



BMJ Open Student and clinician perceptions of medical student mistreatment: a cross-sectional vignette survey

Dane Christopher Peckston ¹, Rachel Urwin,² Ryan McMullan ²,
Johanna Westbrook²

To cite: Peckston DC, Urwin R, McMullan R, *et al.* Student and clinician perceptions of medical student mistreatment: a cross-sectional vignette survey. *BMJ Open* 2022;**12**:e061253. doi:10.1136/bmjopen-2022-061253

► Prepublication history and additional supplemental material for this paper are available online. To view these files, please visit the journal online (<http://dx.doi.org/10.1136/bmjopen-2022-061253>).

Received 20 January 2022
Accepted 22 August 2022



© Author(s) (or their employer(s)) 2022. Re-use permitted under CC BY-NC. No commercial re-use. See rights and permissions. Published by BMJ.

¹Faculty of Medicine, Health and Human Sciences, Macquarie University, Sydney, New South Wales, Australia

²Australian Institute of Health Innovation, Macquarie University, Sydney, New South Wales, Australia

Correspondence to

Dr Dane Christopher Peckston;
dcapeckston@gmail.com

ABSTRACT

Objectives The mistreatment of medical students remains pervasive in medical education. Understanding the extent to which clinicians and students recognise mistreatment can assist in creating targeted interventions that reduce mistreatment. The objective of this study was to use clinical vignettes to assess perceptions of medical student mistreatment among medical students and clinical faculty at an Australian university.

Design, setting and participants This cross-sectional study used a survey of medical students and clinical faculty in a Doctor of Medicine (MD) programme at Macquarie University in Sydney, Australia. Data were collected via an online survey between 13 July and 27 July 2020.

Outcome measures Fourteen clinical vignettes were developed based on commonly reported themes of mistreatment. An additional control vignette was also included, and these 15 vignettes were distributed via email to all 169 MD students and 42 teaching faculty at this teaching site. Participants were asked to rate whether the vignettes portrayed mistreatment on a 5-point Likert scale (strongly disagree to strongly agree).

Results Respondents included 83 MD students and 34 clinical faculty. On average, students perceived mistreatment in 9 of 14 vignettes and faculty in 8 of 14 vignettes. Faculty and student perceptions aligned in themes of sexual abuse, physical abuse and in the control vignette depicting a constructive teaching style. Perceptions differed significantly between faculty and students ($p < 0.05$) for five vignettes across the themes of gender discrimination, requests of students to perform non-educational tasks, humiliation, specialty choice discrimination and requests to perform a task beyond the student's capacity.

Conclusion Agreement on what constitutes appropriate behaviour is crucial to ensuring that a culture of mistreatment can be replaced with one of kindness, equity and respect. This study demonstrated the successful use of vignettes to compare perceptions of mistreatment, with faculty and student perceptions differing across a variety of themes.

INTRODUCTION

Medical student mistreatment encompasses a spectrum of behaviours which can negatively impact medical students on clinical

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ Successfully identifies themes of medical student mistreatment where perceptions between staff and students differ therein adding to the limited international and Australian data on the underlying factors which contribute to the culture of mistreatment of medical students.
- ⇒ Builds on previous vignette studies to further compare perceptions of mistreatment between medical students and staff, through development of a vignette set which addresses more subtle forms of mistreatment.
- ⇒ Simple and repeatable design with a set of vignettes based on evidence-based themes which can be used at other institutions and longitudinally at Macquarie University to further study and to also educate staff and students on mistreatment.
- ⇒ The study showed that the short vignette set used could be further refined and extended in future studies to further tease out the potential differences between staff and students and better understand the culture of mistreatment in medical education.
- ⇒ The study had a small sample size and was limited to a single Australian institution.

rotations.^{1 2} Commonly reported types of mistreatment include neglect, humiliation, verbal abuse, gender discrimination, sexual harassment, requests to perform non-educational tasks and specialty choice discrimination.^{1 3 4} The effects of medical student mistreatment include fear, self-doubt, burnout, change in specialty choice, depression and even suicidal ideation.^{3 5-9} Mistreatment has also been demonstrated to negatively impact communication within medical teams and ultimately impact quality of care and patient safety.¹⁰⁻¹²

The mistreatment of medical students is a long-standing issue with studies from the early 1990s indicating that up to 85% of medical students experienced mistreatment.^{2 3 13} Subsequent studies indicate an ongoing, widespread problem; a systematic review of 51 studies on medical student

experiences between 1987 and 2011 indicated that 59.4% of trainees had experienced at least one form of harassment during their training and that this rate had not declined over time.⁴ A 2005 Finnish study of 665 students found that medical students reported every form of mistreatment more commonly than those in the Faculties of Humanities, Education, Sciences and Technology.¹⁴ These behaviours are perhaps passed on from teacher to learner, resulting in a transgenerational culture whereby mistreatment is perpetuated by those who themselves have been mistreated.^{2 15} Barriers to change include inadequate recognition and disagreement between faculty and students of what constitutes mistreatment.¹⁶ Appropriate conduct should be defined explicitly in terms of what is acceptable behaviour. A mutual understanding of mistreatment is essential for developing a positive learning environment.^{10 17}

Previous research has indicated that clinical vignettes can be used in combination with structured discussion to educate around appropriate behaviours and lead to alignment in perceptions of what constitutes mistreatment.^{16 18 19}

Research by Kulaylat *et al*²⁰ and Ogden *et al*²¹ demonstrated the successful use of vignettes to compare perceptions of mistreatment between students and staff. A key difference between these studies was the type of vignettes used. Ogden *et al* applied vignettes demonstrating quite overtly abusive behaviours, while Kulaylat *et al* used vignettes portraying more subtle demonstrations of mistreatment. It is these subtle and more frequent forms of mistreatment that lead to a suboptimal learning environment which our study set out to investigate.²²

The aim of our study was to examine and compare the perceptions of medical students and teaching clinicians of mistreatment using clinical vignettes. We considered the aforementioned spectrum of mistreatment by defining mistreatment as unprofessional behaviours on behalf of the medical educator, which negatively impact the learning experience of the student. The university, from which participants were recruited, presented a unique setting to investigate this topic as its medical programme first commenced in 2018. Therefore, the Doctor of Medicine (MD) programme did not have a pre-existing, ingrained culture. Examination of the perceptions of student mistreatment thus had the potential to identify areas requiring early intervention, in order to lay a strong foundation for a positive culture of respect from the outset.

METHODS

Study design and participants

A cross-sectional survey was distributed by email to all 169 medical students and 42 faculty participating in the medical programme at Macquarie University in Sydney, Australia. The survey was open for 14 days in July 2020 with reminder emails being sent on days 7 and 12. Recruitment was promoted through closed student social

media groups. Participants consented to participation, they were able to leave the survey at any time and there was no consequence for not participating, nor for submitting an incomplete survey.

Survey instrument

Previous studies have successfully used clinical vignettes to measure perceptions of medical student mistreatment.^{20 21} We developed 15 clinical scenarios in the form of written vignettes (see online supplemental appendix 1). Fourteen of these portrayed commonly reported forms of mistreatment, including neglect, humiliation, verbal abuse, gender discrimination, sexual harassment, requests to perform non-educational tasks and specialty choice discrimination.^{3 4 18 20 21} One vignette was developed to demonstrate an effective teaching style which avoids mistreatment by facilitating self-education (vignette 11—online supplemental appendix 1). The vignettes were drafted by the authors and then piloted by 10 students enrolled in the university's MD programme, and three researchers from the Australian Institute of Health Innovation. The vignettes were refined by incorporating the feedback collected from this pilot. The survey was designed in the web-based Qualtrics Survey application.²³ The survey first asked participants their age, gender, stage of training or faculty position. The survey then asked participants to rate the 15 clinical vignettes on a 5-point Likert scale (*strongly disagree, disagree, neutral, agree, strongly agree*) in response to the question; to what degree do you agree/disagree that this scenario demonstrates unprofessional behaviour? The Qualtrics Survey application provides the investigator with the Internet Protocol (IP) address of the survey respondents, which were screened to ensure that no single participant responded more than once to the survey.

Analysis

Survey responses were analysed using IBM Statistical Package for the Social Sciences (SPSS V.26). Descriptive statistics were used to summarise the demographic characteristics of the participants and their responses to the vignettes. Given that the survey yielded ordinal Likert data, median and interquartile range (IQR) were used. A Mann-Whitney U test was used to compare whether there was a significant difference between students and faculty response for each vignette. This non-parametric test was performed as the data were not normally distributed.

Patient and public involvement

The study involved human participants. They gave informed consent to participate in the study before taking part. There was no patient involvement.

RESULTS

A total of 117 participants completed the survey (83 students and 34 faculty). The response rate for students and staff was 49.1% and 81%, respectively. Participant

Table 1 Demographics of staff and student participants

| Staff | | Student | |
|-------------------|-----------|-------------------|-----------|
| Characteristic | n (%) | Characteristic | n (%) |
| Total Respondents | 34 (29.1) | Total Respondents | 83 (70.9) |
| Gender | | Gender | |
| Male | 18 (52.9) | Male | 33 (39.8) |
| Female | 16 (47.1) | Female | 50 (60.2) |
| Age | | Age | |
| 18–24 | 1 (2.9) | 18–24 | 60 (72.3) |
| 25–34 | 3 (8.8) | 25–34 | 23 (27.7) |
| 35–44 | 9 (26.5) | Stage of training | |
| 45–54 | 13 (38.3) | 1st Year | 31 (36.9) |
| 55–64 | 6 (17.6) | 2nd Year | 35 (41.7) |
| 65+ | 2 (5.9) | 3rd Year | 17 (21.4) |
| Stage of training | | | |
| Resident | 0 | | |
| Consultant | 24 (70.1) | | |
| Medical educator | 8 (23.5) | | |
| Researcher | 2 (6.4) | | |

demographics are summarised in [table 1](#). The student cohort was majority female (60.2%), and the faculty cohort was majority male (52.9%). The students' age ranged from 18 to 34, whereas the staff age ranged from 18 to 65+, with majority of the staff being in the groups of 35–54. There was a higher response rate from the first year and second year students, compared with the third year students. The majority of the staff respondents were consultants (70.1%)—being physicians employed by the university to teach medical students who have completed fellowship training in their respective specialty. Medical educators and researchers were those respondents employed by the faculty to teach medical students, however, may not be practising physicians themselves.

[Table 2](#) presents the median Likert response (out of 5) and the corresponding first and third interquartiles for the faculty and student cohorts. These have been presented for each of the vignettes grouped into their respective themes of mistreatment. The higher the median, the greater the respondent agreement that the scenario portrayed mistreatment. A median greater than 3 suggests that the median response for the cohort was in agreement that the vignette exhibited mistreatment. This table also presents the Mann-Whitney U test results for each of the vignettes.

The median response of the faculty agreed (median >3) that 8 of the 14 vignettes (V1–V5, V9, V10, V12) portrayed mistreatment, whereas the median response of the students agreed (median >3) that 9 of the 14 vignettes (V2–V6, V8, V9, V10, V12) portrayed mistreatment. The median response of the faculty disagreed (median <3)

that V7, V11 and V15 portrayed mistreatment, and the median response of the students disagreed (median <3) that V7, V11 and V14 portrayed mistreatment. Both faculty and students recognised that the control vignette (V11) did not represent mistreatment, with the median response being 2 for both cohorts.

Using the Mann-Whitney U test, we found a significant difference between faculty and student responses for vignettes V2, V4, V12, V14 and V15. For both vignette 2 (consultant laughs at a student's mistake) and vignette 4 (student asked to get a consultant's breakfast), [figure 1](#) demonstrates that a higher proportion of faculty compared with students agreed that mistreatment was portrayed. Conversely, for vignette 12 (student asked to take blood while lacking confidence in the skill), a higher proportion of students agreed that this was mistreatment. For vignette 14 (female student asked to attend female patient), a higher proportion of students compared with faculty disagreed that this was mistreatment—with the faculty's median response being neutral for this vignette. For vignette 15 (aspiring radiologists told to consider another specialty), a higher proportion of faculty compared with students disagreed that this was mistreatment—with the students' median response being neutral for this vignette.

For the theme of general neglect, both cohorts' median response agreed that V4 and V9 portrayed mistreatment. [Figure 1](#) demonstrates that a higher proportion of faculty agreed in V1, V4 and V9. Within the theme of specialty choice discrimination, a higher proportion of students agreed that the vignettes portrayed mistreatment in all three vignettes, although only statistically significant in V15. In V7 (female student told to reconsider surgical career if she wants children), both cohorts' median response disagreed that this portrayed mistreatment. For the theme of gender discrimination, both cohorts' median response for V3 (female student disadvantaged due to gender) agreed that the vignette portrayed mistreatment; however, in V14 (male student disadvantaged due to his gender), the median student response disagreed, and the median faculty response was neutral. For the themes of belittlement/humiliation and sexual harassment, [figure 1](#) demonstrates significant proportions of both staff and students agreeing that these vignettes exhibited mistreatment. Notably, only approximately half of both faculty and students agreed that the physical abuse vignette (V13: student attempting venous access is pushed out of the way) portrayed mistreatment.

DISCUSSION

This study used 15 clinical vignettes to examine perceptions of medical student mistreatment and compare differences in the views of students and the clinical faculty involved in their education. Overall, the median faculty response agreed that mistreatment was portrayed in 8 of the 14 vignettes (57%), and the median student response agreed that mistreatment was portrayed in 9 of the 14

Table 2 Median Likert, IQR and Mann-Whitney U test outcomes for survey responses to the vignettes in faculty and student cohorts

| Vignette | Faculty | Student | MWU |
|--|----------------|----------------|------------------------------------|
| | Median (Q1–Q3) | Median (Q1–Q3) | Faculty versus students P value |
| General neglect/requests to do non-educational tasks | | | |
| V1: student told to sit quietly in corner to not disrupt a busy clinic. | 4 (3–4) | 3 (2–4) | 0.061 |
| V4: student asked to collect consultant's breakfast from café. | 5 (4–5) | 4 (4–5) | 0.009 |
| V6: consultant calls student 45 min after meeting time to inform them they will be a further hour late. | 3 (2–4) | 4 (2–4) | 0.127 |
| V9: student asked to type up stack of handwritten clinic notes instead of teaching them during clinic. | 4 (3–4) | 4 (3–4) | 0.420 |
| Specialty choice discrimination | | | |
| V7: female student wanting to do surgery told to reconsider if she wants children in the future. | 2 (2–2) | 2 (2–3) | 0.099 |
| V8: surgeon lets aspiring surgeon scrub in instead of aspiring physician. | 3 (2–4) | 4 (3–4) | 0.058 |
| V15: aspiring radiologist told to consider other specialties that would be more fun. | 2 (2–3) | 3 (2–4) | 0.035 |
| Belittlement/humiliation | | | |
| V2: consultant laughs with patient while student attempts X-ray interpretation incorrectly. | 4 (4–5) | 4 (3–4) | 0.003 |
| V10: student called idiot for forgetting part of a physical examination. | 5 (5–5) | 5 (4–5) | 0.140 |
| Gender bias/discrimination | | | |
| V3: male student gets to scrub in instead of female student so he can hold a 'heavy' leg. | 4 (3–4) | 4 (3–4) | 0.601 |
| V14: female student given opportunity to practise chest examination on a female patient instead of male student. | 3 (2–4) | 2 (2–3) | 0.026 |
| Sexual harassment | | | |
| V5: consultant complementing female student's appearance. | 4 (3–5) | 4 (3–4) | 0.387 |
| Control – positive reinforcement teaching | | | |
| V11: student asked to review ECG interpretation after making mistake the first time. | 2 (1–2) | 2 (1–2) | 0.708 |
| Request to perform task beyond capacity | | | |
| V12: student asked to take bloods despite not being confident to do so. | 4 (3–4) | 4 (4–5) | 0.002 |
| Physical abuse | | | |
| V13: student attempting venous access in emergency is pushed out of way for being too slow. | 3 (2–4) | 3 (2–4) | 0.817 |

P<0.05.

Likert scale: 1 (strongly disagree), 2 (disagree), 3 (neutral), 4 (agree), 5 (strongly agree).

MWU, Mann-Whitney U test; Q1, first quartile; Q3, third quartile.

(60%). Both faculty and students recognised that the control vignette did not represent mistreatment. Faculty and student perceptions were different for 5 of the 15 vignettes. This occurred across the themes of humiliation, neglect, gender discrimination, specialty choice discrimination and requests of students to perform a task beyond their capacity. Perceptions were found to align across the themes of sexual abuse, physical abuse and constructive feedback. Thus, while most participants accurately recognised mistreatment described in the vignettes, there were several themes where mistreatment was not recognised. Overall, there was close alignment

in the views of faculty and students but also important differences.

Specialty choice discrimination involves comments and discriminatory behaviours by clinical supervisors which may discourage students from pursuing certain specialties based on the supervisors' preconceptions and biases.^{24–26} Three vignettes illustrated this theme (V7, V8 and V15). For V15, an aspiring radiologist is told to consider other specialties that would be more fun. Students' responses were neutral, whereas staff mostly disagreed that this was mistreatment. This may reflect that supervisors often consider this type of comment light-hearted, contributing

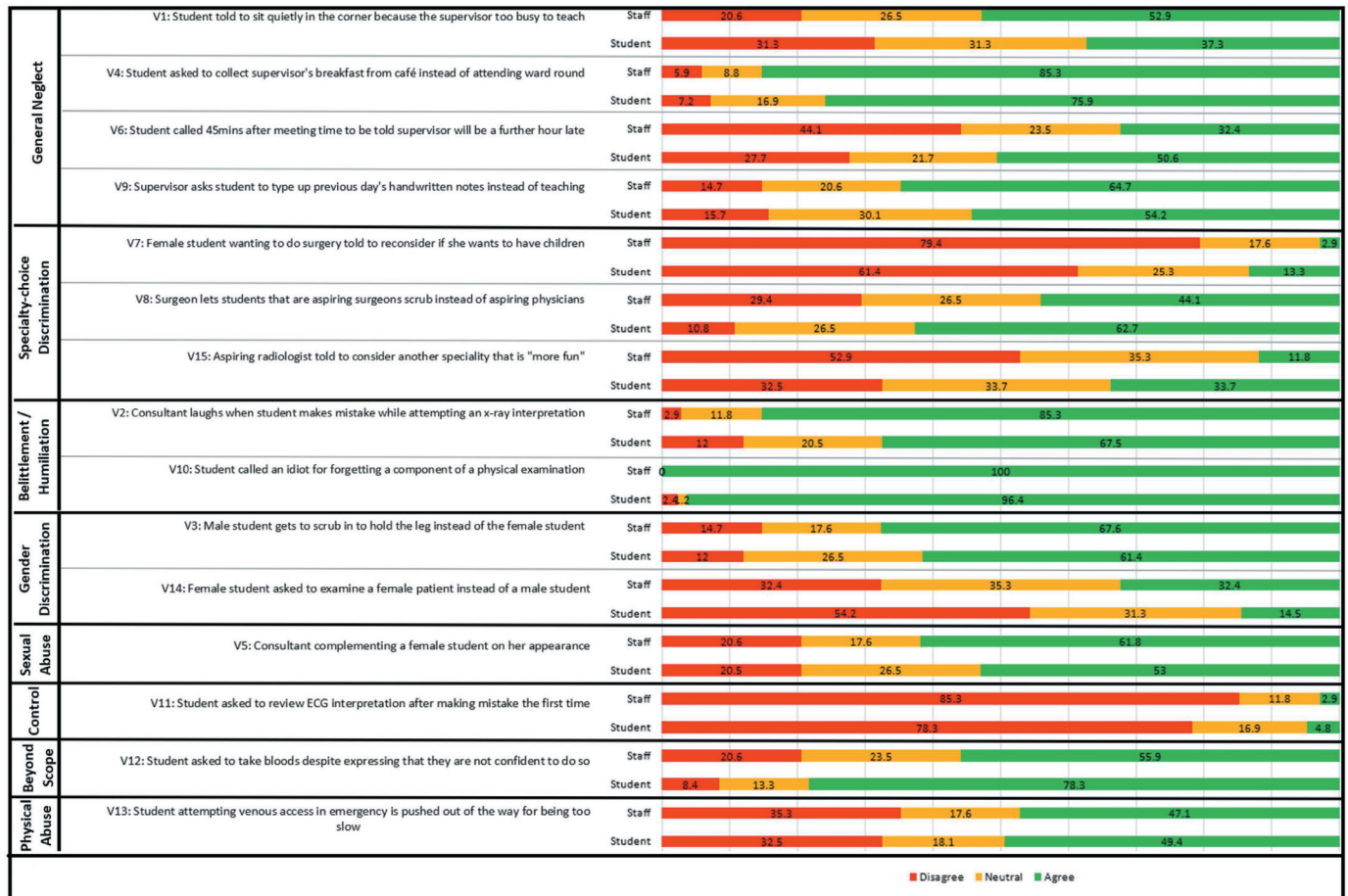


Figure 1 Proportion of student and staff responses in reporting their level of agreement that vignettes exhibited mistreatment. In this figure, the 5-point Likert data were categorised into three groups; disagree (strongly disagree or disagree), neutral and agree (strongly agree or agree), and used to graphically illustrate and compare responses of staff and students within each of the respective themes of mistreatment.

to the flippant and frequent nature in which these comments are passed onto medical students as a form of ‘banter’.^{2 24} More concerning was the finding that both students and faculty disagreed that V7 (which illustrates a female medical student being discouraged from a career in surgery if she wanted to have children) portrayed mistreatment. Our results suggest an embedded belief by both faculty and students that this vignette represents a true statement, namely that for women, seeking a surgical specialty is incompatible with having children. Whether the inclusion of a female consultant delivering this information in the vignette influenced respondents is unknown. However, given the prominence of evidence about the extent to which female students are known to experience discrimination and be dissuaded from pursuing a career in surgery,^{8 27} it is disquieting that faculty respondents disagreed that this vignette represented inappropriate behaviour. Career counselling is crucial for medical students, particularly in their clinical years, but unfortunately advice is often given informally and inappropriately based on stereotyped opinions of various specialties.²⁸ These comments have the capacity to sway students into being dishonest about their career aspirations and may result in them shifting their career

paths from their genuine interests.^{25 28} Our findings highlight that this is an area which requires further attention to ensure faculty understand the potential ramifications of negative comments made about a student’s choice of specialty.

There are a variety of clinical situations that create unequal training conditions for both male and female students.²⁹ The theme of gender discrimination was explored in V3 (discrimination of a female) and V14 (discrimination of a male). In both vignettes, a higher proportion of faculty than students (V3—67% staff and 61% students; V14—32% staff and 15% students) agreed that the vignettes portrayed mistreatment. This difference was found to be statistically significant in V14 ($p=0.026$). Interestingly, participants were much more likely to agree that it was mistreatment when it was a female student compared with when it was a male student being discriminated against. In fact, in V14 where a male is discriminated against, the median student response disagreed that it was mistreatment, and the staff cohort formed a neutral response. Gender discrimination is more likely to influence female students’ specialty choice,⁸ whereas males are more likely to report that their gender negatively impacted their clinical experience during rotations



such as obstetrics and gynaecology.³⁰ These findings highlight that this theme of mistreatment requires further understanding. These differences in perceptions could be explored through educational sessions for staff and students that focus on defining mistreatment in the clinical setting and specifically addressing how gender discrimination may adversely impact both male and female students uniquely.

V12 depicted a student being requested to complete a procedural task on a patient, despite admitting to the supervising clinician that he is not confident performing this task. Students were significantly more likely than staff to agree that this vignette portrayed mistreatment. Several studies have indicated that this experience is common. For example, Hicks *et al* found that nearly half of all medical students reported being placed in clinical situations which require them to act unethically, such as being given responsibilities beyond their capacity.³¹ Education around this theme should consider the ethical conflict for students around their duty to put the safety of patients first, while also having an obligation to learn skills necessary for future patient care.³² Students should understand the importance of playing an active role in the clinical team to become adequately trained, but also be provided with skills to navigate situations where a supervising physician makes a request for which the student believes they are not competent to perform. Supervising physicians also require training in skills to support students in such situations.

V13 portrayed physical abuse whereby a student is physically pushed by a senior physician to gain access to a patient in an emergency. Less than half of both staff and student participants agreed that this portrayed mistreatment of the medical student, and both groups' median response was neutral. Although an emergency, it should be apparent to all staff and students that this sort of physicality is unnecessary and belittling. At times, physicality may assist, particularly in an emergency; however, the same effect should be able to be achieved with verbal instruction from a senior. The failure of students to interpret this as mistreatment suggests a level of acceptance of this behaviour and warrants further exploration with more extensive vignettes on this theme to draw firm conclusions.

Implications

Within the field of medicine, there exists a hidden curriculum where much of medical education occurs outside of the formal curriculum and can embody a variety of unpleasant attitudes and behaviours that occur in the clinical setting.^{29 33} Gan and Snell²² suggest that frequent, subtle and adverse behaviours can lead to a suboptimal learning environment for medical students. Furthermore, within this hidden curriculum, behaviours are perpetrated and then passed from teacher to learner. To overcome this culture, it is important that the medical community collectively understands what constitutes mistreatment. The results from our study highlight that

for several themes of mistreatment there exist differences in perceptions between staff and students. Research by Kulaylat *et al*¹⁶ has shown that workshops for staff and students which aim to better define mistreatment can be helpful in shifting attitudes. Their research found that trainees often commence medical school with discordant views on learner mistreatment, but following onboarding sessions, there is a reduction in variability in perceptions of unprofessional behaviours.¹⁶ Our study highlights the potential role for vignettes as an educational tool for such onboarding sessions, through their demonstrable usefulness in examining perceptions of mistreatment. These sessions could use vignettes as a tool to have open discussion in an in-person forum with students and teachers. This would allow both groups to provide insight into their perceptions, while also having a neutral panel from the institutions that can potentially correct certain perceptions that do not align with the desired training culture. Further, vignette studies can be used to support evidence-based approaches to teaching practices and positively shape educational culture.

Strengths and limitations

The strengths of this study include that it successfully investigated perceptions of mistreatment through clinical vignettes, highlighting several themes where perceptions between staff and students differ. This expands our understanding of learner mistreatment, adding to the limited data on the underlying factors which may contribute to the culture of mistreatment of medical students. Furthermore, it builds on previous vignette studies, through development of a vignette set which addresses more subtle forms of mistreatment. Finally, it does this through using a simple and repeatable design with a set of vignettes based on evidence-based themes of mistreatment which may be used at other institutions and longitudinally at Macquarie University.

This study had several limitations. The sample size was small and limited to a single academic institution and therefore may not reflect the perceptions of students and staff from other institutions. Additionally, the response rate for students was only 49.1% and so may not have been reflective of the whole student body. The vignettes involved the mistreatment of medical students by teaching physicians which may result in group membership bias when interpreting the vignettes, such that students and staff may give concession to the person in the vignette from the same group as themselves. Finally, the vignettes were developed based on evidence-based themes of mistreatment, however, did not address all types of mistreatment. The themes of mistreatment were not obtained through validated quantitative methods and could have failed to identify forms of mistreatment that are not well documented in the current literature. Additionally, the vignettes were designed to address subtle forms of mistreatment and as a result, the nature of these vignettes may have made it more difficult to tease out differences in the perceptions between the two

groups. The final limitation noted by the authors was that the vignettes were limited to the clinical setting. Future research could include additional vignettes of learning in the non-clinical environment to broaden the transferability of the findings.

Recommendations

Future research should further refine and extend such vignettes to examine the perceptions of students and faculty of mistreatment. They should explore a greater variety of forms of mistreatment, while having several vignettes for each theme to better tease out the differences in perceptions. Larger studies across multiple institutions would provide a better understanding of the differences in perceptions, particularly by comparing responses from universities with a long history of medical education with those with younger programmes. This could provide better insight into the behaviours that are perceived differently and consequently those that need to be explored when defining mistreatment in onboarding sessions for medical students and clinical faculty. Longitudinal studies could further investigate if there is a point in time where perceptions shift, and if so, determine when perceptions between students and clinicians begin to align.

CONCLUSION

Perceptions of medical mistreatment during training were found to differ between faculty and students across several themes. Establishing alignment of perceptions is essential to ensure that this transgenerational culture of mistreatment can be replaced with a culture of kindness, equity, patience and respect. This study has highlighted the efficacy of clinical vignettes in assessing perceptions and suggests a potential role for their use in clinical workshops which seek to better define mistreatment and ultimately change these pervasive behaviours. Further studies investigating the perceptions of medical student mistreatment are crucial to better understanding learner mistreatment in medical education.

Contributors All authors (DCP, RU, RM and JW) made substantial contributions to the study. DCP was responsible for study conception, design, survey distribution, statistical analysis and preparation of the final manuscript. RU contributed to the planning, design and drafting of the manuscript. RM contributed to planning, development of the Qualtrics Survey, distribution of the survey, acquisition of data and manuscript drafting. JW contributed to development of concept, planning, design and drafting of the manuscript. DCP is responsible for the overall content as guarantor of the study.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Patient consent for publication Not applicable.

Ethics approval This study involves human participants and was approved by the Macquarie University Human Research Ethics Committee (reference: 5359). Participants gave informed consent to participate in the study before taking part.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement All data relevant to the study are included in the article or uploaded as supplementary information.

Supplemental material This content has been supplied by the author(s). It has not been vetted by BMJ Publishing Group Limited (BMJ) and may not have been peer-reviewed. Any opinions or recommendations discussed are solely those of the author(s) and are not endorsed by BMJ. BMJ disclaims all liability and responsibility arising from any reliance placed on the content. Where the content includes any translated material, BMJ does not warrant the accuracy and reliability of the translations (including but not limited to local regulations, clinical guidelines, terminology, drug names and drug dosages), and is not responsible for any error and/or omissions arising from translation and adaptation or otherwise.

Open access This is an open access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited, appropriate credit is given, any changes made indicated, and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/4.0/>.

ORCID iDs

Dane Christopher Peckston <http://orcid.org/0000-0003-2837-0612>

Ryan McMullan <http://orcid.org/0000-0003-4992-3626>

REFERENCES

- Mavis B, Sousa A, Lipscomb W, *et al*. Learning about medical student mistreatment from responses to the medical school graduation questionnaire. *Acad Med* 2014;89:705–11.
- Kassebaum DG, Cutler ER. On the culture of student abuse in medical school. *Academic Medicine* 1998;73:1149–58.
- Sheehan KH, Sheehan DV, White K, *et al*. A pilot study of medical student 'abuse'. Student perceptions of mistreatment and misconduct in medical school. *JAMA* 1990;263:533–7.
- Fnais N, Soobiah C, Chen MH, *et al*. Harassment and discrimination in medical training: a systematic review and meta-analysis. *Acad Med* 2014;89:817–27.
- Ishak WW, Lederer S, Mandili C, *et al*. Burnout during residency training: a literature review. *J Grad Med Educ* 2009;1:236–42.
- Cook AF, Arora VM, Rasinski KA, *et al*. The prevalence of medical student mistreatment and its association with burnout. *Acad Med* 2014;89:749–54.
- Richman JA, Flaherty JA, Rospenda KM, *et al*. Mental health consequences and correlates of reported medical student abuse. *JAMA* 1992;267:692–4.
- Stratton TD, McLaughlin MA, Witte FM, *et al*. Does students' exposure to gender discrimination and sexual harassment in medical school affect specialty choice and residency program selection? *Acad Med* 2005;80:400–8.
- Schuchert MK. The relationship between verbal abuse of medical students and their confidence in their clinical abilities. *Acad Med* 1998;73:907–9.
- Leape LL, Shore MF, Dienstag JL, *et al*. Perspective: a culture of respect, part 1: the nature and causes of disrespectful behavior by physicians. *Acad Med* 2012;87:845–52.
- Riskin A, Erez A, Foulk TA, *et al*. The impact of Rudeness on medical team performance: a randomized trial. *Pediatrics* 2015;136:487–95.
- Cooper WO, Spain DA, Guillaumondegui O, *et al*. Association of Coworker reports about Unprofessional behavior by surgeons with surgical complications in their patients. *JAMA Surg* 2019;154:828–34.
- Wolf TM, Randall HM, von Almen K, *et al*. Perceived mistreatment and attitude change by graduating medical students: a retrospective study. *Med Educ* 1991;25:182–90.
- Rautio A, Sunnari V, Nuutinen M, *et al*. Mistreatment of university students most common during medical studies. *BMC Med Educ* 2005;5:36.
- Silver HK, Glick AD. Medical student abuse. incidence, severity, and significance. *JAMA* 1990;263:527–32.
- Kulaylat AN, Qin D, Sun SX, *et al*. Aligning perceptions of mistreatment among incoming medical trainees. *J Surg Res* 2017;208:151–7.
- Leape LL, Shore MF, Dienstag JL, *et al*. Perspective: a culture of respect, part 2: creating a culture of respect. *Acad Med* 2012;87:853–8.
- Fleit HB, Lu W-H, Olvet DM, *et al*. Case studies for recognizing appropriate and inappropriate behaviors in the clinical learning environment. *MedEdPORTAL* 2017;13:10638–38.



- 19 Reddy S, Ogden P, Arora V, *et al.* Is it mistreatment? mistreatment education for medical students entering clinical training. *MedEdPORTAL* 2013.
- 20 Kulaylat AN, Qin D, Sun SX, *et al.* Perceptions of mistreatment among trainees vary at different stages of clinical training. *BMC Med Educ* 2017;17:14.
- 21 Ogden PE, Wu EH, Elnicki MD, *et al.* Do attending physicians, nurses, residents, and medical students agree on what constitutes medical student abuse? *Acad Med* 2005;80:S80–3.
- 22 Gan R, Snell L. When the learning environment is suboptimal: exploring medical students' perceptions of "mistreatment". *Acad Med* 2014;89:608–17.
- 23 Qualtrics Survey [program]. 052021 version. Provo, Utah, USA 2005.
- 24 Wainwright D, Harris M, Wainwright E. How does 'banter' influence trainee doctors' choice of career? A qualitative study. *BMC Med Educ* 2019;19:104–04.
- 25 Hunt DD, Scott C, Zhong S, *et al.* Frequency and effect of negative comments ("badmouthing") on medical students' career choices. *Acad Med* 1996;71:665–9.
- 26 Oser TK, Haidet P, Lewis PR, *et al.* Frequency and negative impact of medical student mistreatment based on specialty choice: a longitudinal study. *Acad Med* 2014;89:755–61.
- 27 Burgos CM, Josephson A. Gender differences in the learning and teaching of surgery: a literature review. *Int J Med Educ* 2014;5:110–24.
- 28 Kanter SL. Career guidance and the quality of the dialogue. *Acad Med* 2011;86:149–50.
- 29 Kristoffersson E, Andersson J, Bengs C, *et al.* Experiences of the gender climate in clinical training – a focus group study among Swedish medical students. *BMC Med Educ* 2016;16:283–83.
- 30 Chang JC, Odrobina MR, McIntyre-Seltman K. The effect of student gender on the obstetrics and gynecology clerkship experience. *J Womens Health* 2010;19:87–92.
- 31 Hicks LK, Lin Y, Robertson DW, *et al.* Understanding the clinical dilemmas that shape medical students' ethical development: questionnaire survey and focus group study. *BMJ* 2001;322:709–10.
- 32 Yentis SM. The use of patients for learning and maintaining practical skills. *J R Soc Med* 2005;98:299–302.
- 33 Hafferty FW. Beyond curriculum reform: confronting medicine's hidden curriculum. *Acad Med* 1998;73:403–7.