Participation of Dental Students in Research – Collaboration or Coercion

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ABSTRACT

This paper interrogates the ethical dimensions of dental student's participation in academic research, challenging the assumption that such participation is inherently collaborative. We draw on theories of captivity, vulnerability, and bounded autonomy to argue that dental students constitute a structurally constrained and relationally dependent population whose agency may be compromised by institutional hierarchies and academic pressures. Notwithstanding that research participation offers cognitive, professional, and pedagogical benefits, the paper contends that these advantages must be weighed against the risks of coercion, undue inducement, and exploitation. Through a layered ethical analysis, the study reframes student participation not merely as a pedagogical tool but as a site of moral tension requiring robust safeguards. In our conclusion, we call for the implementation of transparent recruitment protocols, independent oversight, and the separation of instructional and research roles to uphold the principles of beneficence, non-maleficence, and justice. Ultimately, the paper advocates for a rights-based approach to student research participation, the affirmation of autonomy while acknowledging the structural vulnerabilities embedded in academic institutions.

Keywords

captivity, vulnerability, agency, dental students, research participation

INTRODUCTION

Should dental students be recruited to participate in research initiated by staff or their peers? Does the participation of students in research confer significant advantages to mitigate potentially inherent harm? The review of literature indicates that the number of undergraduate students involved in research has increased significantly in recent times.[1] This phenomenon is attributable in part to the educational value of research programs for undergraduate students and the research value, which incentivizes participation.[2] The inclusion of undergraduate students in research raises specific ethical questions given the inherent characteristics of this population. Moral and ethical debates remain fierce over whether dental students can be deemed easily accessible, vulnerable and captive compared to the general population? In such cases, dental students could suffer undue paternalism from academic staff. A related question could be asked whether dental students must be given preferential protection compared to normal adult subjects involved in research? If so, what should that protection entail? This paper seeks to provide an ethical analysis of the questions raised above.

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The Ethical Argument

This argument is based on several premises about dental students participating in faculty-led research.

Premise 1: Participation of dental students in research is valuable

Critical cross-field outcomes (CCFOs) are generic meta-skills developed by the South African Qualifications Authority (SAQA) to prepare students for lifelong learning. Research has become a critical component of dental education, since it seamlessly encompasses all seven original cross-field outcomes. Hence, the research course is a mandatory module in South African dental schools. The role of research in the cognitive, personal and professional growth of undergraduate students is undeniable.[3] Students who engage in research develop analytical and problem-solving skills, are better organised, and can manage their time and other resources effectively.[3] Research encourages teamwork and collaboration, effective writing and reading as well as communication and dissemination of information using a variety of channels. Students are able through research participation to apply class-room knowledge to answer real-world problems systematically. Students involved in research are motivated to learn, are more active, and are most likely to complete their programs.[4] Hence a strong positive association of research participation with positive student outcomes, including better academic achievement and a stronger ability to synthesize information.[4] Research helps students understand how knowledge is constructed, appreciate the importance of evidence-based reasoning, and the process of formulating informed opinions.[5] Research projects can address complex questions and problems in various fields, providing students with a deeper understanding of the world and their place in it. Research gives students a competitive edge, especially when pursuing postgraduate studies.[5,6] The process of research encourages collaboration with peers, faculty, and professionals, which could result in mentoring opportunities and career advancement.[7,8] Students who participate in research perform well academically and complete their programs in time.[3] Well-conducted research may result in publication, conference presentations, and recognition by the institution and profession, making the student eligible for grants, funding, and scholarships.[9]

On the contrary, dental programs can be rigorous and overwhelming, making it hard for most students to

devote adequate time to clinical and academic activities. Consequently, the participation of students in research could impose additional workload, resulting in poor academic performance, stress, and burnout.[10,11] Overall, the participation of dental students in research provides more advantages than disadvantages. Yet, a delicate balance must be created to ensure that students are supported and not harmed.

Premise 2: Dental students are a captive population

Captivity is a complex phenomenon, often confined to superficial definitions that are limited to being physically constrained to a singular space or choice. According to Rivera, captivity occurs *"when a self-directed creature, capable of independent and intentional actions, is subjected to significant restrictions that diminish its agency and freedom. Captivity is more than mere confinement; it involves a captor exercising control that restricts the captive's options and ability to act autonomously according to the relevant standard of well-being for that kind of being. This captures the essence of captivity as a state of powerlessness over one's choices"*.[12] The broader concept of captivity encompasses psychological, social, legal, and economic factors that individually and collectively limit an individual's autonomy and agency, impacting their well-being and dignity.[12-14]

A captive population refers to individuals who are confined to a specific physical area, which restricts their movement and ability to act and interact freely.[12,15] The captive populations are: (i) often separate and different from the general populations; (ii) are relationally, physically, and organizationally close to the offending institution or individuals (iii) tend to be readily available and easily exploitable because of their unique characteristics; (iv)suffer a degree of control and constraint from authority or institutions; (v) the extent of their dependency on institutions or others tend to limit their autonomy and agency.[12-16]

University students suffer from structural and situational captivity rather than absolute captivity. First, universities are closed systems that impose restrictions on choice and agency given the institutional regulations, academic requirements, and other dependencies. Second, the captor does not always benefit from this relationship, nor does harm always befall the captive. According to the bounded autonomy and competency condition theory, the agency and autonomy of university students are limited, constrained, and shaped by the social, situational, relational, and contextual factors.[17-19] As a result, the autonomy of dental students is comparatively more bounded and constrained than other university students.[17-20] Similarly, the relational and contextual autonomy theories posit that the nature of clinical training, continuous engagement with clinical staff, and dependence on instructors for guidance and mentorship can limit autonomy and agency.

Dental students, as argued above, are physically confined, easily accessible, and likely to endure harm during participation in research.

Premise 3: Dental students are a vulnerable population

Vulnerability is the condition of being susceptible to harm or injury, influenced by both internal and external factors. Luna argues that vulnerability cannot be defined in terms of sufficient or necessary conditions.[15] Such a notion is restrictive, rigid, and limiting in accommodating variation in the nature and levels of vulnerability. Alternatively, Luna proposes a metaphor of layers to represent overlapping conditions, contexts, and situations that give rise to diverse categories of vulnerabilities. This explanation references Goodin, whose framework indicates that *(x) is susceptible to (y) being inflicted by (z); where (y) is some harm, injury, failure, or misuse, and (x) and (z) are some person(s), animal, object, or events.*[16] Applied to dental students, the framework can be written as follows: *(dental students) are susceptible to (harm, injury), being inflicted by (staff, peers, and the institution at large).* The challenge with operationalization of this framework stems from a lack of consensus about (i) the degree of vulnerability among dental students - some students will be more vulnerable than others. Similarly, (ii) some vulnerabilities will be deemed unjust, some bad, and some will be neither. In the context of this argument, it is impossible to develop a comprehensive list of harm or injuries or to list people and events that can cause harm. Suffice to say that *dental students(x) may be susceptible to harm or injuries (y) like coercion, exploitation, violation of privacy, infringement of consent, unfair academic practices, being inflicted directly by (y) academic staff and peers involved in research, or indirectly due to regulations and practices of the university.* There is currently no literature that outlines the specific harms or injuries suffered by dental students involved in research. The factors listed above emanate from literature involving other health professionals, mainly medical and nursing students.[5,21,22]

Premise 4: Dental students have capacity and agency

Senior dental students possess, by virtue of their considerable exposure to clinical practice and research, have the requisite capacity to comprehend and consent to participate in educational research.[23] These students can appraise the risks and potential benefits associated with research involvement. Furthermore, these dental students are well-positioned to discern the probable impact of research participation on their academic prospects.

Dental students should not face risks that exceed those encountered by the general adult population. Yet, it can reasonably be argued that, with their clinical training and experience, this cohort is better positioned than lay participants to provide informed consent.[22] As Angoff has argued, the exclusion of dental students from potentially beneficial research perpetuates an elitist double standard: "One may wonder why it is acceptable to ask masses to accept the risk in the name of science but not the very people whose futures are linked to the successful perpetuation of biomedical research".

In the interest of justice and the equitable distribution of research benefits, it is ethically indefensible to categorically exclude dental students from participating in research. Rather, it is incumbent upon researchers and institutions to implement robust safeguards to protect the health and welfare of these participants while affording them the autonomy and agency to contribute meaningfully to scientific advancement.

Premise 5: Captivity and vulnerability inflict harm and injury on dental students

We argue that despite the potential benefits of research, dental students remain a vulnerable and captive population, which predisposes them to disproportional harm, injury during their participation in research activities.

(a) Imposing institutional structure and hierarchy of dental schools

Dental schools are highly structured and hierarchical

organisations, led by powerful and influential faculty members. Staff members serve as teachers, research supervisors, and mentors with enormous authority over students. This asymmetrical power dynamics makes it difficult for students to decline participating in activities prescribed by staff for fear of academic repercussions. Furthermore, students may be expected to engage fully in the curriculated research modules to meet the program requirements. These mandatory academic activities may limit the student's autonomy and voluntariness, especially when the research is staff-led.

(b) Research experience provides a competitive edge

Research achievements have high equity in academic progression and promotion for staff and students. Participation in research might attract prestigious mentorship, improve recommendations for scholarships, and prospects for future postgraduate tutorship. These academic dependencies, social and professional pressures, increase the likelihood of undue inducement and coercion. Students might feel obligated to participate in research in exchange for these benefits.

Premise 6: Captivity and vulnerability warrant special protection.

Special protection of captive and vulnerable populations is underpinned by the ethical principles of beneficence, non-maleficence, and justice. These principles create a heightened moral obligation for those with authority and power.[21] Additionally, the duty of care should be transformed into specific and actionable activities aimed at protecting "those who cannot protect themselves".[24]

The principle of beneficence invokes a moral obligation to act in the best interest of others by doing good and maximizing benefits.[25] Similarly, the principle of non-maleficence must be upheld to prevent harm to vulnerable populations.[21] Therefore, extra precautions must be taken to protect and not harm those who cannot adequately protect themselves. The risks associated with research must be minimised while the benefits are amplified to justify the conduct of research and involvement of the vulnerable populations. According to the principle of justice, the research burdens and benefits must be distributed fairly and equitably. Therefore, vulnerable groups should not endure disproportionate risks and burdens due to their "convenient availability".[26] Similarly they must not be denied the benefits associated with participation in research.

STRATEGIES TO REDUCE AND PREVENT POTENTIAL HARM TO DENTAL STUDENTS

1. Transparent recruitment protocols

Recruitment must be decoupled from academic performance and supervisory relationships. Staff should not recruit students they teach or assess; where this is unavoidable, an uninvolved staff must be used or the recruitment should occur after the module has completed, to prevent undue influence or perceived coercion. All the materials and communication related to recruitment must be neutral in tone, written in plain language, with emphasis on the voluntary nature of participation. Care should be taken to recruit students through impartial channels and outside teaching environments. Essentially, staff must demonstrate neutrality and decouple research participation from academic credits or performance.

2. Tiered Informed Consent Protocols and oversight by ethics committees

A layered consent process must be developed to allow students to opt out of specific components of research as opposed to providing complete blanket participation. Furthermore, the protocol must clearly state that students can withdraw from study at any time without academic and professional consequences. Ethics committees must only approve research projects that comply with national standards, especially regarding the protection of vulnerable student populations. In addition, oversight and evaluation of research implementation are critical to appraise perception of voluntariness and ethical treatment.

3. Compliance with POPIA

The South African Protection of Personal Information Act (POPIA) emphasises minimization, secure storage, diligent usage, retention and sharing of data. Hence, only necessary data must be collected during research, and clear protocols must be specified about data management during and after research is concluded. Finally, feedback must be provided to research participants as prescribed in the dissemination plan for research findings.

CONCLUSION

While dental students are autonomous, their agency can be constrained by structural vulnerabilities and relational dependencies, hence the need for heightened ethical protection of this cohort as both students and research subjects. Stringent processes must be in place to affirm autonomy, mitigate coercion and ensure justice. Transparent recruitment, tiered consent, and institutional oversight are not merely procedural formalities; they are moral imperatives to protect those who cannot fully protect themselves.

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