

## Research

# Knowledge, attitudes, and practices of health professions students on mentorship: a cross-sectional study at a sub-Saharan African medical school

Elvis Tamale<sup>1</sup> · Irene Atuhairwe<sup>2</sup> · Arnold Ssemwogerere<sup>1</sup> · Brian Muhimbura<sup>1</sup> · Lorna Atimango<sup>1</sup> · Paddy Derrick Malinga<sup>1</sup> · Jonathan Mulungi<sup>1</sup> · Joseph Ssekitto<sup>1</sup> · Josephine Naigaga<sup>1</sup> · Timothy Mwanje Kintu<sup>1</sup> · Kiran Mitha Masood<sup>2</sup> · Victor Ohuruogu<sup>3</sup> · Joseph Ngonzi<sup>1</sup>

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## Abstract

**Background** Mentoring involves the informal conveyance of knowledge, social capital, and support, as perceived by the recipient to be pertinent to aspects of work, career, and personal or professional development. Students pursuing health-related courses need access to mentorship and its benefits during their formative academic and career states. However, in Sub-Saharan Africa, many institutions have not fully embraced this despite the benefits of mentorship.

**Aim** The primary purpose of this study was to assess medical students' knowledge about mentorship and explore their attitudes and practices toward mentorship.

**Methodology** We held an online cross-sectional study utilizing a pre-tested self-reported questionnaire targeting health professional students in the faculty of medicine, Mbarara University of Science and Technology (MUST). The collected data were coded and summarized using descriptive statistics and thematic analysis.

**Results** Two hundred eighty-three (283) students participated in this study. Of this group, 79.9% were aware of mentorship, 61% were willing to commit 1–2 h a week for mentorship, and Zoom was the preferred mode of communication; 98.2% expressed the need for a structured student-led hybrid mentorship program.

**Conclusion** Mentorship at Mbarara University of Science and Technology was considered beneficial by health professions students in the Faculty of Medicine.

**Recommendation** Future studies should explore accessibility to mentorship and the effectiveness of existing mentorship processes.

**Keywords** Mentorship · Health professions students · Attitude

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✉ Elvis Tamale, [elvistamale325@gmail.com](mailto:elvistamale325@gmail.com); Irene Atuhairwe, [iatuhairwe@seedglobalhealth.org](mailto:iatuhairwe@seedglobalhealth.org); Arnold Ssemwogerere, [arnoldssemwogerere00@gmail.com](mailto:arnoldssemwogerere00@gmail.com); Brian Muhimbura, [muhimbuurabryan@gmail.com](mailto:muhimbuurabryan@gmail.com); Lorna Atimango, [atimangolornadoone@gmail.com](mailto:atimangolornadoone@gmail.com); Paddy Derrick Malinga, [malingapaddy@gmail.com](mailto:malingapaddy@gmail.com); Jonathan Mulungi, [mulungijonathan400@gmail.com](mailto:mulungijonathan400@gmail.com); Joseph Ssekitto, [sekitto43@gmail.com](mailto:sekitto43@gmail.com); Josephine Naigaga, [josephinenaiigaga88@gmail.com](mailto:josephinenaiigaga88@gmail.com); Timothy Mwanje Kintu, [timothykintu@gmail.com](mailto:timothykintu@gmail.com); Kiran Mitha Masood, [kmitha@seedglobalhealth.org](mailto:kmitha@seedglobalhealth.org); Victor Ohuruogu, [vickypax@gmail.com](mailto:vickypax@gmail.com); Joseph Ngonzi, [jngonzi@must.ac.ug](mailto:jngonzi@must.ac.ug) | <sup>1</sup>Faculty of Medicine, Mbarara University of Science and Technology, P.O. Box 1410, Mbarara, Uganda. <sup>2</sup>Seed Global Health, Boston, MA, USA. <sup>3</sup>United Nations Foundation, 320 East 43rd Street, 3rd Floor, New York, NY 10017, USA.



## 1 Introduction

### 1.1 Background

Mentoring is “a process for the informal transmission of knowledge, social capital, and support perceived by the recipient as relevant to work, career, personal, or professional development” [1].

In a mentoring relationship, mentors specialize in aiding their mentees to maximize their potential and develop a successful career. This relationship builds the mentees’ potential, promotes skills development, and fuels their ability to attain desired outcomes. Several studies have demonstrated mentorship’s positive influence during one’s educational and career journey, including decreased burnout and depression, increased career satisfaction, and personal and career development [2–4]. Although in a traditional setting, the mentee ideally learns from the mentors, studies have indicated that mentors can also benefit through professional stimulation and rejuvenation, aiding the professional growth of the next generation and institutional recognition [5]. The mentorship relationship may be personal and professional and is not limited to the program’s timeline or school; it may continue and even last a Lifetime.

Despite the benefits of mentorship, the literature indicates that access to mentors can be challenging in both formal and informal settings [6]. For healthcare professional students, mentorship is essential for the comprehensive development of their skills, encompassing not only clinical and research capabilities but also nurturing a broader spectrum of competencies. This includes fostering career satisfaction, effective career management, and establishing valuable professional networks, contributing to the all-around development of healthcare students [7].

In Sub-Saharan Africa, many institutions have yet to fully embrace mentorship [7–9]. Formal and informal access to mentors is challenging and needs to be better aligned to meet student and mentor needs, even in institutions with existing mentoring programs [7]. This shortage in access to mentors may be attributed to faculty isolation, lack of interprofessional collaboration, increased stress, burnout, and higher rates of staff turnover [10].

Students pursuing health-related courses need access to mentorship and its benefits during their formative academic and career states [11]. Some health professions students possess an understanding of mentorship but require assistance in harnessing it effectively, primarily due to the absence of a well-organized platform that facilitates easy access to mentorship opportunities. [12].

There is a need to assess the knowledge about mentorship, current mentorship practices, and the gap for establishing a structured student-led hybrid mentorship initiative that leverages online and digital platforms to ease access to mentorship and optimize its benefits.

### 1.2 Main objective

The primary purpose of this study was to assess medical students’ knowledge about mentorship and explore their attitudes and practices toward mentorship.

### 1.3 Specific objectives

- 1) To assess health professions students’ knowledge of mentorship.
- 2) To explore the attitudes of health professional students toward mentorship.
- 3) To gather input from health professional students to enhance the effectiveness of the mentorship program

## 2 Methods

This study followed the international ethical standards of the Declaration of Helsinki. The study was exempted from obtaining ethical approval from the Research Ethics Committee of MUST with permission to collect data from participants being granted by the dean of students at MUST. All participants voluntarily gave informed consent to be enrolled in the study enrolment.

## 2.1 Study design and population

This cross-sectional quantitative study was conducted from December 2021 to January 2022. The participants were students enrolled in an undergraduate health professional course at Mbarara University of Science and Technology. Sampling of participants was through convenience sampling of participated who volunteered to answer the questionnaires and showed interest in the program.

## 2.2 Setting

The study was conducted at Mbarara University of Science and Technology (MUST), a public university offering undergraduate and postgraduate programs accredited by the National Council for Higher Education (NCHE). The Faculty of Medicine is located at the Mbarara campus, approximately 266 km southwest of Kampala.

## 2.3 Population

Students in the Faculty of Medicine at Mbarara University of Science and Technology were targeted for this study. The faculty has six undergraduate courses that include Bachelor of Medicine and Bachelor of Surgery, Bachelor of Pharmacy, Bachelor of Nursing, Bachelor of Medical Laboratory Sciences, Bachelor of Physiotherapy, and Bachelor of Pharmaceutical Sciences, all of which are four (4) years course duration except the Bachelor of Medicine and Surgery five (5) years and Bachelor of Pharmaceutical Sciences three (3) years.

## 2.4 Inclusion criteria

To be eligible for participation in this study, individuals had to meet specific inclusion criteria. First, participants were required to be undergraduate students enrolled in the Faculty of Medicine at Mbarara University of Science and Technology, pursuing one of the following courses: Bachelor of Medicine and Bachelor of Surgery, Bachelor of Pharmacy, Bachelor of Nursing, Bachelor of Medical Laboratory Sciences, Bachelor of Physiotherapy, or Bachelor of Pharmaceutical Sciences. Additionally, prospective participants needed to willingly provide their informed consent to take part in the study.

## 2.5 Exclusion criteria

The exclusion criteria for this study encompassed students who fell outside the purview of the Faculty of Medicine at Mbarara University of Science and Technology. Those enrolled in other faculties were not considered eligible for participation. Furthermore, students who declined to provide their consent to engage in the study were also excluded from the research cohort.

## 2.6 Sample size determination and sampling

The study determined a minimum sample size of 283 undergraduate medical students, drawn from a population of around 1000 as of 2021/2022, to achieve an 80% statistical power using Epi Info StatCalc for population surveys version 7.2.2.6. With an expected mentorship services utilization prevalence of 50%, no comparable literature in a similar setting, a 5% margin of error, and a design effect of 1.0, convenience sampling was employed to select participants.

## 2.7 Study procedure

An online cross-sectional survey was conducted using a semi-structured questionnaire adapted from a similar study conducted in Nigeria by Adoga et al. [8]. It was modified and tested among a pilot set of students to ensure validity. The actual study was conducted using a Google form with the study tool that was designed with an informed consent form on the first page clearly stating and explaining details of the study with contact information. The link to the form was circulated in the study population using the WhatsApp platform through class groups and emailing platforms. Upon access to the form, study participants were asked to provide informed consent before proceeding with the questionnaire and thereafter asked to fill a semi-structured questionnaire with prompts on social demographic characteristics,

knowledge about mentorship programs, tools to assess attitude towards mentorship programs, their access to mentors and the need for mentorship within the university. Students who did not give informed consent were taken to the end of the form and asked to submit it without filling out the questionnaire.

## 2.8 Study variables

### 2.8.1 Independent variables

Sociodemographic factors included age, gender, year of study, course of study, and history of having gone through mentorship were assessed through a google form questionnaire.

### 2.8.2 Dependent variables

Our questionnaire was adopted from previous similar studies, which explored knowledge, attitudes, perceptions, and awareness of mental health problems among students [13]. The questionnaire was piloted among a group of final-year medical students, resident doctors, and university medical education experts to ensure face and content validity. The questionnaire was then appropriately revised. Our dependent variables were knowledge, attitude, and perceptions.

The questionnaire contained structured questions to assess knowledge about mentorship, degree of access to mentorship, attitude towards mentorship, and willingness to be part of a mentorship program. Knowledge was assessed using yes or no questions; those with yes answers were then asked to grade the extent of their knowledge based on the Likert scale from 1 to 5, with five being most knowledgeable and one being least knowledgeable.

## 3 Results

Three themes were identified: (1) Knowledge of mentorship, (2) Attitude toward mentorship, and (3) Improving the mentorship process.

### 3.1 Survey findings

This survey on students' perceptions and knowledge about mentorship was conducted in July 2021 on 1000 students. Two hundred and eighty-seven (287), 28.7% responses were received. This survey was carried out among undergraduate students of Mbarara University of Science and Technology, Mbarara, Uganda, with students from the faculties of Medicine and Surgery, Pharmacy, Nursing, Medical Laboratory Sciences, Physiotherapy, and Pharmaceutical Sciences.

### 3.2 Participants' year of study

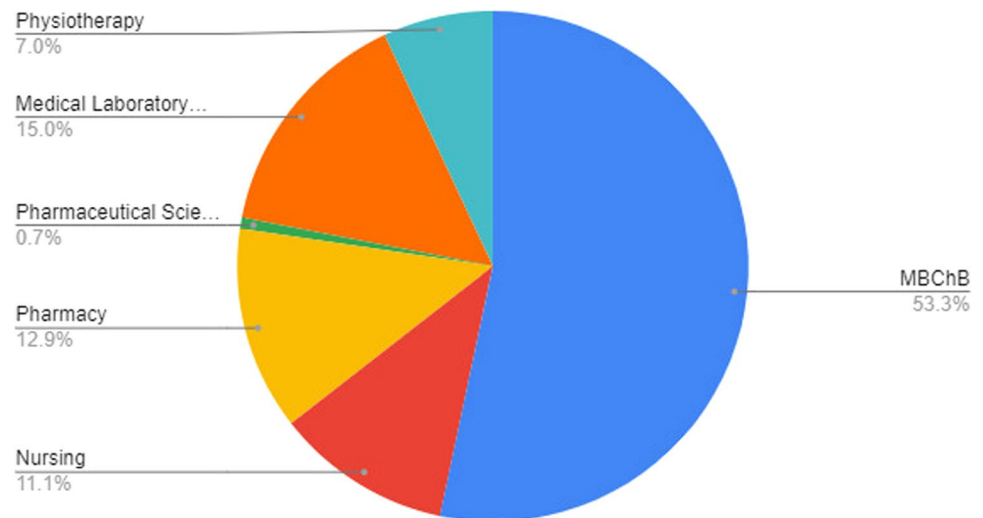
Out of the 287 responses, a large proportion (32.1%) of the students were second-year students, followed by first-year students (23.7%) (Table 1).

### 3.3 Participants' programme of study

Out of the 287 responses, more than half (53.3%) were from Bachelor of Medicine and Bachelor of Surgery, followed by students from Medical Laboratory Sciences (15%) (Fig. 1).

**Table 1** Year of study

Year of study	Percentage
1	23.7
2	32.1
3	17.4
4	19.2
5	7.7

**Fig. 1** Course programme

### 3.4 Awareness of mentorship

From the responses, 80.1% of the Participants had prior knowledge about mentorship, while the concept of mentorship was not known to 19.9% of Participants (Figs. 2, 3).

### 3.5 Attitude towards mentorship

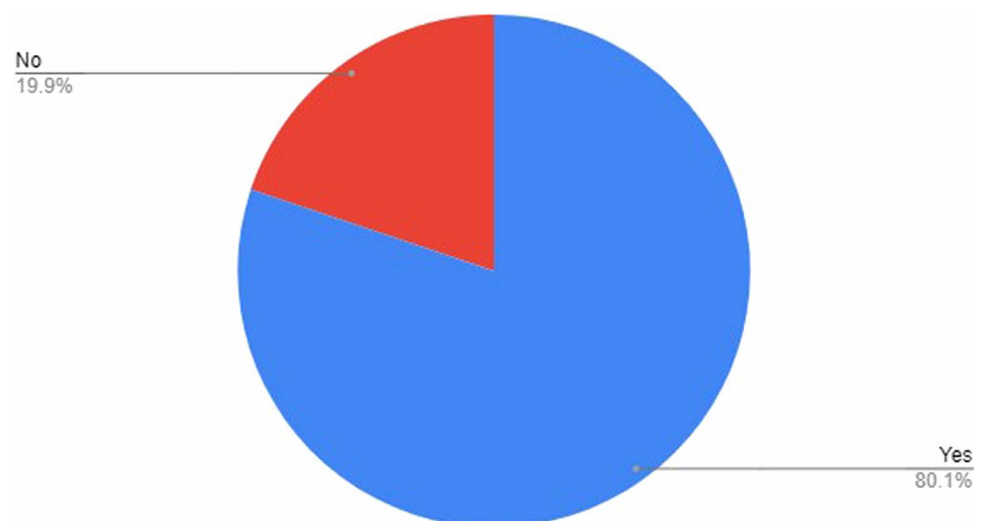
The study assessed participants for their level of commitment towards Mentorship; under this theme, a few sub-themes emerged. (Figs. 4, 5, 6)

- Level of commitment

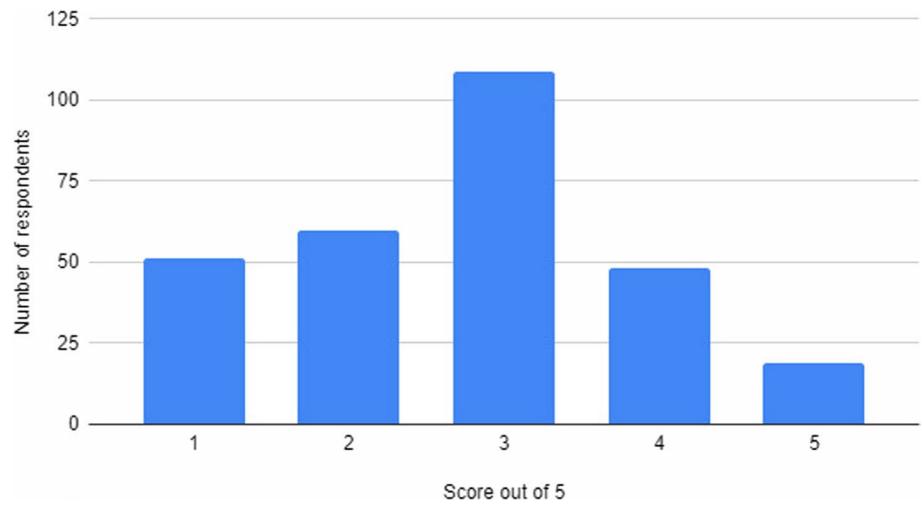
Almost half of the Participants (46.7%) said they were comfortable committing 1 to 2 h every week, while 40% were willing to commit 2 to 4 h weekly.

- Mode of communication

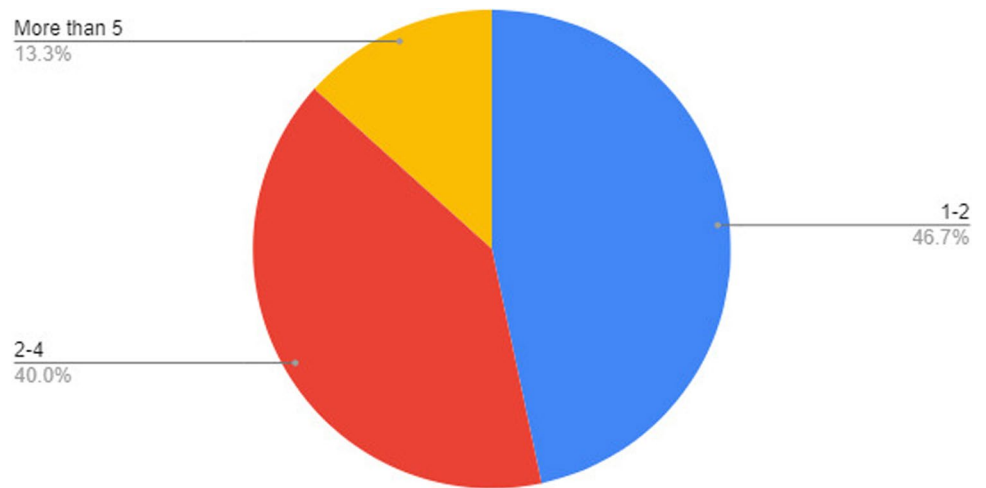
69.5% of respondents preferred Zoom meetings as the choice of communication.

**Fig. 2** Awareness of mentorship

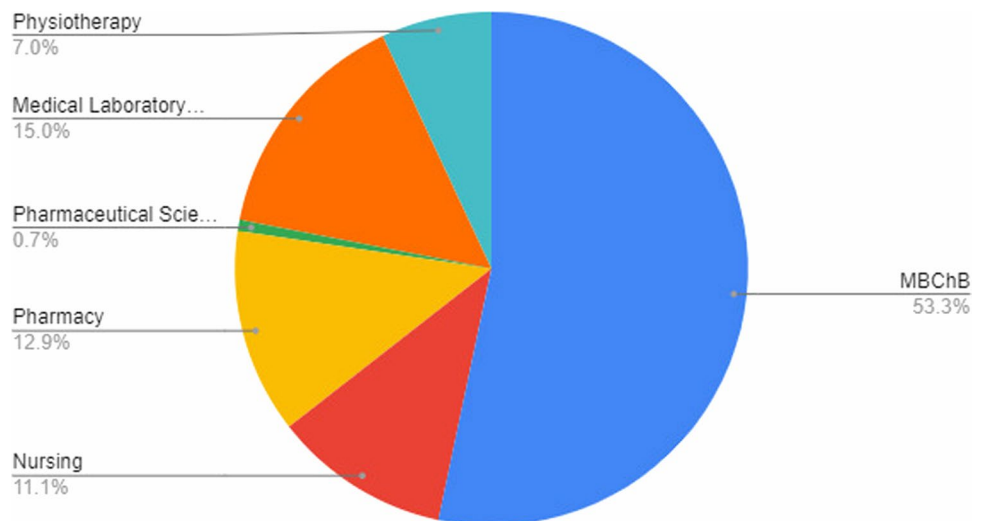
**Fig. 3** Knowledge about mentorship



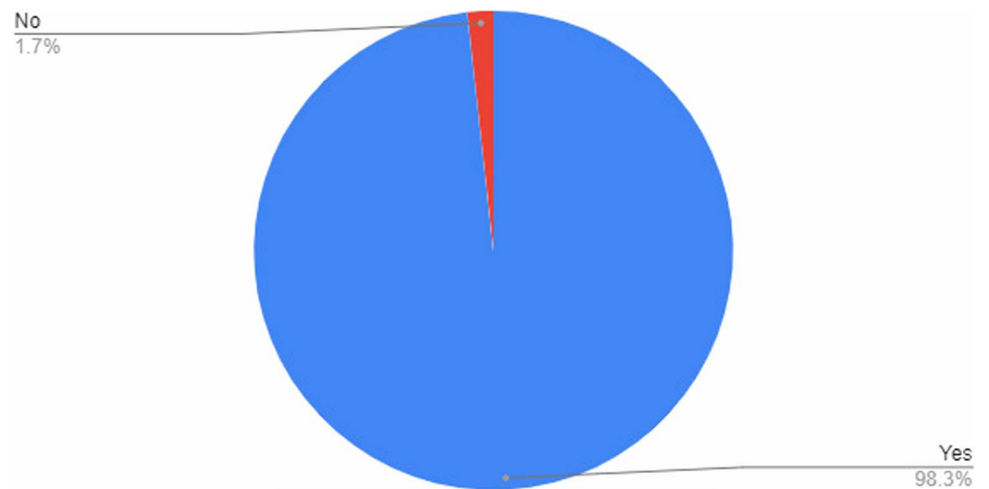
**Fig. 4** Level of commitment



**Fig. 5** Modes of communication



**Fig. 6** Attitude towards a mentorship programme

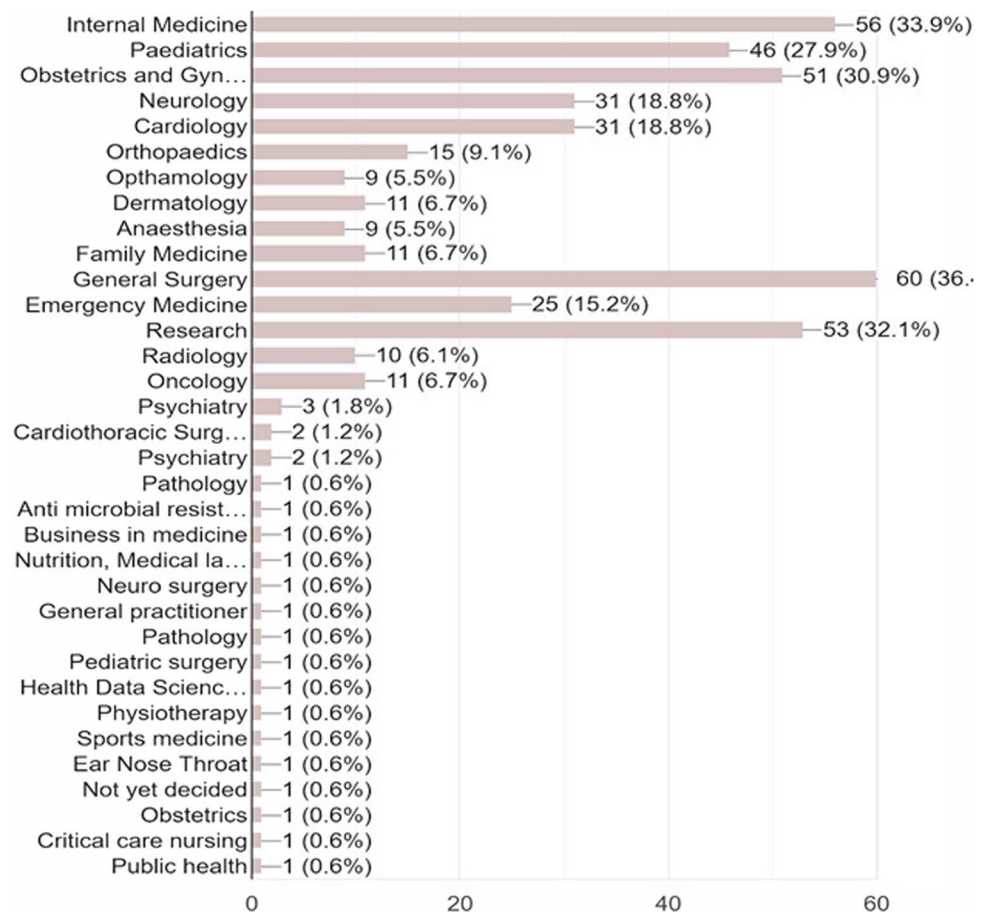


98.2% of the participants agreed that establishing a structured mentorship program would benefit them.

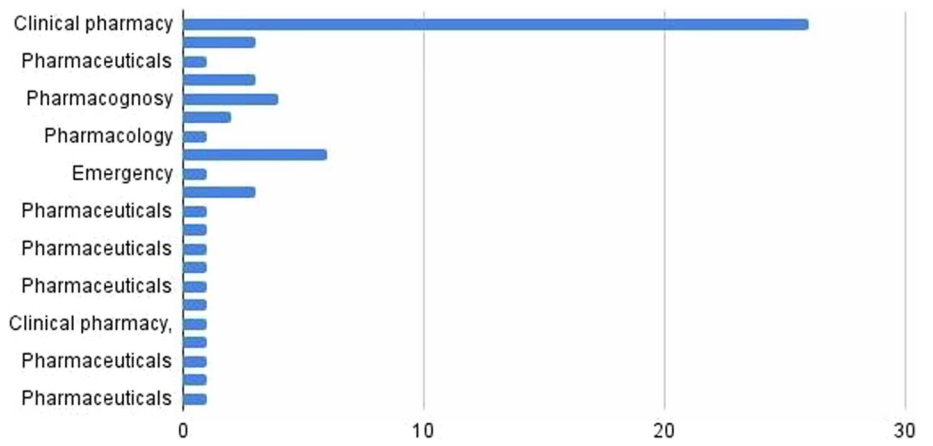
### 3.6 Areas of interest

From the survey, the following are some of the areas of interest in selected medical specializations highlighted by the participants in which they would like to be mentored (Figs. 7, 8, 9, 10, 11).

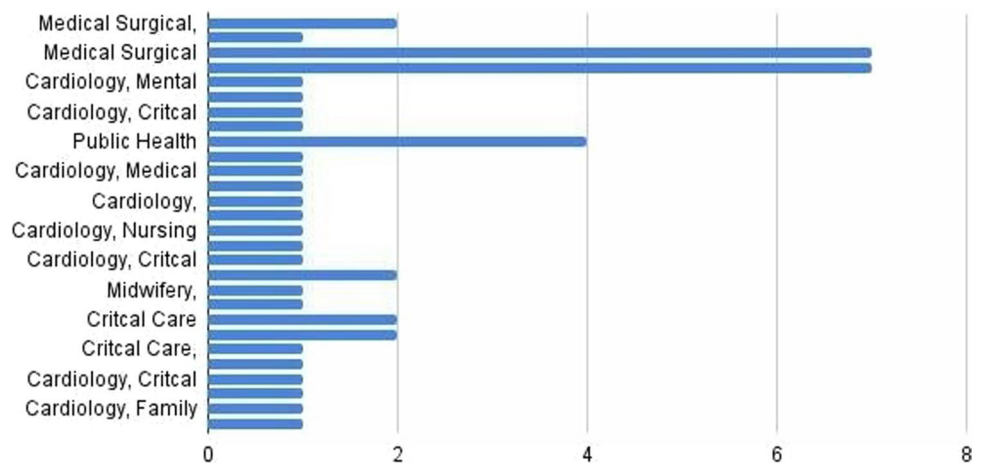
**Fig. 7** Areas of interest for medicine



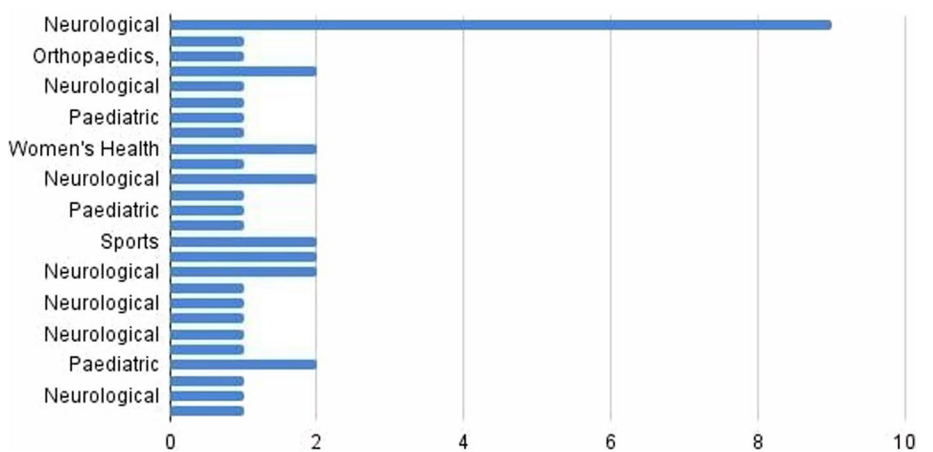
**Fig. 8** Areas of interest pharmacy



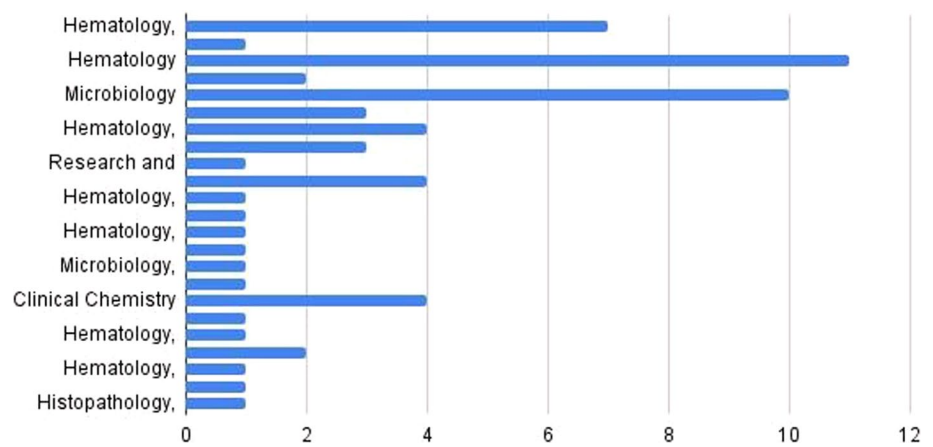
**Fig. 9** Areas of interest nursing



**Fig. 10** Areas of interest physiotherapy





**Fig. 11** Area of interest medical laboratory sciences

## 4 Discussion

Most of the study participants were second-year students (32.1%), followed by first-year students (23.7%). This finding may indicate that introducing students to a mentorship may have a higher chance of success when introduced early in a training program when interest is high.

Participants in our study highlighted that most health professions students reported knowing about mentorship, but only a small fraction were involved in mentorship regardless of level of training. Those in their earlier years of training were more interested in engaging in Mentorship. Despite the observed positive attitude to participate in mentoring, access to mentorship was still limited [14, 15], and most health professions students were open to a structured mentorship program to improve the mentoring process.

Our results showed that despite many health professions students knowing about mentorship (80.1%), the fraction with access to a mentor was 15%. This finding highlights a gap that needs to be addressed since 98.2% of the study participants wanted to be part of a mentoring relationship.

The study participants were able to grade their knowledge on mentorship on a Likert scale, with five being very knowledgeable and 1 being limited knowledge, 37.5%, which was the majority graded at three out of five, which showed that there was still a gap in the knowledge about mentorship among the health professions students.

The study also highlighted the openness of health professions students towards mentorship, with most students considering it a worthwhile investment for their holistic development.

Previous studies show that improving the mentorship process is fundamental to building sustainable capacity among health professions students [8]. A structured mentorship program designed for the local context has been previously suggested as a fundamental initiative that can be used to improve the mentoring process in resource-limited settings, as is our case [8]. Most of the participants in this study agreed that the establishment of a structured mentorship program can be a solution to addressing the gaps in access and knowledge of mentorship as well as improving the mentoring process. The study participants showed a high level of prospective commitment to an established structured mentorship program, with 46.7% and 40% ready to commit 1–2 h and 2–4 h, respectively, weekly. This further highlighted the desire of health professions students to have an improved mentoring process, with 60 percent of the participants being fully comfortable with online sessions.

This study also highlighted that most of the health professions students were interested in being mentored in various clinical disciplines such as General Surgery (36.1%), Internal Medicine (33.9%), and Obstetrics and Gynecology (30.9%), among others. Our study concurs that there are both career and life benefits associated with mentorship, and it is increasingly recognized as a bidirectional process that benefits both mentors and mentees [4].

### 4.1 Study limitations

Our study has several limitations. Despite our efforts to engage undergraduate health professions students from each of the disciplines in the Faculty of Medicine, the number of participants was uneven across the responses

received which may have affected the representativeness of our findings. Additionally, we offered open invitations to participate in the research, and therefore, we included participants who had limited experience with mentoring, consequently limiting the range of perspectives and opinions regarding mentorship within the faculty. Additionally, the low response rate could be attributed to various factors such as the timing of data collection, time constraints and survey fatigue among the students, impacting the depth and comprehensiveness of our results.

## 5 Conclusion

Mentorship at MUST was considered beneficial by health professions students in the Faculty of Medicine. Health Professions Students highlighted concerns reflecting a low level of access to mentorship as well as a desire for an improved mentorship process.

Important next steps include; (a) the design and establishment of a formal mentorship program for the undergraduate students and faculty; (b) developing mentoring metrics through which the progress of the mentorship program can be measured; (c) longitudinal studies of mentees to determine the longer-term impacts of mentorship. Mentorship is critical, as the undergraduate students will become future mentors and essential to the future success of the mentorship program.

To Researchers: future studies should explore accessibility to mentorship and the effectiveness of existing mentorship processes.

To Medical institutions: efforts to be directed to identify local mentoring gaps and the design of a formal mentorship program for undergraduate students and faculty.

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**Author contributions** TE and SA developed the idea of the Programme. TE, SA, AL and MB designed and administered the monitoring and evaluation tools. TE and AL analyzed the data and wrote the first manuscript draft. IA, VO, KMM, SA MB, MPD, NJ, MJ and NJ reviewed and edited. All authors read and approved the final manuscript.

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**Availability of data and materials** All data generated or analyzed during this study are included in this published article [and its supplementary information files.

## Declarations

**Ethical approval and consent to participate** The study was performed by the international ethical standards of the Declaration of Helsinki. The study was waived ethical approval from the Research Ethics Committee of MUST with permission to collect data from participants being granted by the dean of students at MUST. All participants voluntarily gave informed consent to be enrolled in the study enrolment.

**Consent for publication** Not applicable.

**Competing interests** No financial and non-financial interests declared.

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## References

1. Donovan A, Donovan J, Donovan A, Donovan J. Feedback and mentoring Mentorship in postgraduate training programs : views of Canadian program directors. *Med Educ*. 2009. <https://doi.org/10.1111/j.1365-2923.2008.03258.x>.
2. Frei E, Stamm M, Buddeberg-fischer B. Mentoring programs for medical students—a review of the PubMed literature 2000–2008. *BMC Med Educ*. 2010. <https://doi.org/10.1186/1472-6920-10-32>.
3. Burgess A, van Diggele C, Mellis C. Mentorship in the health professions: a review. *Clin Teach*. 2018;15(3):197–202. <https://doi.org/10.1111/tct.12756>.

4. Arnesson K, Albinsson G, Albinsson G. Mentorship—a pedagogical method for integration of theory and practice in higher education. *Nord J Stud Educ Policy*. 2017;3(3):202–17. <https://doi.org/10.1080/20020317.2017.1379346>.
5. Dalgaty F, Guthrie G, Walker H, Stirling K. The value of mentorship in medical education. *Clin Tech*. 2016. <https://doi.org/10.1111/tct.12510>.
6. Ssemata AS, Gladding S, John CC, Kiguli S. Developing mentorship in a resource-limited context: a qualitative research study of the experiences and perceptions of the makerere university student and faculty mentorship program. *BMC Med Educ*. 2017;17(1):123. <https://doi.org/10.1186/s12909-017-0962-8>. PMID:28709464;PMCID:PMC5513376.
7. Mubuuke AG, Mbalinda SN, Munabi IG, et al. Knowledge, attitudes, and practices of faculty on mentorship: an exploratory interpretivist study at a sub-Saharan African medical school. *BMC Med Educ*. 2020;20:192. <https://doi.org/10.1186/s12909-020-02101-9>.
8. Adoga AA, et al. The undergraduate medical student's perception of professional mentorship: results from a developing nation's medical school. *J Educ Health Promot*. 2019. <https://doi.org/10.4103/jehp.jehp>.
9. Hutson J, Nasser R, Marzano M, et al. Bridge building in higher education : multi-modal mentoring programs to support retention & career preparedness. *CE*. 2022. <https://doi.org/10.4236/ce.2022.139178>.
10. Pauline E, et al. Group mentorship for undergraduate medical students—a systematic review. *Perspect Med Educ*. 2020. <https://doi.org/10.1007/s40037-020-00610-3>.
11. Indyk D, Deen D, Fornari A, Santos MT, Lu W-H, Rucker L. The influence of longitudinal mentoring on medical student selection of primary care residencies. *BMC Med Educ*. 2011. <https://doi.org/10.1186/1472-6920-11-27>.
12. Bhatnagar V, Diaz S, Bucur PA. The need for more mentorship in medical school. *Cureus*. 2020. <https://doi.org/10.7759/cureus.7984>.
13. Kihumuro RB, Kaggwa MM, Kintu TM, et al. Knowledge, attitude and perceptions of medical students towards mental health in a university in Uganda. *BMC Med Educ*. 2022;22:730. <https://doi.org/10.1186/s12909-022-03774-0>.
14. Gottlieb M, Fant A, King A, Messman A, Robinson D, Sherbino J. One click away : digital mentorship in the modern era strategies for identifying and obtaining a digital mentor. *Cureus*. 2017. <https://doi.org/10.7759/cureus.1838>.
15. Daniel D. Mentorship: a missing link in education in Sub-Saharan Africa. 2013.

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