

Assessing the Knowledge, Attitudes, and Practices of Medical Students Towards Climate Change and Global Warming in Private Universities of Jalalabad, Afghanistan

Latifee Farsheed^{1*}, Behsoodi Mohammad Mukhlis², Rahmani Bahirullah³, and Wafa Abdul Haq⁴

¹Department of Professional Development, Spinghar Institute of Higher Education, Nangarhar, Afghanistan

²Department of Academic Division, Spinghar Institute of Higher Education, Nangarhar, Afghanistan

³Department of Research and Development, Spinghar Institute of Higher Education, Nangarhar, Afghanistan

⁴Department of Quality Enhancement, Spinghar Institute of Higher Education, Nangarhar, Afghanistan

*Corresponding Author Email: farsheed.latifee@gmail.com

ABSTRACT

This study was conducted in Spinghar, Rokhan, and Aryana Private Institutes of Higher Education in Jalalabad City, Nangarhar Province, Afghanistan. It aimed to explore the knowledge, attitudes, and practices of medical students regarding climate change and global warming. The research spanned from September to December 2023 and involved faculties of Medicine, Dentistry, and Medical Laboratory Technology. A pre-structured questionnaire was used to assess the understanding, behavior, and practices of the students regarding climate issues. The questionnaire was administered to the participants to gather data on their knowledge levels and attitudes towards climate change. The study sample included medical students from the aforementioned institutes. The results of the study revealed a moderate knowledge level among the participants, with 55% of students demonstrating awareness of climate change while 45% lacked familiarity with the subject. In terms of attitudes, the majority of students (69%) agreed with climate change concerns, while 31% held less favorable views. Encouragingly, 80% of students reported active engagement in activities aimed at preventing climate change. The findings of this study highlight the importance of targeted educational interventions to address knowledge gaps and promote universally positive attitudes among medical students regarding climate change. The results also emphasize the need to encourage broader adoption of sustainable practices among future healthcare professionals. The research provides valuable insights for developing effective strategies to equip medical students to actively address the global challenge of climate change.

Keywords: Assessing, KAP, Medical Students, Climate Change, Global Warming, Private Universities

INTRODUCTION

The major issues of the twenty-first century include climate change and global warming, which have profound effects on ecosystems, human health, and social cohesion (IPCC, 2018). Climate change makes it more difficult to meet the goals of sustainable development (Filho et al., 2023). Universities and educational institutions have an unparalleled capacity to instruct students on matters related to climate change and actively involve them in climate affairs as citizens and prospective career influencers (Filho et al., 2023).

The healthcare industry, which contributes significantly to greenhouse gas emissions and is directly affected by the negative effects of climate change on health, plays a vital role in tackling these issues (Sambath et al., 2022). Medical students, as future healthcare providers, have a special chance to support sustainable healthcare practices and contribute to addressing climate change. However, little is known about their beliefs, knowledge, and attitudes regarding global warming and climate change (Watts et al., 2018).

Despite the increasing recognition of the importance of addressing climate change in the healthcare sector, there is a research gap regarding the specific knowledge, attitudes, and practices of medical students towards climate change (Research Gap 1). Understanding these aspects is crucial for developing targeted educational interventions and strategies to equip future healthcare professionals with the necessary skills and mindset to actively address the global challenge of climate change.

Furthermore, while the impact of climate change on physical health has been acknowledged, there is a need to further explore its potential effects on mental health (Research Gap 2). Components of climate change, such as extreme weather events and changes in labor capacity, have the potential to impact mental well-being, but the specific relationship between climate change and mental health among medical students remains understudied.

MATERIALS AND METHODS

This study was conducted in three private medical institutes of higher education in Jalalabad City of Nangarhar Province in Afghanistan which are Spinghar, Rokhan and Aryana Private Institutes of Higher Education involved three medical faculties (Faculty of Medicine, Faculty of Dentistry and Faculty of Medical Laboratory Technology) from September to December 2023. For conducting this study a pre-structured questionnaire was designed to assess the knowledge, attitudes and practices of the medical students toward climate change and global warming. The questionnaire was developed by reviewing questions from young students' knowledge, attitudes and practice towards climate change (2023) Salman et al., (2023). The data was collected by the questionnaire randomly in the mentioned institutions. The collected data was entered into MS Excel for statistical analysis. Scores were given for each group questions for knowledge, attitude and practices about climate change and global warming. The total population was 3000 and sample size was 380 participants. To check the reliability and validity of the questionnaire 90 participants were involved in the pilot study and the Cronbach's Alpha was 0.890. Cronbach's Alpha is a measure of reliability that has values ranging from zero to one in SPSS software (Hair et al., 2010).

RESULTS AND DISCUSSION

A study conducted among medical students in Pakistan found that 63% of the students had good knowledge about climate change and its health impacts, while 37% had poor knowledge (Khan et al., 2019). In a study among medical students in India, it was found that 70% of the students were aware of climate change, but only 40% were aware of its health impacts (Kumar et al., 2020). These findings indicates that there is a higher level of awareness in Pakistan and higher general awareness of climate change in India compared to my findings in private universities in Jalalabad City Nangarhar, Afghanistan.

Based on my findings the knowledge section indicates that there is fair knowledge about climate change and global warming among the students of these private institutions. The responses show that (55%) of medical students were familiar with climate change and had awareness and (45%) of students were unaware of climate change.

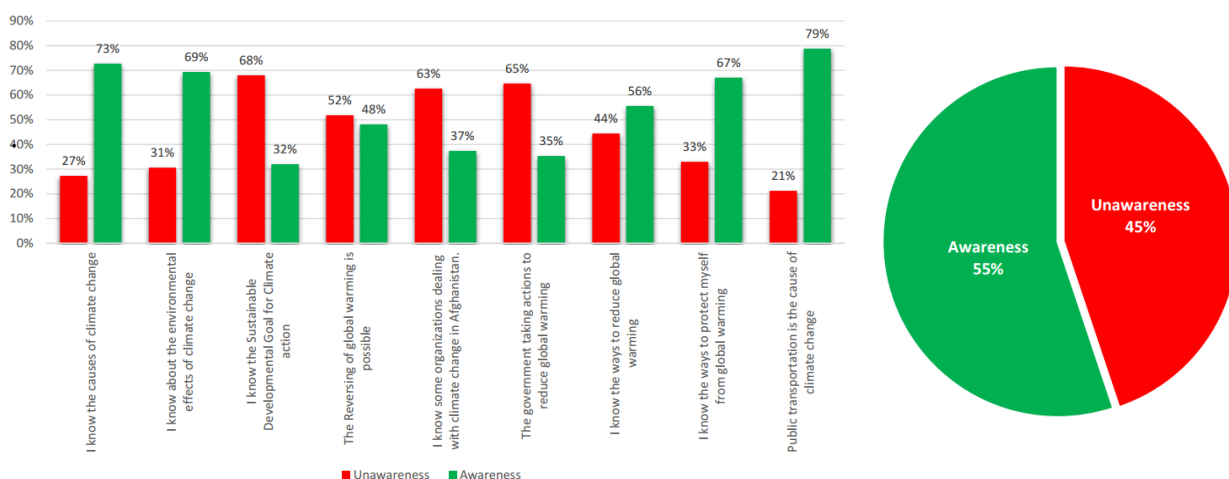


Figure 1. The Knowledge of Respondents Regarding Climate Change and Global Warming In the meantime, the responses regarding the attitude demonstrate that (69%) of medical students agree and (31%) of students do not agree with the questions about attitudes toward climate change and global warming.

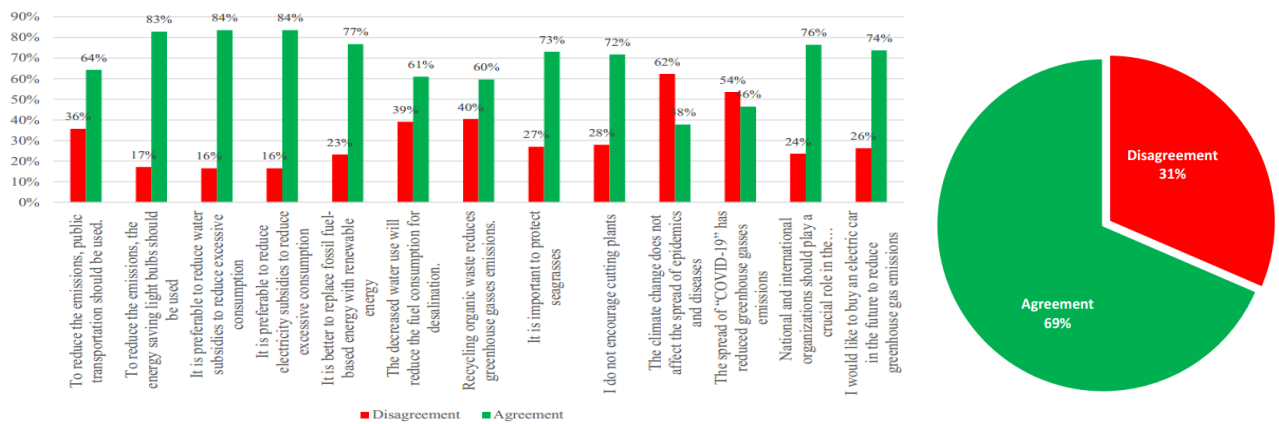


Figure 2. The Attitude of Respondents Regarding Climate Change and Global Warming As our last variable, the respondents say, that (80%) of medical students have practiced and (20%) of students have not practiced activities which caused prevent the increasing of climate change and global warming.

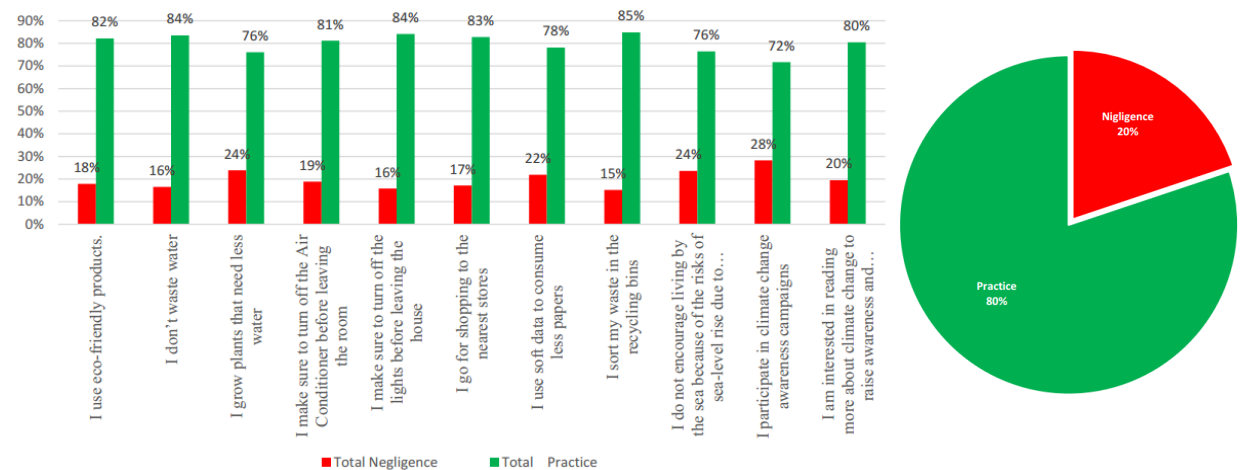


Figure 3. The Practice of Respondents Regarding Climate Change and Global Warming

CONCLUSION

In conclusion, the study reveals a fair level of knowledge (55%) about climate change among medical students in private institutions of higher education in Jalalabad. While a majority (69%) expresses positive attitudes toward climate change, there is room for improvement, as 31% hold less favorable views. Encouragingly, 80% of student's report engaging in activities to prevent climate change, highlighting active participation where 20% of students are not engaged. The findings suggest the need for targeted educational efforts to address knowledge gaps and promote universal positive attitudes, while also encouraging wider adoption of sustainable practices among the student population. Based on the findings, it is recommended that educational institutions in Jalalabad's private universities consider integrating climate change awareness programs into their curricula, aiming to enhance the knowledge base among medical students. Efforts should also be directed towards understanding and addressing the factors contributing to varied attitudes, to foster a more universally positive perspective on climate change. Additionally, initiatives promoting sustainable practices should be expanded and incentivized, targeting the 20% of students who have not yet actively engaged in activities to mitigate climate change. Collaborative efforts between academic institutions, local communities, and relevant stakeholders are essential to create a comprehensive and impactful approach to climate change education and action among future healthcare professionals in the region.

Acknowledgment: Our appreciation goes to the three medical institutions who helped us in doing this study for their students. Special appreciation to mentors and advisors for organizing the International Conference on Climate Change-2024 at Nangarhar University, Afghanistan.

Conflict of Interest: All authors express no conflict of interest in any part of the research.

Funding: This research received no external funding.

Authors Contributions: All authors equally contributed to the conception, drafting, and revision of the manuscript, sharing equal responsibility for its content and integrity.

REFERENCES

- Assessment of attitudes and perceptions of international university students on climate attitude, and practice toward climate change.
- Berry, H. L., Bowen, K., & Kjellstrom, T. (2010). Climate change and mental health: a causal pathways change. *Climate Risk Management*, 39, 100486.
- Di Napoli, C., McGushin, A., Romanello, M., Ayeb-Karlsson, S., Cai, W., Chambers, J., ... & Robinson, E. J. (2022). Tracking the impacts of climate change on human health via indicators: lessons from equation modeling in strategic management research: a review of past practices and framework. *International Journal of Public Health*, 55, 123-132.
- Hair, J. F., Sarstedt, M., Pieper, T. M., & Ringle, C. M. (2012). The use of partial least squares structural India– A cross-sectional study. *The journal of climate change and health*, 6, 100147. Knowledge and perception about climate change among healthcare professionals and students: A cross-sectional study. *South Eastern European Journal of Public Health*.
- Khan, M. U., Shah, S., Ahmad, A., & Fatokun, O. (2019). Knowledge and attitudes of Pakistani medical students towards climate change and its health impacts. *Journal of Public Health*, 27(4), 485-492. <https://doi.org/10.1007/s10389-019-01035-3>
- Kumar, R., Singh, S., & Raj, A. (2020). Awareness of climate change and its health impact among medical students in India. *Indian Journal of Public Health*, 64(3), 225-230. https://doi.org/10.4103/ijph.IJPH_100_20
- La Torre, G., Sestili, C., Cocchiara, R. A., Barbato, D., Mannocci, A., & Del Cimmuto, A. (2023).
- Leal Filho, W., Ayal, D. Y., Wall, T., Shiel, C., Paco, A., Pace, P., ... & Kovaleva, M. (2023). An nations for centuries to come. *The Lancet*, 392(10163), 2479-2514.
- Practices related to climate change and its health aspects among the healthcare workforce in recommendations for future applications. *Long Range Planning*, 45(5-6), 320-340.
- Salman, N., Al-Mannai, M., Abahussain, A., & Alalawi, M. S. M. (2023). Young students' knowledge.
- Sambath, V., Narayan, S., Kumar, P., Kumar, P., & Pradyumna, A. (2022). Knowledge, attitudes and The 2018 report of the Lancet Countdown on health and climate change: shaping the health of the Lancet Countdown. *BMC Public Health*, 22(1), 1-8.
- Watts, N., Amann, M., Arnell, N., Ayeb-Karlsson, S., Belesova, K., Berry, H., ... & Costello, A. (2018).