100%. Among them 100 (25%) were first year students, 100 (25%) were second year students, 100 (25%) were third year students, and the remaining 100 (25%) belonged to the fourth year. The age range of the students was 18–24 years. Out of the 400 students who participated 200 (50%) were women. The characteristics of the study population are shown in Table 1.

The responses of the students to each items in the Altruistic Personality Scale are shown in Table 2.

In our study we found that simple acts, such as "helped carry a strangers things, delayed lift for a stranger, pointed out at a clerks error" were more frequent than "donating blood, donating to charity, giving lift to a stranger". The frequency of most altruistic behaviors was reported as "never, once or more than once". With respect to factors influencing altruism, 31.8% of the respondents mentioned that their parents often donated to charity and 31% agreed that they learnt altruism from their parents whereas only 13.3% mentioned that their friends frequently organized charitable events and donations. About 19.5% mentioned that their role models often practiced altruistic acts. The five factors, representing groups of altruistic behaviors, included simple acts of altruism, limited acts of altruism, recognized acts of charity, grater acts of altruism, and humanitarian acts. The items that loaded in the five factors and their factor loadings are shown in Table 3.

Table 1: Characteristics of Study Population

Character	Value	Frequency (%)
Year of study	1st year	100 (25%)
	2nd year	100 (25%)
	3rd year	100 (25%)
	4th year	100 (25%)
Age in Years	18-20	226 (56.5%)
	21-23	157 (39.25%)
	24-26	17 (4.25%)
Gender	Male	202 (50.5%)
	Female	198 (49.5%)
Native Place	City	270 (67.5%)
	Town	80 (20%)
	Village	50 (12.5%)
Type of School	Private	348 (87%)
	Government	52 (13%)
Religion	Hindu	225 (56.25%)
	Muslim	135 (33.75%)
	Christian	32 (8%)
	Others	8 (2%)

Hierarchical cluster analysis using the factor scores revealed that the sample could be optimally divided into three clusters. Cluster 1 (risk-taking altruists) consists of students who predominantly perform greater acts of altruism and simple acts of altruism, but score less in recognized charitable activities and humanitarian acts. Cluster 2 (limited altruists), comprises students who score high in humanitarian acts, but negatively in all other acts of altruism. The final cluster, Cluster 3 (simple altruists) includes students who perform recognized acts of charity, humanitarian acts, and simple acts of altruism, but score negatively in greater acts of altruism. Among our study population, it was observed that 89.49% were simple altruists, 67.07% belonged to risk taking altruists group, and about 45.41% were limited altruists. Various factors influencing the altruistic behavior of students are shown in Table 4. In our study it was seen that with increasing age the students increasingly become limited altruists. Male respondents were risk taking altruists when compared to females who were predominantly simple altruists. No other demographic data such as native place, type of school or religion had any significant influence on the respondents nature of altruism. Parents frequently donating to charity and friends frequently organized altruistic and charitable events and role models donating to charity had positive influence on altruistic behavior of the students.

Discussion

With its sense of service and self-sacrifice, altruism is often thought to be an integral factor of medical professionalism. What distinguishes a craftsman from a professional is the latter's "devotion to the public good.[11] Swick states unequivocally that altruism is a necessary part of the medical profession. "Values such as compassion, altruism, integrity, and trust worthiness are so central to the nature of the physician's work…. that no physician can truly be effective without holding deeply such values".[12]

No studies have attempted to understand the altruistic motivations of medical students or the medical professionals especially in the Indian context. In our study, we have made an attempt to quantify altruism among medical students and compare them with students of another profession.

The previously validated altruistic personality scale which we have been used does not mention any medical scenarios and is not specific to the practice of medicine, but it makes attempts to capture the general altruistic attitudes of the all students.

This study found that overall frequency of altruistic behaviors among all the students was low. Even among those who

Table 2: Altruistic personality scale responses

Questions	Responses				
	Never	Once	More than once	Often	Very often
I have helped push a strangers' car that was broken or out of petrol	147 (36.8%)	112 (28%)	102 (25.5%)	32 (8%)	7 (1.8%)
I have given directions to a stranger	9 (2.3%)	80 (20%)	170 (42.5%)	87 (21.8%)	54 (13.5%)
I have given change to a stranger	67 (16.8%)	85 (21.3%)	164 (41%)	67 (16.8%)	17 (4.3%)
I have given money to charity	46 (11.5%)	55 (13.8%)	181 (45.3%)	80 (20%)	38 (9.5%)
I have given money to a stranger who needed it or asked for it	79 (19.8%)	88 (22%)	146 (36.5%)	59 (14.8%)	28 (7.6%)
I have donated goods or cloths to charity	48 (12%)	42 (10.5%)	164 (41%)	95 (23.8%)	51 (12.8%)
I have done voluntary work for charity	120 (30%)	165 (26.3%)	117 (29.3%)	39 (9.8%)	19 (4.8%)
I have donated blood	240 (60%)	74 (18.5%) 49 (12.3%)	49 (12.3%)	24 (6%)	13 (3.3%)
I have helped carry a strangers belongings (books, parcels)	73 (18.3%)	92 (23%)	153 (38.3%)	56 (14%)	26 (6.5%)
I have delayed a lift and held the door open for a stranger	77 (19.3%)	66 (16.5%)	128 (32%)	54 (13.5%)	75 (18.8%)
I have let someone go ahead of me at a supermarket or restaurant	63 (15.8%)	80 (20%)	166 (41.5%)	63 (15.8%)	28 (7%)
I have given a stranger a lift in my car.	208 (52%)	73 (18.3%)	74 (18.5%)	28 (7%)	17 (4.3%)
I have pointed out at an clerks error when he has given more money for an item.	80 (20%)	102 (25.5%)	128 (32%)	71 (17.8%)	19 (4.8%)
I have let a neighbor whom I didn't know too well borrow an item of some importance to me.	132 (33%)	92 (23%)	110 (27%)	52 (13%)	14 (3.5%)
I have helped a classmate whom I didn't know that well with an assignment when my knowledge was greater than them	33 (8.3%)	58 (14.5%)	169 (42.3%)	91 (22.8%)	49 (12.3%)
I have offered to help a handicapped or elderly stranger cross the street.	48 (12%)	84 (21%)	165 (41.3%)	67 (16.8%)	36 (9%)
I have offered my seat on a bus or train to a stranger without one.	25 (6.8%)	54 (13.5%)	163 (40.8%)	110 (27.5%)	48 (12%)
I have helped a friend move into another house.	129 (32.3%)	95 (22.8%)	103 (25.8%)	49 (12.3%)	24 (6%)

Table 3: Factors extracted from the altruistic personality scale and their factor loading

S.No	Item	Factor Loading
Factor 1- Greater Acts of Altruism		
1.	I have donated blood	0.663
2.	I have helped a friend move into another house	0.611
3.	I have let a neighbor whom I didn't know that well borrow an item of some value to me	0.436
Factor 2- Recognized Acts of Charity		
4.	I have given money to charity	0.636
5.	I have donated goods or cloths to charity	0.688
6.	I have done voluntary work to charity	0.466
Factor 3- Humanitarian Acts		
7.	I have helped push a strangers car that was broker or out of petrol	0.555
8.	I have given directions to a stranger	0.328
9.	I have given change to a stranger	0.635
10.	I have given money to a stranger who needed it or asked for it	0.640
11.	I have given lift to a stranger in my car	0.504
12.	I have offered to help a handicapped or elderly stranger across a street	0.393
Factor 4- Simple Altruistic Acts		
13.	I have helped carry a strangers things (books, toys)	0.495
14.	I have delayed a lift and geld the door open for a stranger	0.634
15.	I have pointed out at a clerks error (in a supermarket, at a bank) when he has given more money for an item instead of correct change	0.532
Factor 5- Limited Acts of Altruism		
16.	I have allowed someone go ahead in line (in a supermarket or a fast food restaurant)	0.402
17.	I have helped a classmate whom I didn't know that well with an assignment when my knowledge was greater than his/her	0.787
18.	I have offered seat on a bus or train to a stranger without a seat	

showed altruistic behavior, majority (45%) emerged as simple altruists.

To define Simple altruism as acts of altruism, they are which do not involve any high level risk to the self, physical, mental,

Table 4: Factors influencing students' altruistic behaviors

Factor	Categories	Cluster			*P*
		Risk taking altruists	Limited altruists	Simple altruists	
Year of study	1	15 (15%)	28 (28%)	57 (57%)	0.002
	2	38 (38%)	22 (22%)	40 (40%)	
	3	41 (41%)	16 (16%)	43 (43%)	
	4	35 (35%)	25 (25%)	40 (40%)	
Age	18-20	64 (28.31%)	52 (23.00)	110 (48.67)	0.258
	21-23	60 (38.21%)	36 (22.92%)	61 (38.85%)	
	24-26	5 (29.41%)	3 (17.64%)	9 (52.94%)	
Gender	Male	58 (28.71%)	54 (26.73%)	90 (44.55%)	<0.001
	Female	72 (36.36%)	37 (18.68%)	89 (44.94%)	
My parents donate to charity	Never	1 (2.85%)	18 (51.42%)	16 (45.71%)	<0.001
	once	12 (24.48%)	18 (36.73%)	19 (38.77%)	
	More than once	28 (22.04%)	27 (21.25%)	72 (56.69%)	
	often	51 (40.15%)	22 (17.32%)	54 (42.51%)	
	very often	37 (29.13%)	6 (9.44%)	19 (14.96%)	
Some of my friends, organize charitable activities and I participate	Never	29 (19.20%)	36 (23.83%)	86 (56.95%)	<0.001
	Once	29 (32.95%)	21 (23.86%)	38 (43.18%)	
	More than once	38 (41.30%)	16 (17.39%)	38 (43.18%)	
	Often	23 (43.39%)	14 (26.41%)	16 (30.18%)	
	very often	10 (62.5%)	4 (25%)	2 (12.5%)	
I have learned to donate from my role model	Never	14 (14.28%)	26 (26.53%)	58 (59.18%)	<0.001
	once	20 (27.77%)	23 (31.94%)	29 (40.27%)	
	More than once	38 (33.62%)	21 (18.58%)	54 (47.78%)	
	Often	34 (43.58%)	16 (20.51%)	28 (35.89%)	
	Very often	23 (58.98%)	5 (12.82%)	11 (28.20%)	

social, or emotional, like giving someone directions to an address or giving a person their place in a queue. Risk-taking altruism included acts of altruism which require a higher level of risk to the self like donating blood, pushing someone's car. Whereas limited altruism was defined by acts which are a matter of basic etiquette, like offering their seat in the bus to an elderly or pregnant woman.

In our study women were found to be more risk-taking altruist compared to men majority of who belonged to limited altruism group. This observation was in contrast to the observations made in a study in Chennai in which they found women were more likely to be simple altruists than men, who were more likely to be risk-taking altruists.[13] Previous studies in the West have shown that expensive altruistic behaviors (e.g., donating expensive goods) are more common among women and inexpensive altruistic behaviors are more common among men. Men are more likely to be "all or none" type of altruists, whereas women tend to be more egalitarian in their approach.[14,15]

"It is the claim of altruism that allows the medical profession to claim moral superiority. Certainty of goodness leads to complacency and worse".[16] The traditional image of doctors is of selfless individuals prepared to "go the extra mile" for their patients at all hours of the day or night. But the medical profession should ask itself how far this image remains relevant in today's conditions[17] A survey of medical trainees linked to a RCP working party found that 69% of 2175 medical trainees agreed or strongly agreed with the statement "medical practice requires altruism".[18] In our study when we compared altruistic behavior of medical students with their contemporary engineering students we found that majority of the medical students belonged more to the simple altruism group compared to risk taking behavior exhibited by the engineering students though this result is not statistically significant it endorses the fact that altruism if not dying at least declining in the medical profession. Another study conducted by Nasrina Siddiqi illustrates that behavioral sciences students were significantly higher on altruism as compared to those studying engineering.

Studies have shown that parental and environmental influences have a significant role in promoting pro-social behaviors among children. In our study parents donating to charity had significant influence on the altruistic behavior of the student compared to friends and role model influence on altruism our results were very much similar to study conducted by Sanjai S in Chennai where they found that the parents and peer influence was limited to simple altruistic acts, such as giving change to a stranger and allowing somebody to pass ahead in a queue, which do not expose the individual to much risk.[13]

In the same study another finding was as the students progressed through medical college, their altruistic behaviors became less frequent.[13] where as in our study as the students progressed through the course risk-taking altruism increased and simple altruism decreased in our study population. This

could largely be due to clinical training of medical students in our traditional settings subjects students to a lot of stress, huge volumes of information, a scenario of uncertainty, high levels of responsibility, and heavy competition. A midst this atmosphere, medical students go through a change that has been called "traumatic De-idealization."[11] Studies of medical students' attitudes which show decline in altruism during medical school has convinced many educators that "traditional medical education even brings about increased cynicism and loss of compassionate attitudes."[5,12] In this setting, maintaining altruism, which is a desirable physician trait, seems to be difficult.

Conclusion

Altruism has always been an integral part of medicine from the olden days. And like shown by this study and other studies, parents, peers, and role models can significantly influence most of the altruistic tendencies. Good medicine always stands on the basis of good interactions between people.

Few changes in the existing curriculum for medical professionalism which should emphasize on skills such as empathy towards patients, communication, good doctor patient relationship, emotional intelligence and professional ethics and values is desired. Introducing special teaching programs such as Problem-based learning (PBL), Case based learning (CBL) Attitude and communication module (AETCOM), including medical ethics in curriculum and early introduction to clinical medicine for the medical students is of at most importance.

Provision and emphasize on participating in organized altruistic acts, such as voluntary blood donation, participation in rural health education activities and humanitarian activities in disaster struck areas in the undergraduate curriculum for both medical and engineering students could motivate students to enhance their altruistic tendencies, which, in a long run would improve their professionalism.

Doing this study in a medical and engineering college setting helps introduce the topic of altruism among the students and give them a chance to self-analyze their altruistic nature and bring about positive changes towards human altruism.

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Conflicts of interest

There are no conflicts of interest.

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