

MENTORSHIP PERCEPTIONS AND PREFERENCES AMONG STUDENTS IN HEALTH PROGRAMMES

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Abstract: *While formal mentorship programmes in medicine are widely regarded as an established means of professional development with benefits to mentees, mentors and institutions, models of mentoring vary widely. This paper utilizes secondary data from a survey on mentorship needs and preferences of students enrolled in the Faculty of Medical Sciences at The University of the West Indies in Trinidad and Tobago. The survey employed a cross-sectional design, using stratified convenience sampling to recruit 1,404 students who completed a self-report questionnaire on their perception of mentoring, past and current experiences with mentoring, preferences for style and type of mentor, and willingness to enrol in a formal mentoring programme. Currently only 15% of students have access to a mentor. Even in this digital era, most students prefer individual face-to-face mentoring and a casual rather than a formal structure. Students in health professions are willing to participate in mentorship programmes and feedback from them can be instrumental in devising and delivering effective and beneficial models.*

Keywords: *Caribbean, medical schools, medical students, mentoring, The University of the West Indies*

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ISSN 1727-5512

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INTRODUCTION

Since the development of formal mentoring programmes in medical schools in the 1990s (Buddeberg-Fischer & Herta, 2006), mentoring has come to be widely regarded as a valuable exercise with benefits for all involved: mentees, mentors, and institutions. Mentoring is thought to be an integral component of professional development for many health professions and specializations including medicine (Fallatah et al., 2018), pharmacy (Yue & Chen, 2020), nursing (Jokelainen et al., 2011), veterinary science (Niehoff et al., 2005), anaesthetics (Flexman & Gelb, 2011), nephrology (Jim & Yee, 2018), optometry (Qamar Riaz et al., 2017), ophthalmology (Honavar, 2019), family medicine (Côté et al., 2019), emergency medicine (Coates et al., 2004), internal medicine (Patel et al., 2020), orthopaedic surgery (Rohde et al., 2016), neurology (Zuzuárregui & Hohler, 2015). Despite this, the prevalence of mentorship, availability of mentors and uptake by mentees continue to vary widely, with many medical schools still lacking formal mentoring programmes (Aagaard & Hauer, 2003; Buddeberg-Fischer & Herta, 2006).

In describing the process, Gisbert (2017) states “mentoring can be seen as a collaborative learning relationship that goes through stages in time, with the purpose of helping a mentee to acquire the skills required for career-related success or professional development” (p.49). However, the aim of mentoring programmes may also be broadened to comprise varying combinations of focus on, and planned benefits in, career development, improving academic performance, communication, role modelling, and psychological support (Aagaard & Hauer, 2003; Bhatia et al., 2013; Fallatah et al., 2018; Zerzan et al., 2009).

There is also great variability across and within existing mentorship programmes. Some programmes target postgraduate residents, while others focus on undergraduate students, on clinical rather than pre-clinical students; some use structured content and set meeting times and frequency while others are more flexible. There is a tremendous body of literature to show that some programmes select mentors of different types (faculty members, external specialists or near-peers (more senior students)). Some programmes assign mentors randomly or allow students some choice. Others are delivered face to face, virtually or via email or telephone, and some focus on individual versus group delivery (Bhatia et al., 2013; Coates et al., 2004; Fornari et al., 2014; Guhan et al., 2020; Kman et al., 2013; Meinel et al., 2011; Park et al., 2016; Patel et al., 2020; Pinilla et al., 2015; Skjevik et al., 2020; Tan et al., 2018).

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Important elements of mentoring programme structure and delivery can be informed by differences established in extant research related to sex, year of school and health professions. However, sex differences have been reported in relation to the availability of mentors, benefits derived from models of mentoring, and facets of the mentoring role. A systematic review of a selection of studies about the prevalence of mentorship and how it relates to career development revealed that fewer than 50% of medical students had a mentor and women reported more difficulty finding mentors than men (Sambunjak et al., 2006). Lack of an adequate number of mentors has been cited as a reason for the underrepresentation of women in academic medicine (Edmunds et al., 2016). Multiple mentoring and peer mentoring models have been reported to offer more benefits to female mentees than traditional dyadic models (Henry-Noel et al., 2018). Additionally, Frei et al. (2010) suggest that in some regards, mentors may need to act as role models, especially for female students to show that they can ably meet both the demands of a job and their family commitments.

Year of school is associated with differences in mentorship experiences. Aagaard & Hauer (2003) report the medical school year as being independently associated with having a mentor. For example, fourth year students were more than twice as likely as those of other undergraduate years to have a mentor. They also reported varying frequencies of mentorship engagement across year groups, with engagement highest during third year, followed by first, fourth and second. Scheckler et al. (2004) also report varying levels of engagement across years with greater challenges for students in Year 4 compared to Years 1 through 3. Approaches to mentorship have also been found to vary among health professions (Kibbe et al., 2016). Further, the self-reported prevalence of mentorship is recorded to differ in various medical specialities. In fifteen studies across different professions – paediatric surgery, obstetrics and gynaecology, adolescent medicine, neonatology, internal medicine, primary care, child and adolescent medicine, psychiatry, and gynaecological oncology – the prevalence of mentorship ranged from 19% to 93% (Sambunjak et al., 2006).

Perceptions of students regarding mentorship programmes are integral to both the design and success of these programmes. Studies of students in existing mentoring programmes have revealed that students found mentoring helpful for supporting career needs as well as psychological/personal needs, enhancing their professional identity and development and improving academic performance (Fallatah et al., 2018; Kalén et al., 2015). Thus, conducting a survey or needs analysis can be effective in informing the design and development of effective mentoring programmes that will cater to students' particular needs (Dalgaty et al., 2017; Nimmons et al., 2019). Given the variety of options in designing and refining formal

mentoring programmes, a data-driven approach to customizing mentoring programmes can be of value when selecting elements for inclusion. For example, one novel mentoring programme at Yale University combines elements of mentorship, advising and coaching for residents (Patel et al., 2020).

This paper examines survey data previously collected by the Academic Advising and Mentoring committee in the Faculty of Medical Sciences, The UWI, St Augustine on mentorship perceptions and preferences of students. While some mentorship activity existed in the faculty, it was not widespread across schools and varied in its structure and delivery. For example, some schools utilized peer mentoring, while others used faculty members. In most instances, participation was voluntary for students to opt-in. No summary data on students' mentorship preferences had been gathered prior to the survey. The aim of this paper is to identify whether medical undergraduate students' mentorship preferences vary by sex, year of study and health profession. The findings are intended to inform the design and implementation of formal mentorship programmes across the faculty.

METHOD

Dataset

The dataset was derived from a survey conducted on the undergraduate population enrolled in the Faculty of Medical Sciences, The University of the West Indies, St. Augustine Campus which consisted of approximately 1925 students (71% female). Completed surveys were collected from 1404 students, comprising 70% female, across the six schools in the faculty: medicine, veterinary sciences, nursing, optometry, dentistry, and pharmacy. The detailed breakdown of participants by sex, school, and year of study can be seen in Table 1.

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Table 1

Distribution of Survey Participants

	N	%
Total	1404	100
Sex		
Male	419	29.8
Female	983	70
Other	1	0.1
No response	1	0.1
School		
Medicine	847	60.3
Veterinary Sciences	143	10.2
Nursing	138	9.8
Optometry	73	5.2
Dentistry	146	10.4
Pharmacy	57	4.1
Year of study		
1	519	37.0
2	259	18.4
3	102	7.3
4	240	17.1
5	284	20.2

Materials and Procedure

In the course of its routine educational practice, the Faculty Academic Advising and Mentoring Sub-Committee conducted a survey of mentorship perceptions and preferences in order to plan for the introduction of mentorship programmes in all schools. Students across all school years were invited to complete a self-report questionnaire during face-to-face classes. In the preclinical years, this was done at large classes attended by the entire year cohort, while in the clinical years, the questionnaire was distributed at in-person classes across all clerkship rotations. The questionnaire asked a series of questions pertaining to endorsement of five descriptions of mentoring (*mentoring is for students with high potential mentoring is for students who are underperforming mentoring is for students with personal problems mentoring is for discussing professional goals mentoring is for coaching for exams*); access to a mentor within and external to the faculty; previous access to mentoring; preference for style, structure and frequency of mentoring; choice, type and sex of mentor; willingness to enrol in a mentorship programme.

The demographic data used for inclusion in the analysis consisted of sex, school, and year of study. Examples of survey questions used in the data analysis are:

Which of the following statements describes what mentoring means to you?

Do you have access to a mentor at the Faculty of Medical Sciences (FMS)?

Do you have access to a mentor outside the FMS?

Style of Mentorship?

How often would you prefer to communicate with your mentor?

Would you prefer to choose your own mentor or have one allocated?

Would you prefer to have a mentor of the same gender?

If a mentorship programme were to be launched tomorrow, would you enrol?

All items used a nominal unit of measurement.

DATA ANALYSIS

Frequency distributions, descriptive statistics, Chi square and Kruskal-Wallis non-parametric statistical tests were conducted to analyse the nominal data using SPSS Version

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24. The response options on the survey were nominal, producing classificatory data and, as such, non-parametric tests were most suitable (Savage, 1957; Siegel, 1957).

RESULTS

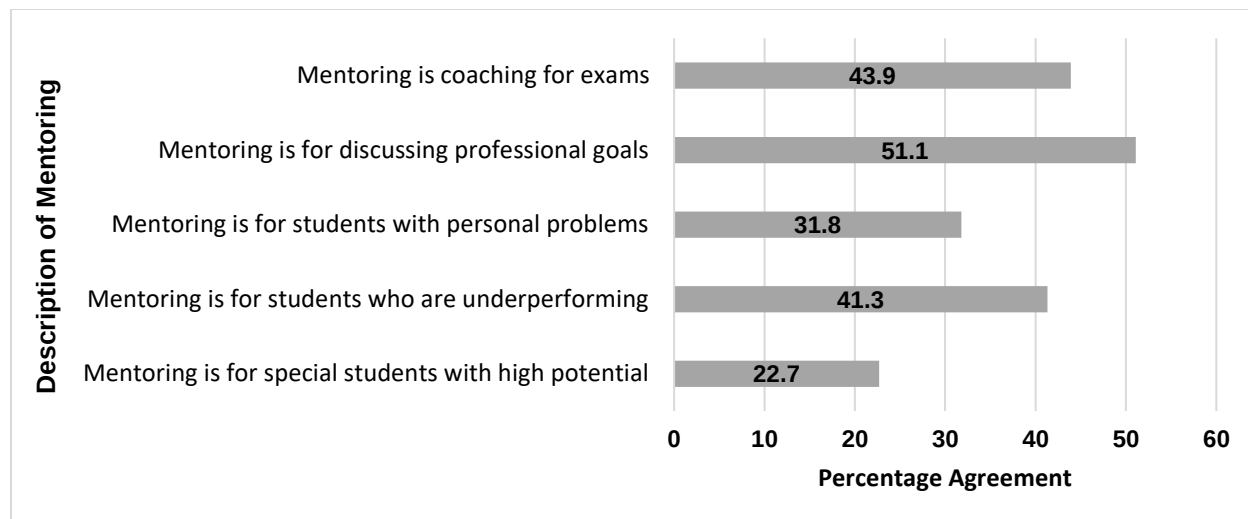
Students' Perceptions of Mentoring

Of the five descriptions of mentoring, the most popular response, endorsed by just over half of the sample, was for discussion of professional goals (N=717, 51.1%), followed by coaching for exams (N=615, 43.9%) and underperforming students (N=579, 41.3%). The least endorsed description was for special students with high potential (N=318, 22.7%), followed by students with personal problems (N=446, 31.8%). See Figure 1.

No significant sex differences were observed. However, agreement varied by both year and school. A Kruskal-Wallis test showed a significant difference ($p = 0.013$, adjusted using a Bonferroni correction) between Year 1 and Year 4 students in which more Year 1 students (26.9%) endorsed mentoring as for high potential students than Year 4 (16.3%) students. No other year comparisons were significant. Among schools, a Kruskal-Wallis test showed a significant difference ($p = 0.027$, adjusted using a Bonferroni correction) between nursing students and medicine students in which significantly fewer nursing students (36%) endorsed mentorship as coaching for exams than medicine students (46%). There was no evidence of a significant difference between other descriptions of mentoring among schools.

Figure 1

Frequency Distribution of Agreement with Descriptions of Mentoring across all Students



Access to a Mentor within the Faculty

A minority of students (N= 204, 14.6%) indicated that they had access to a mentor; 1189 (84.8%) indicated they did not, while 9 students (0.6%) did not give a response. These differences did not vary significantly by sex but did vary by year and school.

Chi-square analysis revealed a significant difference among the proportion of students having access to a mentor across different schools ($\chi^2 = 20.78$, $df = 4$, $p < 0.001$). Percentages ranged from 0% in the school of Nursing to 49.1% in the school of Pharmacy and 71% in the school of Veterinary Sciences. A Kruskal-Wallis test showed these differences (Veterinary vs Nursing and Medicine vs Nursing) to be significantly different ($p < 0.001$, adjusted using a Bonferroni correction). Chi-square analysis revealed a significant difference among the proportion of students having access to a mentor across different years ($\chi^2 = 477.71$, $df = 5$, $p < 0.001$). A Kruskal-Wallis test showed a significant difference (adjusted using a Bonferroni correction) in which the proportion of students having access to a mentor in Year 3 (22.2%), Year 4 (19.7%) and Year 5 (17.7%) were each significantly ($p = 0.017$, $p = 0.005$, $p = 0.037$ respectively) higher than that of Year 1 (10.1%).

Access to Mentor External to the Faculty

The majority of students (1, 254 (89.4%)) indicated that they were not receiving mentorship outside the FMS, while 139 (9.9%) students indicated they were. A significant difference was found between the sexes ($\chi^2 = 5.952$, $df = 1$, $p = 0.015$), with relatively more male (13%,

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N=54) receiving guidance outside the faculty than female students (8.7%, N=85). External mentor access across the different years ranged from 7.45% to 13.1%, while the range across different schools was 7.2% to 14.1%. There were, however, no significant differences by year or school.

Perceived Usefulness of Previous Mentorship

A little over half of students (53%, N = 743) indicated that they had never had a mentor, while 45.4% (N= 637) had previous mentorship. Of these, 23.1% (N = 324) found it useful, 11.5% (N= 161) found it somewhat useful and 10.8% (N = 152) did not find previous mentorship useful. For subsequent analyses, “yes” and “somewhat” responses were combined to determine the percentage of students who perceived previous mentorship as useful. These were compared to the students who did not find previous mentorship useful.

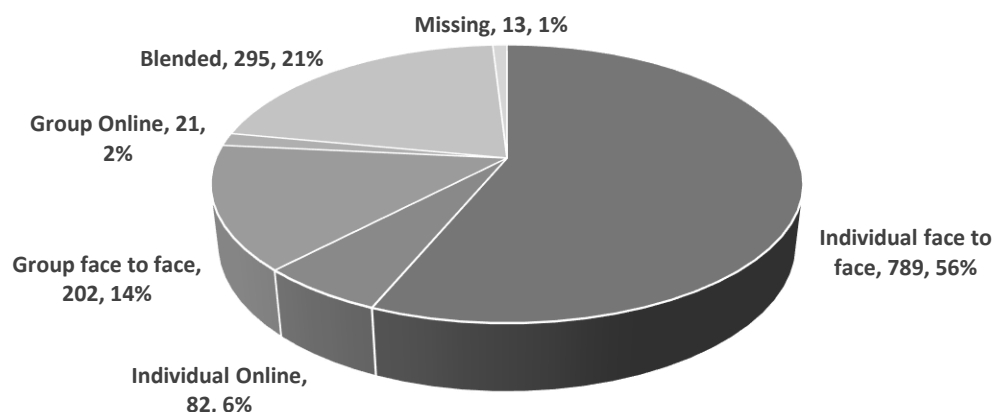
Significantly more male (77.8%, N=126 out of 162 males) found previous mentorship useful than female students (63.1%, N=198 out of 314), ($\chi^2 = 10.654$, $df = 1$, $p = 0.001$). The percentage of students who perceived previous mentorship as useful ranged from 73% among Year 5s to 81.8% among Year 4s and ranged from 64.8% in the Optometry Unit to 87.2% in the school of Pharmacy. No significant difference in perceived usefulness was found across years or schools.

What Style of Mentorship Are You Interested in?

The majority of students (N = 789, 56%) showed preference for an individual, face-to-face mode of mentoring. The next preferred mode was blended (N = 295, 21%) and group, face to face (N=202, 14%). The least preferred modes of mentoring were individual, online (N=82, 6%) and group online (N= 21, 2%), see Figure 2, No significant differences in preference were observed across sex, year, or schools.

Figure 2

Preference for Style of Mentorship



Preferred Frequency of Communication with Mentor

A range of preferred frequency of meetings was endorsed by students in which 42% (N=591) preferred to meet as required while 39% (N = 544) preferred to meet once per week. A further 15% of students (N=218) preferred to meet once a month, while a minority of 3% (N = 37) opted for once per semester. No significant sex or year differences were found. However, students in the School of Veterinary Science had significantly different preferences from those in Medical Sciences, Nursing and Pharmacy, in which they preferred to meet less frequently.

Preferred Format for Mentoring Session

The majority of students (74.3%, N = 1387) preferred a more casual approach to the mentoring relationship, while 24.4% preferred a more structured relationship. Eighteen students (1.3%) endorsed the “other” option and indicated a blend or mix of casual and structured. The “other” group was not included in subsequent analyses. No significant sex or year differences were observed. However, Chi-square analysis revealed a significant difference among schools ($\chi^2 = 40.021$, $df = 5$, $p < 0.001$). A Kruskal-Wallis test found significant differences ($p < 0.05$, adjusted using a Bonferroni correction) between Nursing and Veterinary Sciences, Medicine and Dentistry students in which more Nursing students preferred a structured relationship with their mentor than students in the other three schools. Significant differences were also found between Veterinary Sciences and Pharmacy and Optometry students in which more Veterinary Sciences students preferred a more structured approach than those in the other two schools.

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Preference in Choosing Mentors

There was no outright preference among students for methods of allocating mentors; 525 students (38.4%) preferred to choose their own mentors; 334 (24.5%) preferred to have one allocated to them, and the remaining 364 (37.9%) did not have a preference. A significant sex difference was found ($\chi^2 = 23.476$, $df = 1$, $p < 0.001$) in which more males (73.3%, $N=192$ out of 262) preferred to choose their own mentor when compared to female students (55.8%, $N=333$ out of 597). Significant year differences were also observed ($\chi^2 = 39.346$, $df = 8$, $p < 0.001$), in which significantly more Year 5 students preferred to select their own mentor than Year 1 or Year 4 students. No significant differences were observed among schools.

Type of Mentor

Discipline specialists (28.2%, $N = 396$), faculty members (28.3%, $N = 398$) and alumni (22.4%, $N = 315$) were the most popular options for type of mentor, followed by peers (14.3%, $N=201$), other (2.1%, $N= 29$) and administrators (1.3% $N= 18$). Missing data was recorded in 3.3% ($N=47$) cases. While no significant sex or year differences were found, significantly more Medicine and Veterinary Science students preferred a faculty member as compared to Nursing students who preferred a specialist in the field.

Gender of Mentor

The majority of students (76.2%, $N = 1043$) had no preference regarding the gender of their mentor; 17.7% ($N=242$) preferred a same gender mentor and 6.1% ($N=84$) did not prefer a mentor of the same gender. A comparison of sexes yielded a significant difference ($\chi^2 = 21.254$, $df = 2$, $p < 0.001$). A Kruskal-Wallis test showed a significant difference ($p=0.002$, adjusted using a Bonferroni correction) in which twice as many female students (20.6%, $N=199$ out of 964 males) preferred a same sex mentor as male students did (10.6%, $N=43$ out of 405). No significant differences were observed by year or school.

Enrolment in a Mentorship Programme

When asked whether they would enrol in a mentorship programme, 64.7% of students ($N = 885$) indicated “yes”, 29.9% ($N=409$) were unsure and 5.3% ($N=73$) would not enrol. No sex, year, nor school differences were observed.

DISCUSSION

An analysis of mentorship preferences among undergraduate students was conducted across six schools in the Faculty of Medical Sciences: Medicine, Optometry, Dentistry, Pharmacy, Veterinary Sciences, and Nursing. Associations between preferences and perceptions and students' sex, year of study, and health profession were examined. Sex differences were noted among students' preferences for allocation of mentors. Preferences were split among all three options pertaining to allocating mentors: choosing one, having one allocated or having no preference. However, more male students preferred to choose their own mentor. Also, more males than females found previous mentorship useful. While there was no clear preference for assignment of mentors based on sex, twice as many female students expressed a desire for a same sex mentor when compared to male students. This is convergent with the recommendation of Frei et al. (2010) of matching female students with female mentors so that they may benefit from a mentor who can model balancing work and family life commitments. Exposure to female role models through mentoring may also increase interest in specializations in which women are currently underrepresented (Rohde et al., 2016). Additionally, traditional dyadic mentoring models can be misaligned with some females because it is based on a male socialization model incorporating competition and independence. The prevalence of dyadic models highlights the systematic disadvantage that females experience (Henry-Noel et al., 2018). Multiple mentoring and peer mentoring models offer further scope for equalizing benefits of mentoring for both sexes.

Differences in perception and preferences for students of various health professions were noted in relation to descriptions of mentoring, structure of mentoring and access to mentoring. Fewer Nursing students endorsed mentorship as coaching for exams than Medicine students. While the majority of students preferred a more casual approach to mentorship, more students in the school of Nursing preferred a structured approach when compared to other schools. There were significant differences in the various schools in the number of students having access to a mentor, with percentages ranging from 0% in the school of Nursing to 49.1% in the school of Pharmacy and 71% in the school of Veterinary Sciences. These findings resonate with those of Aagaard & Hauer (2003), Buddeberg-Fischer & Herta (2006) and Sambunjak et al. (2010) who reported wide variance in the prevalence of mentorship among different schools.

Year of study was of significance in relation to students' preferences for allocation of mentors, in that more Year 5 students indicated a preference for choosing their own mentor. Significantly more Year 3, 4 and 5 students had access to a mentor than Year 1 students. Additionally, more Year 1 than Year 4 students endorsed mentoring as being for high potential students. This is consistent with Aagaard & Hauer (2003) and Schekler et al. (2004) who report varying mentorship engagement across year groups.

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In general, the level of endorsement for different descriptions of mentorship varied across students, with the most popular response relating to discussion of professional goals, followed closely by coaching for examinations and guidance for underperforming students. This highlights the fact that students' perceptions of mentoring may deviate from traditional and classic definitions which focus on career development, as espoused by Gisbert (2017) and extend more broadly to other roles for the mentor, as identified by Fallatah et al. (2018). For optimal engagement in mentoring, students should have an accurate perception of the goals of the programme, as indicated by the findings of Fallatah et al. (2018). As such, in designing a mentorship programme, clear expectations and guidelines need to be drafted regarding the purpose and aims of the mentoring relationship, given the range of descriptions endorsed by students with some variations across years and schools.

Non-faculty specialists, faculty members and alumni were the most popular options for this type of mentor. This suggests that some leeway should be provided in choosing and allocating mentors. And there is precedent for this, as some existing mentorship programmes maintain a mentor database that students can access in order to select a potential mentor. Students may also informally pursue mentors. This may provide more options for them to choose from as well as facilitate closer matching of mentors and mentees (Coates et al., 2004; Park et al., 2016). Indeed, flexibility was identified by Tan et al. (2018) as a critical component of an effective mentoring programme.

Few students reported access to a mentor either within or outside of the faculty and this is consistent with reviews and studies that suggest a wide range and, in many instances, a low prevalence of formal mentorship programmes in medical schools (Buddeberg-Fischer & Herta, 2006; Sambunjak et al., 2006). Of the students who had previous mentorship, 76.1% found it useful or somewhat useful, further corroborating the literature which cites perceived benefits of mentorship (Fallatah et al., 2018; Kalén et al., 2015). Furthermore, the majority of students indicated a willingness to enrol in a mentorship programme, mirroring the findings reported by Fallatah et al. (2018).

Regarding the preferences for structure and delivery, students varied in their preferences regarding frequency of meetings, with many preferring a flexible schedule while others preferred a weekly meeting. This range of preference is also endorsed in the literature (Nimmons et al., 2019) and suggests that mentorship programmes may consider allowing mentors and mentees some flexibility in deciding how often they meet. Over half of students preferred an individual face-to-face mode of mentorship while a blended approach and a group face-to-face approach were the next preferred methods. These findings are consistent

with reported variations in student preferences and existing programme formats (Meinel et al., 2011; Nimmons et al., 2019).

It is important to acknowledge, however, that the data was collected prior to the emergence of the COVID-19 pandemic, at a time when fewer components of training and teaching in medical schools were delivered online; therefore, students may have had little familiarity with the online modality. Given the vast and rapid changes in delivery in medical education in response to the pandemic, it is expected that attitudes and preferences towards online mentoring may be more favourable now, in addition to the already recognized advantage of expanding access to, and availability of, mentors (Frei et al., 2010). This potential development should be taken into account when considering student preferences in designing mentorship programmes. Notwithstanding this, while Coates et al. (2004) described the success of their virtual mentorship programme for students and residents interested in Emergency Medicine, Frei et al. (2010) expressed doubts as to whether the essential aims of a mentoring programme could be achieved using a virtual modality.

There were some limitations to the analyses. While participation among male and female students was representative, enrolment figures for individual schools were not available to facilitate disaggregation of the primary data and enable proportionate sampling for each school. A further limitation is that the primary data was related to only the undergraduate student body of the institution. This research utilized a cross-sectional study design and therefore examined students' views at a specific point in time. As such the research analysis could not interrogate nonresponse bias and recall bias in the manner that a longitudinal study may have (Wang & Cheng, 2020).

Given the lack of research in the area of mentoring in the health professions in the Caribbean, and given the variability in findings in the international literature, there is a great need for further study on mentoring perceptions and preferences. Among the promising and important areas for further research suggested by this study are the impact of student choice on mentorship programmes, student and mentor perceptions of modes of mentoring (such as online or hybrid, individual or group), mentoring experiences of different sexes and longitudinal effects of mentoring. Given the benefit of mentoring across professional careers, there is also scope for investigating mentoring among residents and early career health professionals.

CONCLUSION

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While few students in health professions in the current study have access to mentoring, most students endorse the benefits of mentorship and are willing to participate in a mentorship programme. Clear expectations and guidelines need to be communicated regarding the purpose and aims of the mentoring relationship, given the range of descriptions endorsed by students. Given also the range of preferences elicited, a more effective mentorship programme would consider flexibility in the schedule, mode, format and frequency of meeting as well as the type, choice and gender of mentor. Design and delivery of mentorship that are informed by and tailored to suit the needs and preferences of students can promote uptake and adherence to formal mentoring programmes.

Given the findings, an example of a mentorship programme tailored to the results of this analysis would exhibit particular key features. The recommended features of such a model of mentorship for students in health professions would include: 1) clear guidelines to shape students' expectations of the programme; 2) options for students to choose their own mentor; 3) flexibility in how often meetings are required; 4) the modality used for the practice of mentorship (for example online, or in-person; individual or group). Further expansion of this model could incorporate mentor training and development of mentoring styles (Burgess et al., 2018) and the embedding of quality indicators for the programme (e.g., monitoring and evaluation).

REFERENCES

- Aagaard, E. M., & Hauer, K. E. (2003). A cross-sectional descriptive study of mentoring relationships formed by medical students. *Journal of General Internal Medicine*, 18 (4), 298-302.
- Bhatia, A., Singh, N., & Dhaliwal, U. (2013). Mentoring for first year medical students: humanising medical education. *Indian J Med Ethics*, 10 (2), 100-103. 10.20529/ijme.2013.030
- Buddeberg-Fischer, B., & Herta, K. D. (2006). Formal mentoring programmes for medical students and doctors – a review of the Medline literature. *Medical teacher*, 28 (3), 248-257.
- Coates, W. C., Ankel, F., Birnbaum, A., Kosiak, D., Broderick, K. B., Thomas, S., ... & Collings, J. (2004). The virtual advisor programme: linking students to mentors via the world wide web. *Academic Emergency Medicine*, 11(3), 253-255.

- Côté, L., Deschênes, D., Hudon, É., Galarneau, S., & Bolduc, G. (2019). Quebec College of Family Physicians' new formal mentorship programme. *Canadian Family Physician*, 65(11), e481-e486.
- Dalgaty, F., Guthrie, G., Walker, H., & Stirling, K. (2017). The value of mentorship in medical education. *The Clinical Teacher*, 14(2), 124-128.
- Edmunds, L. D., Ovseiko, P. V., Shepperd, S., Greenhalgh, T., Frith, P., Roberts, N. W., Pololi, L. H., & Buchan, A. M. (2016). Why do women choose or reject careers in academic medicine? A narrative review of empirical evidence. *Lancet (London, England)*, 388(10062), 2948-2958. [https://doi.org/10.1016/S0140-6736\(15\)01091-0](https://doi.org/10.1016/S0140-6736(15)01091-0)
- Fallatah, H. I., Soo Park, Y., Farsi, J., & Tekian, A. (2018). Mentoring clinical-year medical students: Factors contributing to effective mentoring. *Journal of Medical Education and Curricular Development*, 5, 2382120518757717.
- Flexman, A. M., & Gelb, A. W. (2011). Mentorship in anesthesia. *Current Opinion in Anesthesiology*, 24(6), 676-681.
- Fornari, A., Murray, T. S., Menzin, A. W., Woo, V. A., Clifton, M., Lombardi, M., & Shelov, S. (2014). Mentoring programme design and implementation in new medical schools. *Medical Education Online*, 19(1), 24570.
- Frei, E., Stamm, M., & Buddeberg-Fischer, B. (2010). Mentoring programmes for medical students – A review of the PubMed literature 2000-2008. *BMC Medical Education*, 10(1), 1-14.
- Gisbert, J. P. (2017). Mentor-mentee relationship in medicine. *Gastroenterología y Hepatología (English Edition)*, 40(1), 48-57.
- Guhan, N., Prakash Krishnan, M. D., Dharshini, P., Abraham, P., & Thomas, S. (2020). The effect of mentorship programme in enhancing the academic performance of first MBBS students. *Journal of Advances in Medical Education & Professionalism*, 8(4), 196.
- Henry-Noel, N., Bishop, M., Gwede, C.K., Petkova, E. & Szumacher, E. (2018). Mentorship in medicine and other health professions. *Journal of Cancer Education*, 38, 629-637.

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- Honavar, S. G. (2019). Mentoring is a serious business. *Indian Journal of Ophthalmology*, 67(12), 1915.
- Jim, B., & Yee, J. (2018). Mentorship in medicine and nephrology: More important than ever. *Advances in Chronic Kidney Disease*, 25(6), 514-518.
- Jokelainen, M., Turunen, H., Tossavainen, K., Jamookeeah, D., & Coco, K. (2011). A systematic review of mentoring nursing students in clinical placements. *Journal of Clinical Nursing*, 20 (19-20), 2854-2867.
- Kalén, S., Ponzer, S., Seeberger, A., Kiessling, A., & Silén, C. (2015). Longitudinal mentorship to support the development of medical students' future professional role: A qualitative study. *BMC Medical Education*, 15(1), 1-10.
- Kman, N. E., Bernard, A. W., Khandelwal, S., Nagel, R. W., & Martin, D. R. (2013). A tiered mentorship programme improves number of students with an identified mentor. *Teaching and Learning in Medicine*, 25(4), 319-325.
- Meinel, F. G., Dimitriadis, K., von der Borch, P., Störmann, S., Niedermaier, S., & Fischer, M. R. (2011). More mentoring needed? A cross-sectional study of mentoring programmes for medical students in Germany. *BMC Medical Education*, 11(1), 1-11.
- Niehoff, B. P., Chenoweth, P., & Rutti, R. (2005). Mentoring within the veterinary medical profession: Veterinarians' experiences as protégés in mentoring relationships. *Journal of Veterinary Medical Education*, 32(2), 264-271.
- Nimmons, D., Giny, S., & Rosenthal, J. (2019). Medical student mentoring programmes: Current insights. *Advances in Medical Education and Practice*, 10, 113.
- Park, J. J., Adamiak, P., Jenkins, D., & Myhre, D. (2016). The medical students' perspective of faculty and informal mentors: A questionnaire study. *BMC Medical Education*, 16 (1), 1-7.
- Patel, D., Windish, D., & Hay, S. (2020). A mentor, advisor, and coach (MAC) programme to enhance the resident and mentor experience. *MedEdPORTAL*, 16, 11005.

- Pinilla, S., Pander, T., von der Borch, P., Fischer, M. R., & Dimitriadis, K. (2015). 5 years of experience with a large-scale mentoring programme for medical students. *GMS Zeitschrift für Medizinische Ausbildung*, 32(1).
- Riaz, Q., Sadaf, S., & Talpur, A. H. (2016). Learning environment: Students' perceptions using DREEM inventory at an optometry institute in Pakistan. *Optometric Education*, 42 (1).
- Rohde, R. S., Wolf, J. M., & Adams, J. E. (2016). Where are the women in orthopaedic surgery? *Clinical Orthopaedics and Related Research*, 474(9), 1950-1956.
- Sambunjak, D., & Straus, S. E. (2010). Marušić, A. mentoring in academic medicine – A systematic review. *JAMA*, 296, 1103-1115.
- Savage, I. R. (1957). Nonparametric statistics. *Journal of the American Statistical Association*, 52(279), 331-344.
- Scheckler, W. E., Tuffli, G., Schalch, D., MacKinney, A., & Ehrlich, E. (2004). The class mentor programme at the University of Wisconsin medical school: A unique and valuable asset for students and faculty. *WMJ*, 103(7), 46-50.
- Siegel, S. (1957). Nonparametric statistics. *The American Statistician*, 11(3), 13-19.
- Skjevik, E. P., Boudreau, J. D., Ringberg, U., Schei, E., Stenfors, T., Kvernenes, M., & Ofstad, E. H. (2020). Group mentorship for undergraduate medical students – A systematic review. *Perspectives on Medical Education*, 9 (5), 272-280.
- Tan, Y. S., Teo, S. W. A., Pei, Y., Sng, J. H., Yap, H. W., Toh, Y. P., & Krishna, L. K. (2018). A framework for mentoring of medical students: Thematic analysis of mentoring programmes between 2000 and 2015. *Advances in Health Sciences Education*, 23(4), 671-697.
- Wang, X., & Cheng, Z. (2020). Cross-sectional studies – Strengths, weaknesses and recommendations. *CHEST*, 158 (1S). <https://doi.org/10.1016/j.chest.2020.03.012>
- Yue, J. J., & Chen, G. (2020). Competence of pharmacy mentors: A survey of the perceptions of pharmacy postgraduates and their mentors. *BMC Medical Education*, 20 (1), 1-9.

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Zerzan, J. T., Hess, R., Schur, E., Phillips, R. S., & Rigotti, N. (2009). Making the most of mentors: A guide for mentees. *Academic Medicine*, 84(1), 140-144.

Zuzuárregui, J. R. P., & Hohler, A. D. (2015). Comprehensive opportunities for research and teaching experience (CORTEX): A mentorship programme. *Neurology*, 84(23), 2372-2376.

ACKNOWLEDGEMENT

Dr. Jessica Oura member of the Faculty of Medical Sciences, Academic Advising and Mentoring Sub-Committee (2017) who developed the survey.