The Soul of Medicine: Understanding Altruistic Behaviors in Future Healthcare Professionals

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Abstract. The development of altruistic behaviors among medical students is poorly understood due to the elusive definition and measuring of altruism. Recent studies have pointed to the overall decline in altruistic traits among students, yet the reason for why it occurred remained unclear. This paper explores current findings in the formation of altruism and potential factors affecting the level of altruistic tendencies in medical students. It has been suggested that involvement with past philanthropic activities, gender differences, and the medical school's stressful environment are associated with the altruism of medical students. The present study discusses how past altruistic experience shapes future attitudes. In addition, why females often exhibit higher levels of altruism and the impact of high-pressured medical education on students' moral development were studied. This paper highlights the need for a clearer definition of medical altruism and a reevaluation of the medical school curricula to cultivate and sustain altruistic values in medical students amidst the challenges of a demanding educational environment. This paper also calls for longitudinal studies and explorations into the determinants of altruistic behaviors, suggesting a broader, more holistic approach to medical education that transcends traditional curricular changes.

Keywords: Altruism, empathy, medical education, moral development.

1. Introduction

Medicine is a profession that delivers humanitarian care. At its core, it intertwines ethical values with proficiency in medical knowledge to relieve the public. In this context, one of the primary goals of medical education is fostering social responsibility and ethical consciousness among future practitioners [1]. Nevertheless, studies have underscored a concerning trend, a notable decline in altruism among medical students, which stands in contrast to the foundational principles of medical professionalism.

Altruism is the voluntary act of adopting selfless behaviors with the intention of enhancing another individual's well-being [2]. The word altruism can be dated back to Auguste Comte in the 1830s, where in Latin, alter refers to "others" [2]. It signifies a commitment to helping others, a notion that some scholars consider central to the philosophy of medicine. This concept plays a pivotal role not only in healthcare systems at large but also in personal interactions between physicians and patients [3]. Despite the prevalence of altruistic acts in medicine, altruism has not been fully understood. There is little attention paid to the development of altruistic attitudes in health practitioners, particularly during their educational experience.

Medical education is crucial for shaping students' understanding and future application of medical principles. In the philosophical world, it prepares individuals to uphold the highest standards of medical ethics and integrity. However, studies by Hojat et al. and Neumann et al. reveal a significant decline in altruistic attitudes among medical students [4, 5]. These observational studies have identified the trend, but the reasons behind this decline remain largely unexplored. The complex process of forming altruism in medical students reveals a need for a more in-depth examination.

This study aims to synthesize current research findings and investigate thematic factors that may influence the formation of altruism among medical students. Through this exploration, this paper seeks to contribute to the ongoing discussion on altruism in medicine and emphasize the need to focus on the nurture of altruistic values in medical school. By focusing on medical students, society can

ensure that future healthcare professionals are not only technically competent but also deeply committed to the selfless service of their patients.

2. The Declining Medical Altruism

Many literatures emphasize altruism in clinical settings, for it plays a crucial role in the medical profession. Studies have linked altruism with physicians, for example, to promote transparency in practice, referrals, and prescribing [3, 5, 6]. Individual practice of medical altruism extends beyond physician altruism. The acts of donating organs, blood, and reproductive cells, transplanting stem cells, prolonging office hours, conducting clinical trials, etc., are considered altruistic. The level of altruism adopted by healthcare practitioners is essential for the well-being of patients and the overall integrity of the healthcare system, as it fosters a culture of trust, compassion, and selflessness.

A term frequently related to altruism is empathy. Despite many attempts to define empathy, the exact characterization of empathy remains ambiguous. In the context of medical education and patient care, empathy is perceived as the cognitive faculty to understand patients' experiences and emotions, with the intention of helping and alleviating their concerns and sufferings [1]. This interpretation of empathy, without emotional attachment as behavioral motivation–a trait more closely aligned with sympathy–gives rise to prosocial behaviors that are reflections of altruism. In other words, when empathy is defined with exclusion to sympathizing emotions, empathy and altruism are comparable in literature discussing medical practices. Due to the difficulty of distinguishing these two terms, they are often discussed as one concept that originates from cognition and results in prosocial behaviors [1].

In recent years, there have been many changes and risks to altruism in care-providing professions. Regulated office hours, in- and out-patient visits, and inclination towards work-life balance have all blurred the altruistic attribute one would expect a doctor to possess. Another growing competitor to altruism is the pursuit of utility and maximal benefits, a consequence of the commercialization of medicine by large business enterprises and the high cost of medical education [2]. Understanding how altruism develops and evolves in medicine is critical for maintaining medical service and patient-doctor relationships. Nonetheless, medical altruism remains largely obscure. Despite a few attempts at formulating a theory, scholars have not reached a consensus [2].

Medical education contributes substantially to the development of medical altruism, but the intense stress and expectations from the curricula often overshadow the forming of altruism. Many studies have consistently concluded that there is a noticeable decline in altruistic traits among medical students as they progress through their education; freshmen students often exhibit higher levels of altruism compared to those in advanced stages of their studies [1, 3, 7]. In particular, there is a significant erosion of empathy during the third year of medical school, a time when students just finished their preclinical studies and started patient-care activities where empathy is most essential.

Most of these studies measured altruism through self-reported surveys. These surveys often determine the altruistic level of respondents by using the Altruism Personality Scale's questionnaires [5, 8]. Studies focusing on "empathy" often use the Jefferson Scale of Physician Empathy, an empirically tested approach to measure cognitive empathic engagement [1]. In addition, longitudinal studies showed that empathy continued to decrease in residency, a trend that is ironic and questionable in training future doctors [5]. Experimental data directly measuring altruism among medical students is rare. However, one notable study conducted on 733 German medical students tested altruism by analyzing the choices students made between physician profit and patient benefit [3]. It again observed a diminishing altruistic attitude among medical students in advanced academic years.

3. Determinants of Altruism

3.1. Influence of Past Altruistic Activities on Medical Students

One factor influencing the level of altruism in medical students may be past involvement in altruistic activities. A study conducted by Zulkarnain and his colleagues in a Malaysian medical school has claimed to identify a positive and significant correlation between students' altruistic scores and the frequency of past participation in philanthropic activities [8]. Somewhat atypical from most other studies, their results suggested that fifth-year medical students, with more involvement in altruistic activities and services, are slightly more altruistic on average than first-year medical students. This claim may imply that the development of altruism varies by region and curriculum. Nevertheless, their study underscores the significance of the contribution of past involvement in altruistic activities on making future altruistic decisions.

Another study that explored the factors influencing medical students' decisions on living donations of cells, tissues, and organs found that previous experience with donation positively influences attitudes towards such donations [9]. Students who have participated in donation or transplantation programs are more likely to approve living donations. They said so because they wanted to help other people. Notably, students who are blood donors themselves are 2.53 times more likely to indicate "helping other people" as their primary motivation for supporting living donation. This study also concludes that the willingness to support living donations reflects a person's empathy levels. Milaniak et al. and Zulkarnain et al.'s findings indicate a reciprocal relationship between an individual's involvement in altruistic activities and their level of altruism. Understanding how participation in altruistic activities and developing altruism relate to each other can help transform medical education to compensate for the decline of altruism in students.

Despite the scarcity of research on the formation of medical altruism, some studies highlighted the role of community service and volunteering in students' cognitive development. Volunteering offers individuals an opportunity to demonstrate their commitment to altruistic and humanitarian values. Since the introduction of service-learning programs in medical schools following the Affordable Care Act of 2010, volunteering received high popularity in the United States. One systematic review pointed out that these service-learning programs were designed to enhance students' cognitive mindfulness and appreciation for the altruistic benefits of services [10]. Volunteering fosters a sense of social responsibility and correlates with students' likelihood of future participation in service programs [10]. Service-learning opportunities nurture students' cultural competency and professional development–two crucial components in the evolution of altruism.

Besides volunteering, involvement in positive role-modeling in medical education develops altruistic tendencies. Laughey et al. argued that medical students perceive positive role-modeling as an effective means to understand and cultivate empathy in clinical practice [11]. Observing interactions between patients and their mentors helps students deepen their appreciation for compassion and shapes their vision of the type of doctors they aspire to become. Furthermore, this form of experiential learning is not confined to professional settings; parental role-modeling also plays a significant role in fostering altruistic tendencies from a young age [7]. Past experience with such role-modeling is indeed correlated with higher altruistic attitudes.

The discussion of past involvement with organ donations, volunteering, and role-modeling reveals a critical theme: prior altruistic experiences play a significant role in shaping a medical student's level of altruism. This insight is crucial for understanding the formation of altruistic behaviors in medical students. Early exposure to and participation in altruistic acts can embed a sense of duty and compassion in students, which may persist and evolve throughout their medical education and professional careers.

3.2. Gender Difference and Influence on Altruism in Medical Students

There has been a large concern over the impact of gender on a person's perceived altruism. In behavioral science, gender contributes significantly to how someone reacts and behaves. Among

many other demographic factors such as ethnicity, race, and age, gender differences may considerably influence altruistic attitudes among medical students. Based on survey results, previously mentioned studies by Miranda-Díaz et al. and Attenma et al. have shown that females are more likely to volunteer and be altruistic than their male counterparts. In society, gender norms are common in medicine. They separate practitioners, causing a high percentage of females in, for example, nursing and obstetrics. Gender differences and potentially sexuality conceivably influence the formation of altruism in medical students.

A well-cited experiment conducted by Andreoni and Vesterlund suggests that gender differences in altruism exist, and women tend to be less selfish in making economic decisions [12]. The subjects of their experiment were economics undergraduate students from two US colleges, and they were asked to allocate various amounts of money based on hypothetical income, tax, and other economic measures. The researchers found out with utility functions that men were more selfish with money than women and were less philanthropic when they made monetary decisions. As economic decisions are often associated with charitable giving in medicine, working outside of paying hours or prescribing uninsured drugs, it is likely that gender relates to the difference in altruistic levels among medical students in a similar way.

Nevertheless, one may argue that economic decision-making is not equivalent to real life, particularly clinical decisions. However, higher levels of empathy were present in females. Thus, females have a higher chance to engage in prosocial activities [13]. Generally, females are more willing to volunteer, donate, and engage with prosocial moral reasoning. In addition to being supported by experimental and observational data, these trends are underpinned by psychological studies. Females are more attuned to others' emotional states and learn to react according to others' prospects at early stages of life [13]. Such abilities increase with age and are strongly associated with the development of empathy. Thus, most results indicate that females are more empathic and, consequently, more altruistic than males.

How do these conclusions apply to the medical field? While minimal work has been done on the direct relationship between gender difference and altruism in medicine, principally due to the unclear measurement of altruism, one research indicated potential gender effect in volunteering in medical students, which, as discussed by Milaniak et al., volunteering is an act that correlates to one's level of altruism. The Volunteer Functions Inventory measures the motivation for volunteering and establishes values, understandings, enhancement, and three common motives for volunteers [14]. In a sample of 49 students, female students rated all six motives of volunteers as "important", while male students only rated two as "important" [14]. These results reflect the gender effect in volunteering. Female students are more likely to consider insignificant motivations for male students as significant. The study concluded that these dynamics should be further investigated to understand the implications of the perceived importance of motivations for volunteering. Although the relationship between the perceived importance of motivations and actual participation in volunteering activity is unknown, this research reinforces the difference in appreciation of altruistic acts by gender. Scaled and controlled research is needed to investigate further altruism differences in gender. Yet, preliminary analysis has demonstrated a profound potential in the relative importance of gender to medical students' altruism with respect to other demographics. These findings are crucial for teaching in medical schools. Altruism can be positively fostered when instructors are mindful of gender differences. Assignments, projects, and mentorships should be carefully arranged to allow students to learn and practice prosocial behaviors in future clinical settings.

3.3. Impact of Medical School on Altruism in Medical Students

While a doctor's career is fulfilling, the journey to become one is far from easy. In the United States, the rigorous training to become a doctor usually lasts more than ten years. The immense amount of academic materials, clinical experience, and residency requirements overwhelm medical students, leading to considerable stress. Even at the undergraduate level, the premed track, which serves as a foundational preparation for medical school application, has a substantial dropout rate due

to its intensity. Numerous behavioral studies have focused on the stressful nature of medical school, reporting a significant decline in humanitarianism, enthusiasm, and idealism among medical students [15]. As many as 75% of medical students grew cynical towards medical education and professions. Indeed, modern science education pushes students to the brink of their mental and emotional capacities, often contributing to unwanted competition, burnout, and anxiety. As a result, the cognitive attributes of a medical student, including altruism and empathy, can be impeded to varying degrees.

An experiment conducted by Hojat et al. in 2004 provided crucial insights into the dynamics of empathy among students, particularly during the third and fourth years of medical school. While their study was confined to a single institution, their result remained consistent with most previous findings despite minor changes due to different measurements for empathy. One significant finding was the decrease in empathy before and after clinical experience, typically in the third year of medical school. The study suggested that it was partly due to the lack of dedicated education programs on medical humanities and physician altruism during the first two years of medical education. Without a strong foundation in medical humanities, transitioning to the third year with more emphasis on clinical work impedes students' ability to understand and emphasize. Furthermore, they found no significant relationship between students' empathy scores and performance on medical examinations. This result implies a potential oversight in the current assessment methods, which does not adequately evaluate the emotional capabilities crucial for training future practitioners. Likely, current US Medical Licensing Examinations and possibly other evaluative tools in medical education need modifications to nurture empathy among future physicians.

In their 2009 longitudinal study, Hojat et al. dived deeper into the changes in empathy in medical students. Their findings consistently indicated that the empathy levels remained relatively stable during the first two years of medical education but experienced a significant decline in the third year. The drop is noticeable in male and female students, although much larger in males. The lack of a positive role model and a robust mentorship program, combined with an intimidating volume of materials to study, created an environment where empathy could diminish. In their follow-up interviews, medical students mentioned fear of making mistakes, mistreatment by mentors, lack of social support, and demanding workload as reasons behind a hostile environment in the medical school. To simplify, the strenuous nature of medical education contributes to the escalation of cynicism and exhaustion of empathy, ultimately depriving altruistic characters in students. This decline found during clinical practice was similar to seven other studies [5].

The decline in empathy and altruism observed among medical students extends to their residency years principally due to distress [1]. Distress, as a coping mechanism for the high pressure and stress in medical schools, diverts students' attention away from interpersonal understanding and the pursuit of medical professionalism. During residency, challenges intensify from working with more patients in high-stakes environments. Ironically, during this crucial period to transform students into practitioners, the overall altruism declines. Some argue that age appears to influence the outcome. However, a 12-year longitudinal study showed that empathy in adults has little association with age. Yet, it correlated with life satisfaction and general well-being [16]. There are some variations in this association, largely due to the experimental method and self-reported survey. Nonetheless, the connection between distress and decline in altruism appears probable. The stress from the medical curricula can be another influencing factor, combined with the poor setup of the curricula, that directly challenges the altruistic attitude among students, causing anxiety and consequential behaviors that are harmful to altruism.

4. Discussion

This paper sought to understand the key factor responsible for the development of altruism among medical students. As the medical world is increasingly inclined towards commercialism and utility, with many therapies and medicines out of reach to the public because of price and accessibility, it is

imperative to understand how the dynamic within this altruistic profession is changing. Altruism is an intangible quality to measure and belongs to part of the humanities nurture medical education aims to cultivate. At a time when many students pursue pre-medical training in undergraduate with hopes of helping people and serving the greater good, there is an ironic and perplexing decline in altruism as students progress into higher grades in medical school, directing many of them to choose benefits and material wealth [1].

Altruism and empathy-related topics among physicians are well-discussed, but studies on the formation of altruism among medical students are rare. Altruism is not consistently defined, and no theory has been proposed to account for its formation or its decline [2]. It is also frequently interchanged with empathy. At the same time, most studies are cross-sectional and purely based on the authors' interpretation of survey results. This paper examines several major themes across current research on altruism in medical students and calls for closer consideration of this topic to improve the quality of medical education in regard to promoting altruism.

Past literature suggests three possible factors that may influence the development of altruism among medical students–past involvement in altruistic activities, gender, and the intensity of medical education. They highlight the complexity of personal experiences, societal influences, and educational environment in shaping the altruistic attitude and behaviors of medical students.

Early engagement of altruistic acts, such as volunteering and participation in donation programs, enhances empathy and a sense of communal responsibility. These involvements are significant when compared to measured altruistic levels in medical students. Volunteering not only increases the likelihood for current participants to return in the future, but it also shows a positive promotion of cognitive mindfulness to appreciate the expression of humanitarian concerns. Likewise, participation in donation programs increases the likelihood of agreeing to live organ donation in medical students, an altruistic desire to help others. This relationship was shown to be more than two times stronger if the student was a blood donor themselves. Besides these, studies have shown that observing altruistic acts during parental mentorship and clinical mentorship encourages individuals to foster better altruistic tendencies and comprehend the importance of altruism in medicine.

With respect to the demographic variables, gender differences also play a crucial role in the formation of altruistic behaviors in medical students. Female students have consistently been reported with higher levels of measured altruism and empathy in previous studies, except for one conducted at an Indian medical school [8]. The variance in how individuals understand motivations behind volunteering provides hypotheses to how different genders understand altruism, while the similar decline in altruism over time in medical education, regardless of gender difference, poses another concern to the general instruction in medical school. These studies point to a potential disparity between genders in medicine, which may stem from a range of factors, including gender-specific socialization, emotional intelligence, and societal expectations. Acknowledging these gender nuances is essential for medical educators to create training programs that cater to these differences and maximize the learning experience of students by gender.

At last, the impact of the stressful and high-pressure environment of medical education on altruism is a matter of significant concern. Longitudinal studies by Hojat et al. emphasize that the reduction in empathy and altruism closely aligns with the curricula in medical education. The decline is often seen as an aftermath of growing demands for medical students as they transition from learning to practicing, which undoubtedly comes with more responsibilities and pressure. Students become distressed and indifferent to emotional development when standardized tests and competition for training programs overwhelm their mental capabilities. The ethical erosion of medical students calls for a reevaluation of the current medical education model to prevent the extinction of altruism in the field that arguably needs it the most. We must implement measures to mitigate stress and burnout by creating support systems and mentorship opportunities to enhance students' emotional awareness of altruistic traits and adjust the curriculum for sustainable education at higher levels. The goal of medical education is to cultivate practitioners who act upon humanistic ideals. To nurture the next generation who can serve the public in the best manner possible, educators must address the current decline of altruism

in medical students by incorporating well-rounded curriculums and fostering a more supportive atmosphere through shadowing, volunteering, or promoting medical humanities.

Current studies have shown a few limitations in understanding medical altruism. Firstly, there is a need for clearer definitions to differentiate medical altruism from other related emotional qualities, including empathy. While these concepts are often intertwined, they are different in that altruism underscores the willingness for selfless actions without any or with much lower returns. Secondly, existing differences in the measurement of altruism often contribute to inconsistent findings. Some researchers prefer self-reported measures, while others interpret altruism through psychological surveys. Experiments are difficult to set up. However, quantitative conclusions are lacking, although they are essential for finding empirical correlations before implementing changes. These limitations call for more attention on this subject. Future research should aim towards longitudinal studies to track altruism over time with standardized measurements that provide deeper insights into how altruistic tendencies develop and change throughout one's medical education. Such research methodologies will enable a more thorough and accurate understanding of medical altruism, its determinants, and its implications beyond medical school.

5. Conclusion

Altruism is essential to the integrity of healthcare and medical practices. This literature synthesizes current studies on the development of altruism among medical students and uncovers a common decline in altruistic attitudes as years of study in medical school increase.

Consequently, there is a critical need to understand the factors influencing the development of altruism in medical students. The role of early engagement in altruistic acts, such as volunteering and donation programs, is emphasized for enhancing empathy and communal responsibility, with evidence suggesting these experiences directly impact the altruistic tendencies of medical students. Gender differences also emerge as a pivotal factor, with female students often exhibiting higher levels of altruism and empathy, highlighting the need for medical education to consider these nuances in developing training programs. The paper further discusses the negative impact of the stressful medical education environment on students' altruism, calling for a reevaluation of current educational models to foster these traits effectively. Finally, it advocates for more comprehensive research, including longitudinal studies with standardized measurements, to gain a deeper and more accurate understanding of medical altruism and its evolution throughout medical education.

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