PERSPECTIVE

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Are Medical Students the New Guinea Pigs? - A Perspective

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ABSTRACT

There has been an increasing trend of research studies bearing the phrase "medical students" in their title or keywords. In the haste of publication, the relevance of study population is being forgotten and an emerging phenomenon has been making its presence, that we would like to call the "guinea pig effect"- wherein the choice of study population invariably ends up being members of the medical fraternity- whether or not it is relevant to the research question at hand. To give a rough estimate, a search via Google Scholar with keywords (Medical Student India -Education -Teaching) yields 4,43,000 results while a PubMed search brings 145 indexed papers. Most of these studies are either one-time KAP studies or Mental Health surveys. During the COVID-19 pandemic such studies have been on the rise, which has reduced the scientific quality of evidence. Convenience, lack of resources, time constraints, and easy access to a vulnerable population are the key factors driving such studies. These studies have an inherent selection bias, poor generalizability, and ethical concerns like over-researching a vulnerable population. As a consequence, they contribute to survey fatigue among students leading to poor response rates and quality of collected data. To tackle this, we advocate for the use of appropriate population selection and participant recruitment strategies. To conclude, researchers need not shy away from recruiting medical students as the study population where required, but they must make it a point to re-evaluate the applicability and reach of their study topic in all the populations.

Keywords: Medical Students, Study Population, Survey Fatigue, Over-researching

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INTRODUCTION

Of late, there has been an increasing trend of research studies bearing the phrase "medical students" in their title or keywords. Topics like " Awareness in Medical Students", "Knowledge" " Attitudes", "Perceptions", "Practices" of Medical Students", "Prevalence in Medical Students" and "Education of Medical Students", are being studied voraciously. We, as students of a Government Institution who are actively pursuing research and part of various research communities, are sorry to report that in the haste of publication, the relevance of study population is being forgotten. An emerging phenomenon has been making its presence among our peers and even professors, something that we would like to call the "guinea pig effect"- wherein the choice of study population invariably ends up being members of the medical fraternity- whether or not it is relevant to the research question at hand.

The Guinea Pig Effect amongst Medical Students

To give a rough estimate of such studies, a search via Google Scholar with keywords (Medical Student India -Education -Teaching") yields 4,43,000 results while a PubMed search with keywords, (((((medical student [Mesh]) AND (India)) NOT (Education)) NOT (Training)) NOT (Teaching)) NOT (Academic) brings 145 indexed papers, of which more than 30% have been published in the last 5 years. The aforementioned search words were employed to eliminate papers regarding medical education which could only have been conducted on this population. Authors have not accounted for duplicated results during the literature search hence the number of results does not correspond to the absolute number of unique papers, these search results have merely been provided to give a statistical backing to this perspective. This perspective wishes to question whether these papers are valid in their choice of study population. Are

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their results generalizable? What is the scientific quality of these studies? Could these studies have included participants other than medical students to obtain more relevant results?

To cite an example, a study by Dhamnetiya D et al.,[1] assessed correlates of problematic internet use and Internet Addiction (IA) among undergraduate medical students of Delhi. Even though this research question was relevant to all kinds of school and college-going students, it was studied only among medical students of their own institution to suit their convenience. The results of such studies thus have a selection bias and are not reproducible. With many authors adapting similar strategies, there is no dearth of single centre cross-sectional studies related to internet use, substance use, knowledge-attitude -practises (KAP) and mental health. A recent study done by Sandeep S et al.,[2] found that over 60 KAP studies on medical students were published in the year 2017 itself. Of these 94% were one-time cross-sectional studies (as opposed to the ideal interventional KAP studies) on topics like infections/hygiene/vaccines (27%), organ/blood donation (11.7%), and tobacco (5.8%). To provide a broader perspective, an Advanced search via Google Scholar with keywords (Medical Student India Knowledge OR Attitudes OR Practices -Education -Teaching) yields about 1,99,000 results. The topics chosen for most of these KAP studies are already part of the medical curriculum and hence their assessment must be done as part of routine academic evaluation and not by conducting separate surveys for the sake of publication. The KAP are more relevant to the general public and large representative surveys must be undertaken for the same.[3] Another recurring trend is that of mental health studies on medical students. A Google scholar search using the keywords (Medical Student India Depression OR Stress OR Anxiety OR Mental) yields about 13,30,000 results. Despite being proven time and again that medical students tend to have poor mental health,[4] these studies are religiously and repeatedly-done on medical students and thus provide little to no contribution to our existing knowledge.

Influence of the COVID-19 Pandemic

The COVID-19 pandemic has seen an exponential boost in research. However, it also has led to an increase in single-centre studies, non-representative online KAP surveys, duplicate studies & over-researched topics which has reduced the scientific quality of evidence. It's understood that it was essential to study the impact of pandemic on mental health, education and also about the KAP related to the virus, precautions, vaccines etc. Large scale multicentric collaborative studies, even conducted online using appropriate sampling techniques would have provided representative and reliable data. However, there have mostly been multiple small scale online surveys and single centre studies, all of them providing similar conclusions and still being published repeatedly by various journals. A Google scholar search using the keywords (Medical Student India COVID-19 Knowledge OR Attitudes OR Practices -Education -Teaching) yields more than 6000 results for KAP surveys conducted during the Pandemic. More than 17,000 results are brought on Google Scholar when searched using keywords (Medical Student India COVID Depression OR Stress OR Anxiety OR Mental). Impact on Medical Education was the most over-researched topic with approximately 18,000 results on Google Scholar search using the keywords (Medical Student India COVID Education OR Teaching OR Training OR Academic). Many similar surveys are still ongoing and unlikely to be published considering the ample amount of data that has already been generated. To provide an anecdotal reference to this phenomenon of over-researching, in the last two years, each one of us would have come across at least one online survey per month circulated on WhatsApp and various Social Media Groups.

Why does this happen?

Factors like convenience, lack of resources, time constraints, seeing that everyone else is doing it and easy access to a vulnerable population, drive such studies. For example, studies do not require any budget, usually address an easily accessible population, and appear simple and straightforward. Further, asking your colleagues or students to fill in a survey is hassle-free as compared to having to explain your intentions to a layman who might not want to participate in your study. It certainly cuts down on the requirement of framing robust Informed Consent Documents and non-response rates - ultimately the time from protocol design to publication.

Concerns and Consequences

There is an inherent selection bias introduced in the data obtained from such studies.[5] To extrapolate these results and draw conclusions in clinical practice accordingly in the general population would be a gross mistake as the samples are non-representative of the population. Online surveys, which have become the norm of late, often have poor sampling technique as they are limited to the data of the digitally literate population possessing smartphones and those who are sufficiently biased to be interested in the subject.[6]

An ethical conundrum arises when it is professional researchers that ask their students to become study participants- as students in a hierarchical organisation are considered to be a vulnerable population. Moreover, it is not just the redundancy of such research that presents a

problem, but also the survey fatigue that inevitably settles in this population- leading to reduced response rates for other studies and reduced data collection quality.[7] Koning et al. even proposed that the rise in the number of survey based studies in the pandemic has led to the decreased response rates and quality of data collected due to multiple requests occurring in close succession, leading to a feeling of being over-researched.[8] This feeling is further exacerbated if the content of surveys overlaps as we have noted in the examples above.

Can we adapt better strategies?

To tackle this problem, we advocate for the use of appropriate population selection and participant recruitment strategies by making collaboration between research teams, thus maximising their outreach in the population and minimising duplicate surveys. Multicentric Collaborative studies not only increase professional networking opportunities and reduce overall costs but are also representative of the population and present clear results. However, they are not bereft of limitations, which present in the form of bureaucratic lag and authorship conflicts which contribute to the lack of such studies in the first place. In order to encourage more such studies, steps should be taken to promote collaborative authorship and also to digitalise the paperwork involved to speed up the process, as by the time the formalities are completed, the research question no longer bears relevance.

Institutional Ethics Committees should adopt more stringent policies for studies involving the vulnerable student population and withhold clearance unless the choice of participants is justified satisfactorily by investigators.

An online database that provides public access to the details of anonymous government surveys or data of previous studies should be made freely available as this cut down the step of data collection itself. Similarly, to avoid repetition and duplication of efforts by researchers, online repositories of protocols for ongoing studies, similar to the clinical trial registry should be made for all kinds of studies at least within professional organisations, and government agencies.

To improve data collection in online studies, researchers must be trained in online sampling techniques so that they can effectively use social media for participant recruitment. This training should highlight how to utilise social media to reach a population of interest from representative geographical locations, whilst minimising spread to individuals for whom the survey is irrelevant.

CONCLUSION

To conclude our perspective, researchers need not shy away from recruiting medical students as the study population where required, but make it a point to re-evaluate the applicability and reach of their study topic in other populations. Having done so, if the conclusion is that medical students are the only population wherein their topic bears relevance, then we are one step closer to generating more population-relevant research and ultimately ending the Guinea pig effect.

END NOTE

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