ORIGINAL ARTICLE

Graduate Medical Education Bullying: A Survey of Podiatry Residency Programs

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Background: Bullying during Podiatric Medical and Surgical residency has not been previously assessed and published. It is important to study bullying in podiatric medical residency programs because it may contribute to resident burnout and other psychological harm, as well as poor quality care.
Method: The purpose of this study was to survey current podiatry residents, recent podiatry residency graduates/fellows, and program directors to determine if there was a significant difference in the acknowledgement of bullying being a problem in podiatric residency programs amongst the groups. An electronic survey was administered via the American Podiatric Medical Association's (APMA) membership list. Fisher's exact test was used to determine if there was a significant association between residents, recent graduates/fellows, and program directors' perceptions of bullying being a significant problem in podiatric residency programs and acknowledgement of residents being bullied.
Results: The survey was emailed to 1,163 eligible participants. The completion rate of those who accessed the survey was 58/67 (86.6%). Of those who responded, 53% (n = 31) reported that residents were bullied at their program. Decline in performance (22%) and depressive behavior (22%) were the most reported consequences of bullying. Of those who reported bullying at their residency program, they most frequently reported "5 or more" occurrences. There was a statistically significant difference of (p = 0.013) and (p = 0.014), respectively, between residents, recent graduates/fellows, and program directors' perception and acknowledgement of bullying being a significant problem in podiatric residency programs.
Conclusion: Bullying occurs at Podiatric residency programs, that it has harmful consequences, and perceptual differences exist between residents, past residents/fellows, and program directors.

Keywords: Bullying, Graduate Medical Education, Podiatry, Residency, Program Director, Education, Medical

التنمر في التعليم الطبي العالي: دراسة استقصائية لبرامج الإقامة في طب الأقدام

الخلفية: لم يُقيّم التنمّر خلال فترة الإقامة الطبية والجراحية في طب الأقدام أو يُنشر سابقًا. من المهم دراسة التنمّر في برامج الإقامة الطبية في طب الأقدام لأنه قد يُسهم في إرهاق المقيمين وأضرار نفسية أخرى، بالإضافة إلى ضعف جودة الرعاية.
الطريقة: هدفت هذه الدراسة إلى استطلاع آراء المقيمين الحاليين في طب الأقدام، وخريجي/زمالة الإقامة في طب الأقدام، ومديري البرامج، لتحديد ما إذا كان هناك فرق كبير في الاعتراف بأن التنمّر يُمثّل مشكلة في برامج الإقامة في طب الأقدام بين المجموعات. أُجري استطلاع إلكتروني عبر قائمة عضوية الجمعية الطبية الأمريكية لطب الأقدام (APMA). استُخدم اختبار فيشر الدقيق لتحديد ما إذا كان هناك ارتباط كبير بين تصورات المقيمين، والخريجين/الزمالة الجدد، ومديري البرامج، حول كون التنمّر مُشكلة كبيرة في برامج الإقامة في طب الأقدام، وبين اعترافهم بتعرض المقيمين للتنمّر.
النتائج: أُرسل الاستطلاع عبر البريد الإلكتروني إلى ١١٦٣ مشاركًا مؤهلًا. بلغ معدل إكمال الاستبيان ٦٧/٥٨ (٨٦,٦٪). من بين المستجيبين، أفاد ٥٣٪ (عددهم ٣١) بتعرض المقيمين للتنمر في برنامجهم. وكان انخفاض الأداء (٢٢٪) والسلوك الاكتئابي (٢٢٪) من أكثر عواقب التنمر المبلغ عنها. ومن بين الذين أبلغوا عن تعرضهم للتنمر في برنامج إقامتهم، أفادوا في أغلب الأحيان بوقوع "٥ حالات أو أكثر". وكان هناك فرق ذو دلالة إحصائية (p=0.013) و(p=0.014) على التوالي، بين إدراك واعتراف المقيمين والخريجين الجدد/الزملاء ومديري البرامج بأن التنمر مشكلة كبيرة في برامج الإقامة في طب الأقدام.
الخلاصة: أشارت نتائجنا إلى أن التنمر يحدث في برامج الإقامة في طب الأقدام، وأن له عواقب وخيمة، وأن هناك اختلافات في الإدراك بين المقيمين والمقيمين/الزملاء السابقين ومديري البرامج.

الكلمات المفتاحية: التنمر، التعليم الطبي العالي، طب الأقدام، الإقامة، مدير البرنامج، التعليم، الطب

آزار و اذیت در آموزش تخصصی پزشکی: یک پیمایش از برنامه های رزیدنتی پودیاتری (پزشکی پا)

زمینه و هدف: مطالعه آزار و اذیت در برنامه‌های رزیدنتی پزشکی پا مهم است زیرا ممکن است در فرسودگی شغلی رزیدنت‌ها و سایر آسیب‌های روانی و همچنین مراقبت‌های بی‌کیفیت نقش داشته باشد. هدف از این مطالعه بررسی رزیدنت‌های فعلی تخصصی پا، فارغ‌التحصیلان/فلوشیپ‌های اخیر رزیدنتی پا و مدیران برنامه آموزشی بود تا مشخص شود که آیا تفاوت معناداری در پذیرش آزار و اذیت به‌عنوان یک مشکل در برنامه‌های رزیدنتی پا در بین گروه‌ها وجود دارد یا خیر.
روش: یک نظرسنجی الکترونیکی از طریق فهرست عضویت انجمن پزشکی پا آمریکا انجام شد. برای تعیین اینکه آیا ارتباط معناداری بین برداشت رزیدنت‌ها فارغ‌التحصیلان/فلوشیپ‌های اخیر و مدیران برنامه آموزشی از آزار و اذیت به عنوان یک مشکل مهم در برنامه‌های رزیدنتی پا و پذیرش رزیدنت‌هایی که مورد آزار و اذیت قرار می‌گیرند، وجود دارد یا خیر، از آزمون دقیق فیشر استفاده شد.
یافته‌ها: این نظرسنجی برای ۱۱۶۳ شرکت‌کننده واجد شرایط ایمیل شد. میزان تکمیل افرادی که به این نظرسنجی دسترسی داشتند، ۶۷/۵۸ (۸۶/۶٪) بود. از بین کسانی که پاسخ دادند، ۵۳٪ (n = ۳۱) گزارش دادند که رزیدنت‌ها در برنامه خود مورد آزار و اذیت قرار گرفته‌اند. کاهش عملکرد (۲۲٪) و رفتار افسردگی (۲۲٪) بیشترین پیامدهای گزارش شده از زورگویی بودند. از بین کسانی که در رزیدنتی مورد آزار و اذیت قرار گرفتند، بیشترین تعداد موارد اذیت (پنج مورد یا بیشتر) را گزارش کردند. تفاوت آماری معنی‌داری بین درک و اذعان رزیدنت‌ها از آزار و اذیت به عنوان یک مشکل قابل توجه در برنامه‌های رزیدنتی پا (p = 0.013) با فارغ‌التحصیلان/فلوشیپ های اخیر و مدیران برنامه آموزشی (p = 0.014) وجود داشت.
نتیجه گیری: آزار و اذیت و زورگویی در برنامه‌های رزیدنتی پا رخ می‌دهد. عواقب مضری دارد و تفاوت‌های ادراکی بین رزیدنت‌ها، فلوشیپ ها و مدیران برنامه آموزشی وجود دارد.

واژه های کلیدی: آزار و اذیت، آموزش پزشکی تکمیلی، پزشکی پا، رزیدنتی، مدیر برنامه، آموزش، پزشکی

گریجویٹ میڈیکل ایجوکیشن بلنگ: پوڈیٹری ریزیڈنسی پروگراموں کا ایک سروے

پس منظر: پوڈیاٹرک میڈیکل اور سرجیکل ریزیڈنسی کے دوران غنڈہ گردی کا پہلے سے جائزہ اور شائع نہیں کیا گیا ہے۔ پوڈیاٹرک میڈیکل ریذیڈنسی پروگراموں میں غنڈہ گردی کا مطالعہ کرنا ضروری ہے کیونکہ اس سے رہائشیوں کے برن آؤٹ اور دیگر نفسیاتی نقصانات کے ساتھ ساتھ ناقص معیار کی دیکھ بھال بھی ہو سکتی ہے۔
طریقہ: اس مطالعہ کا مقصد موجودہ پوڈیاٹری رہائشیوں، حالیہ پوڈیاٹری ریذیڈنسی گریجویٹس/فیلو، اورپروگرام ڈائریکٹرز کا سروے کرنا تھا تاکہ یہ معلوم کیا جا سکے کہ آیا گروپوں کے درمیان پوڈیاٹرک ریزیڈنسی پروگراموں میں غنڈہ گردی کے ایک مسئلہ ہونے کے اعتراف میں کوئی فرق تھا۔ ایک الیکٹرانک سروے امریکن پوڈیاٹرک میڈیکل ایسوسی ایشن (APMA) کی رکنیت کی فہرست کے ذریعے کیا گیا۔ فشر کے عین مطابق ٹیسٹ کا استعمال اس بات کا تعین کرنے کے لیے کیا گیا تھا کہ آیا رہائشیوں، حالیہ گریجویٹس/فیلو، اورپروگرام ڈائریکٹرز کے پوڈیاٹرک ریزیڈنسی پروگراموں میں غنڈہ گردی کے ایک اہم مسئلہ ہونے اور رہائشیوں کو غنڈہ گردی کیے جانے کے اعتراف کے درمیان کوئی اہم تعلق ہے۔
نتائج: سروے ۱٬۱۶۳ اہل شرکاء کو ای میل کیا گیا۔ سروے تک رسائی حاصل کرنے والوں کی تکمیل کی شرح ۶۷/۵۸ (۸۶٫۶٪) تھی۔ جواب دینے والوں میں سے، ۵۳٪ (n=31) نے اطلاع دی کہ رہائشیوں کو ان کے پروگرام میں تنگ کیا گیا۔ کارکردگی میں کمی (۲۲٪) اور افسردہ رویہ (۲۲٪) غنڈہ گردی کے سب سے زیادہ رپورٹ شدہ نتائج تھے۔ ان میں سے جنہوں نے اپنے رہائشی پروگرام میں دھونس کی اطلاع دی، انہوں نے اکثر "۵ یا اس سے زیادہ" واقعات کی اطلاع دی۔ (p=0.013) اور (p=0.014) کا شماریاتی لحاظ سے اہم فرق تھا، بالترتیب رہائشیوں، حالیہ گریجویٹس/فیلوز، اورپروگرام ڈائریکٹرز کے خیال اور پوڈیاٹرک ریزیڈنسی پروگراموں میں غنڈہ گردی کا ایک اہم مسئلہ ہونے کا اعتراف۔
نتیجہ: ہمارے نتائج نے اشارہ کیا کہ پوڈیاٹرک ریزیڈنسی پروگراموں میں غنڈہ گردی ہوتی ہے، کہ اس کے نقصان دہ نتائج ہوتے ہیں، اور رہائشیوں، ماضی کے رہائشیوں/ساتھیوں، اور پروگرام ڈائریکٹرز کے درمیان ادراک کے فرق موجود ہیں۔

کلیدی الفاظ: غنڈہ گردی، گریجویٹ میڈیکل ایجوکیشن، پوڈیاٹری، رہائش، پروگرام ڈائریکٹر، تعلیم، طبی

INTRODUCTION

Bullying of medical trainees is believed to occur more frequently in medical education than once thought (1) and is often associated with negative consequences (2). A widely accepted definition of bullying is "an aggressive behavior in which there is repetitive and intentional aggression from an individual or a group of persons (perpetrator(s)) that targets persons (victim(s)) who are weaker as compared to the person inflicting harm (3). Bullying may be direct, such as physical or verbal, indirect, such as non-verbal and hidden behaviors, or a combination (4, 5).

Bullying is not a new phenomenon and is a globally recognized problem across multiple health care education programs (3,6); however, research and literature on workplace bullying is novel, commencing only three decades ago (7). Specifically, the cited prevalence of workplace bullying reported by medical trainees ranges widely (8). In a 2022 systematic review and meta-analysis of 25 studies of 29,980 surgical residents, 63% reported bullying. Interestingly, perceptions of mistreatment may vary between program managers and trainees. A study by Nasca, et al., found that the proportion of program directors perceiving mistreatment vastly underestimated the proportion of residents reporting it (9.3% of all program managers perceived bullying versus 65.9% of all residents reporting bullying) (9). It is important to study bullying during podiatric residency because bullying can have harmful effects on the healthcare system, including patient satisfaction, patient safety, and patient outcomes (2). It can also have negative consequences for the victim, including emotional distress, work absenteeism, and physical and psychological harm (1).

While these statistics are alarming, the pandemic and changing social norms continue to increase the occurrence of mistreatment and burnout (10), reaching magnitudinous proportions in medical education (11). Agencies recognized by the Council for Higher Education Accreditation and the United States Secretary of Education, such as the Council on Podiatric Medical Education (CPME) have set standards and requirements to promote the quality of graduate education, postgraduate education, certification, and continuing education (12). Recently, as a responsive measure, medical training accreditation agencies have expanded their directives to include resident well-being in addition to education requirements. In July 2023, the CPME 320 institutional standards and requirements were revised, requiring sponsoring institutions to ensure that policies and programs are in place to encourage optimal resident well-being (13). In alignment with CPME 320, our study will expand existing knowledge about bullying during podiatric graduate medical education by examining the occurrence and perceptions of bullying, and the characteristics of podiatric residents or recent residency graduate victims and their perpetrators, who assume various leadership and education roles within the program.

METHODS

Research Design

Exempt status was granted for the survey design study from the Committee for the Protection of Human Subjects at Dartmouth College for a voluntary, anonymous, online questionnaire distributed via Qualtrics. Content validity was established through an extensive review of the literature in Spring 2023. We completed the pilot study in June 2023.

Sample

Our target population was current podiatric medicine and surgery residents, recent residency graduates/current fellows, and podiatric medicine and surgery residency program directors in the United States. We recruited respondents exclusively through email invitation from the American Podiatric Medical Association's (APMA) membership list. Respondents who did not complete the questionnaire were excluded.

Survey and Measures

Email invitations were sent to 1,163 eligible survey participants on August 18, 2023. Participants were asked to respond once to the consent statement provided at the beginning of the survey. The survey took an estimated five minutes to complete. Respondents were presented with 6 to 10 questions using conditional branching after the consent. The full questionnaire appears in Appendix 1. There were no incentives to take the survey. The data/responses were not weighted. We used the "Checklist for Reporting Results of Internet E-Surveys" (CHERRIES) guidelines (13), which appears in Appendix 2, and the STROBE cross-sectional reporting guidelines (14), Appendix 3 when writing our report.

Variables of Interest

There were two co-primary outcomes of interest: (1) agreement with the following statement "Bullying is a significant problem in podiatric residency programs," (2) self-reported incidence of bullying at someone's own residency program. There were also several other variables of interest: types of bullying/abuse, the perpetrator's position/title, the number of residents that were bullied at the program, and region of the residency program (Midwest, Northeast, South, West).

Statistical Analysis

Our plan a priori was to use Pearson's Chi-squared test to compare responses between current residents, recent graduates/fellows, and program directors; we also planned to change this test to Fisher's exact test if we were to violate the rule of five. We analyzed the data using STATA v15.1 (15). A pre-defined alpha level of 0.05 or less was

used for statistical significance.

RESULTS

Descriptive Results

Fifty-eight residents, recent graduates/fellows, and program directors, from four regions of the United States completed the survey. Sixty-seven respondents attempted the survey for a completeness rate of (58/67) 86.6%. Verbal bullying was the most frequently reported type of bullying among responses (25/57) 45% (Table 1). Program leadership were the most reported perpetrators of bullying behaviors (17/62) 27% (Table 2). Postgraduate year one (PGY-1) were the most reported victims of bullying (20/138) 14% (Table 3) and decline and performance (22/101) 22% and depressive behavior (22/101) 22% (Table 4) were the most reported consequences of bullying. The most reported response for the number of times that bullying occurred from those who reported that bullying did occur at their program was "5 or more."

The Statement "Bullying is a significant problem in podiatric residency programs" (Figure 1) significantly differed between current residents, fellows/recent graduates, and residency directors ($p = 0.013$); 19/26 current residents and 13/18 recent graduates/fellows "somewhat agreed" or "strongly agreed" with the statement, but only 3/14 program directors "somewhat agreed" or "strongly agreed." Because less than 5 program directors agreed, we changed our a priori statistical test from Pearson's Chi-squared to Fisher's Exact Test as the "rule of five" was violated.

When asked if any residents were bullied at your residency program, 13 out of 18 recent graduates/fellows responded "yes" compared to 15 out of 26 current residents, and only 3 of 14 program directors (This difference was statistically significant using the Fisher's exact test ($p = 0.014$); of note, when asked who was committing the bullying, both the residents' and fellows' most

Table 1. Bullying type reported by survey respondents who acknowledged bullying

	Fellow/Recent Graduate	Program Director	Resident		
Bullying Type	**Frequency Count**	**Frequency Count**	**Frequency Count**	**Total**	**% of Total Frequency**
Physical	0	0	0	0	0%
Verbal	12	3	10	25	45%
Sexual	2	0	1	3	5%
Cyber	5	0	3	8	14%
Social	11	1	8	20	36%
Other	1	0	0	1	2%
Total	31	4	22	57	100%

Table 2. Perpetrator category reported by survey respondents who acknowledged bullying

	Fellow/Recent Graduate	Program Director	Resident		
Perpetrator Category	**Frequency Count**	**Frequency Count**	**Frequency Count**	**Total**	**% of Total Frequency**
Program leadership	11	1	5	17	27%
Program administration	5	0	0	5	8%
Podiatric Surgeon/Physician attending	5	0	5	10	16%
Non-podiatry, Surgical specialty attending	2	0	2	4	6%
Non-podiatry, Medical specialty attending	2	0	0	2	3%
Nurses	2	0	4	6	10%
Patients	1	0	2	3	5%
Other trainees	7	2	6	15	24%
Other	0	0	0	0	0%
Total	35	3	24	62	100%

Table 3. Victim characteristics reported by survey respondents who acknowledged bullying

	Fellow/recent graduate	Program director	Resident		
Victim characteristics	**Frequency count**	**Frequency count**	**Frequency count**	**Total**	**% of Total frequency**
PGY (postgraduate year) 1	10	1	9	20	14%
PGY 2	9	2	6	17	12%
PGY 3 or 4	7	0	6	13	9%
Born in the USA	8	2	6	16	12%
Not born in the USA	5	1	3	9	7%
Underrepresented racial Minority (URM)	7	1	4	12	9%
Non-URM	2	0	2	4	3%
Lesbian, Gay, Bisexual, Transgender, Queer	2	0	0	2	1%
Heterosexual	4	0	5	9	7%
Non-major religious group	2	1	3	6	4%
Female gender	11	0	3	14	10%
Male gender	6	2	4	12	9%
Non-binary gender	0	0	0	0	0%
Other gender	0	0	0	0	0%
Physical disability	1	0	0	1	1%
Overweight	1	0	2	3	2%
Total	120	10	53	138	100%

Table 4. Consequences reported by survey respondents who acknowledged bullying

	Fellow/recent graduate	Program director	Resident		
Consequence	**Frequency count**	**Frequency count**	**Frequency count**	**Total**	**% of Total frequency**
Decline in performance	11	1	10	22	22%
Enhancement in performance	0	0	0	0	0%
Alcohol use	7	0	3	10	10%
Illicit drug use	3	0	0	3	3%
Increased sick leave	5	0	3	8	8%
Depressive behavior	12	1	9	22	22%
Increased weight	6	1	1	8	8%
Decreased weight	2	0	4	6	6%
Left the program	3	0	2	5	5%
Discussed/considered leaving the program	8	1	4	13	13%
Not sure	0	1	2	3	3%
Other (counseling and anti-depression medication)	0	0	1	1	1%
Total	57	5	37	101	100%

common responses were “program leadership” (which includes the program director).

DISCUSSION

In concordance with CPME 320 (16), the study augmented the existing knowledge of bullying during podiatric graduate medical education by examining the occurrence and perceptions of bullying, and the characteristics of podiatric residents or recent residency graduate victims and their perpetrators, who assume various leadership and education roles within the program.

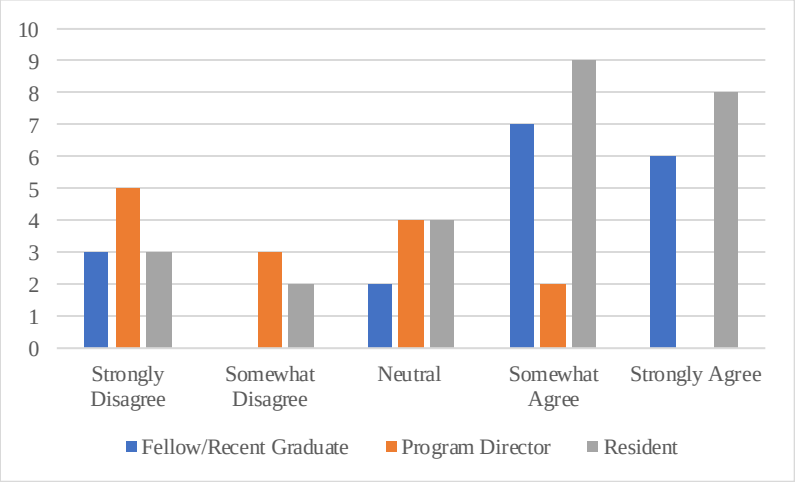

Figure 1. The frequency of participants' opinions about bullying as a significant problem in podiatric residency programs

Our study is the first to specifically investigate bullying in podiatric residency programs, and the first to include multiple stakeholders: podiatric medicine and surgery residents, fellows/recent residency graduates, and program directors' attitudes and experiences. The study showed significant discordance between resident/past resident/fellow and program director acknowledgement of and perceptions of bullying being a significant problem during residency.

The consequences of bullying can be detrimental, especially in the medical workplace. Averbach et al., (17) identified emotional and psychological damage to self-worth, confidence, and dignity, leading to psychological distress and discomfort that impact the overall progress of the victim in terms of professional growth and career progression as consequences of bullying in medical settings. Our study demonstrates similarities to previous studies, with verbal bullying being the most common among medical residents (1), and worsened performance and depression being common consequences of bullying (1, 18, 19). Similarly, to our results, a review of 62 articles on the topic of medical resident bullying, by Leisy and Ahmad found that the most frequent form of mistreatment was verbal abuse, with the most common perpetrators being fellow physicians of higher hierarchical power (20)."

One limitation to our study was that participants were not provided with a definition of bullying as a reference while taking the survey. Individual definitions of bullying and its various types may differ and be reflected in their responses. In addition, trainees and directors with higher grit might experience less bullying or be more likely to have a lower perception of bullying behavior (21). An additional limitation to our study that our response rate was 5%, which is lower than comparable studies. Previous studies on electronic surveys of healthcare workers report a response rate of 10-20% (22-24). Our low response rate of the total number of invitees could also indicate non-response bias, resulting in an increased reported bullying prevalence rate, similar to Ang et al., (25), as well as limit the generalizability of the findings to the medical community.

Unfortunately, bullying is experienced by many podiatric residents, and a need exists to decrease its occurrence. Many residents and program directors chose not to participate in the survey, electing not to report their experiences. Of the participants, perceptions of bullying among podiatric residents and recent residency graduates/fellows differed from those of program directors.

CONCLUSION

A strategic approach must be executed to decrease the occurrence of bullying in podiatry residency programs as well as other medical education programs. Our study contributed to the initial steps of filling the knowledge gap of bullying within an essential training phase of the medical profession. Next steps may include research to better understand the factors that contribute to contrary perceptions of bullying within residency programs and medical education, the individual and/or workplace characteristics that predispose trainees to being bullied, individual's motivational factors to bully residents, gaining an understanding of the consequences of bullying for residents, and developing resident-specific work environment assessments to monitor bullying and other negative acts that compromise well-being.

Ethical Considerations:

Ethical issues including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission,

redundancy, etc. have been completely observed by the authors.

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SUPPLEMENT

Appendix 1. The Questionnaire

Please answer the following questions and/or rate your level of agreement or disagreement with the following statements:

1. I am a…

A. Resident
B. Fellow or Recent graduate from a residency program
C. Program Director

2. What region best describes the location of your residency program?

a. Northeast
b. South
c. Midwest
d. West

3. Bullying is a significant problem in podiatric residency programs.

a. Disagree
c. Neutral
d. Agree

4. Are/were you or any residents at your program bullied?

a. No
b. Yes

5. Bullying in my residency program has/had a detrimental effect on residents' perceptions of the learning environment.

a. Strongly disagree
b. Somewhat disagree
c. Neutral
d. Somewhat agree
e. Strongly agree

6. Please estimate the number of residents that are/were bullied at your program.

a. 1
b. 2
c. 3
d. 4
e. 5 or more

7. What type of bullying occurs/occurred in your program? (Mark all that apply)

a. Physical
b. Verbal
c. Sexual
d. Cyber-bullying (email, Twitter, Facebook, etc.)
e. Social (gossip, exclusion)
f. Other [free text/open-ended]

8. Please check off all the characteristics that apply/applied to the bully or bullies. (Mark all that apply)

a. Program leadership (Director, Assistant Director, Chief, etc.)
b. Program administration
c. Attending podiatric physician/surgeon
d. Attending surgeon (Non-podiatry, surgical specialty)
e. Attending physician (Non-podiatry, medical specialty)
f. Nurses
g. Patients
h. Other trainees (including fellows or co-residents)
I. Other [free text/open-ended]

9. Of those who were bullied in your program, please check off all the characteristics that applied to the victim(s). (Mark all that apply).

a. PGY 1
b. PGY 2
c. PGY 3 or 4
d. Born in the USA

e. Not born in the USA
f. Underrepresented Racial Minorities (URM)
g. Non-URM
h. LGBTQ
i. Heterosexual
j. Non-major religious group
k. Female gender
l. Male gender
m. Non-binary gender
n. Other gender
o. Physical disability
p. Overweight

10. As a result of the bullying episodes, did the victim(s) experience any of the following? (Mark all that apply)

a. Decline in performance
b. Enhancement in performance
c. Alcohol use
d. Illicit drug use
e. Increase sick leave
f. Depressive behavior
g. Increase weight
h. Decrease weight
i. Left the program
j. Discussed/considered leaving the program
k. Not sure
l. Other [free text/open-ended]

Appendix 2. Checklist for Reporting Results of Internet E-Surveys (CHERRIES)

Checklist Item	Explanation	Page Number
Describe survey design	Describe target population, sample frame. Is the sample a convenience sample? (In "open" surveys this is most likely.)	2
IRB approval	Mention whether the study has been approved by an IRB.	2
Informed consent	Describe the informed consent process. Where were the participants told the length of time of the survey, which data were stored and where and for how long, who the investigator was, and the purpose of the study?	2
Data protection	If any personal information was collected or stored, describe what mechanisms were used to protect unauthorized access.	2
Development and testing	State how the survey was developed, including whether the usability and technical functionality of the electronic questionnaire had been tested before fielding the questionnaire.	2
Open survey versus closed survey	An "open survey" is a survey open for each visitor of a site, while a closed survey is only open to a sample which the investigator knows (password-protected survey).	2
Contact mode	Indicate whether or not the initial contact with the potential participants was made on the Internet. (Investigators may also send out questionnaires by mail and allow for Web-based data entry.)	2
Advertising the survey	How/where was the survey announced or advertised? Some examples are offline media (newspapers), or online (mailing lists – If yes, which ones?) or banner ads (Where were these banner ads posted and what did they look like?). It is important to know the wording of the announcement as it will heavily influence who chooses to participate. Ideally the survey announcement should be published as an appendix.	NA (Qualtrics)
Web/E-mail	State the type of e-survey (e.g., one posted on a Web site, or one sent out through e-mail). If it is an e-mail survey, were the responses entered manually into a database, or was there an automatic method for capturing responses?	NA (Qualtrics)
Context	Describe the Web site (for mailing list/newsgroup) in which the survey was posted. What is the Web site about, who is visiting it, what are visitors normally looking for? Discuss to what degree the content of the Web site could pre-select the sample or influence the results. For example, a survey about vaccination on an anti-immunization Web site will have different results from a Web survey conducted on a government Web site	2

Appendix 2. Continued.

Checklist Item	Explanation	Page Number
Mandatory/voluntary	Was it a mandatory survey to be filled in by every visitor who wanted to enter the Web site, or was it a voluntary survey?	2
Incentives	Were any incentives offered (e.g., monetary, prizes, or non-monetary incentives such as an offer to provide the survey results)?	2
Time/Date	In what timeframe were the data collected?	2
Randomization of items or questionnaires	To prevent biases items can be randomized or alternated.	NA
Adaptive questioning	Use adaptive questioning (certain items, or only conditionally displayed based on responses to other items) to reduce number and complexity of the questions.	NA
Number of Items	What was the number of questionnaire items per page? The number of items is an important factor for the completion rate.	2
Number of screens (pages)	Over how many pages was the questionnaire distributed? The number of items is an important factor for the completion rate.	NA
Completeness check	It is technically possible to do consistency or completeness checks before the questionnaire is submitted. Was this done, and if "yes", how (usually JAVAScript)? An alternative is to check for completeness after the questionnaire has been submitted (and highlight mandatory items). If this has been done, it should be reported. All items should provide a non-response option such as "not applicable" or "rather not say", and selection of one response option should be enforced.	NA (Qualtrics)
Review step	State whether respondents were able to review and change their answers (e.g., through a Back button or a Review step which displays a summary of the responses and asks the respondents if they are correct).	2
Unique site visitor	If you provide view rates or participation rates, you need to define how you determined a unique visitor. There are different techniques available, based on IP addresses or cookies or both.	NA (Qualtrics
View rate (Ratio of unique survey visitors/unique site visitors)	Requires counting unique visitors to the first page of the survey, divided by the number of unique site visitors (not page views!). It is not unusual to have view rates of less than 0.1 % if the survey is voluntary.	NA (Qualtrics)
Participation rate (Ratio of unique visitors who agreed to participate/unique first survey page visitors)	Count the unique number of people who filled in the first survey page (or agreed to participate, for example by checking a checkbox), divided by visitors who visit the first page of the survey (or the informed consents page, if present). This can also be called "recruitment" rate.	NA (Qualtrics)
Completion rate (Ratio of users who finished the survey/users who agreed to participate)	The number of people submitting the last questionnaire page, divided by the number of people who agreed to participate (or submitted the first survey page). This is only relevant if there is a separate "informed consent" page or if the survey goes over several pages. This is a measure for attrition. Note that "completion" can involve leaving questionnaire items blank. This is not a measure for how completely questionnaires were filled in. (If you need a measure for this, use the word "completeness rate".)	NA (Qualtrics)
Cookies used	Indicate whether cookies were used to assign a unique user identifier to each client computer. If so, mention the page on which the cookie was set and read, and how long the cookie was valid. Were duplicate entries avoided by preventing users access to the survey twice; or were duplicate database entries having the same user ID eliminated before analysis? In the latter case, which entries were kept for analysis (e.g., the first entry or the most recent)?	NA
IP check	Indicate whether the IP address of the client computer was used to identify potential duplicate entries from the same user. If so, mention the period of time for which no two entries from the same IP address were allowed (e.g., 24 hours). Were duplicate entries avoided by preventing users with the same IP address access to the survey twice; or were duplicate database entries having the same IP address within a given period of time eliminated before analysis? If the latter, which entries were kept for analysis (e.g., the first entry or the most recent)?	NA
Log file analysis	Indicate whether other techniques to analyze the log file for identification of multiple entries were used. If so, please describe.	NA
Registration	In "closed" (non-open) surveys, users need to login first and it is easier to prevent duplicate entries from the same user. Describe how this was done. For example, was the survey never displayed a second time once the user had filled it in, or was the username stored together with the survey results and later eliminated? If the latter, which entries were kept for analysis (e.g., the first entry or the most recent)?	NA (Open survey)

Appendix 2. Continued.

Checklist Item	Explanation	Page Number
Handling of incomplete questionnaires	Were only completed questionnaires analyzed? Were questionnaires which terminated early (where, for example, users did not go through all questionnaire pages) also analyzed?	2
Questionnaires submitted with an atypical timestamp	Some investigators may measure the time people needed to fill in a questionnaire and exclude questionnaires that were submitted too soon. Specify the timeframe that was used as a cut-off point, and describe how this point was determined.	NA
Statistical correction	Indicate whether any methods such as weighting of items or propensity scores have been used to adjust for the non-representative sample; if so, please describe the methods.	2

This checklist has been modified from Eysenbach G. Improving the quality of Web surveys: the Checklist for Reporting Results of Internet E-Surveys (CHERRIES). J Med Internet Res. 2004 Sep 29;6(3):e34 [erratum in J Med Internet Res. 2012; 14(1): e8.]. Article available at https://www.jmir.org/2004/3/e34/; erratum available https://www.jmir.org/2012/1/e8/. Copyright ©Gunther Eysenbach. Originally published in the Journal of Medical Internet Research, 29.9.2004 and 04.01.2012.

Appendix 3. STROBE cross-sectional reporting guidelines

		Reporting Item	Page Number
Title and abstract			
Title	#1a	Indicate the study's design with a commonly used term in the title or the abstract	1
Abstract	#1b	Provide in the abstract an informative and balanced summary of what was done and what was found	2
Introduction			
Background / Rationale	#2	Explain the scientific background and rationale for the investigation being reported	3
Objectives	#3	State specific objectives, including any prespecified hypotheses	4
Methods			
Study design	#4	Present key elements of study design early in the paper	5-6
Setting	#5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	5-6
Eligibility criteria	#6a	Give the eligibility criteria, and the sources and methods of selection of participants.	6
	#7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	6
Data sources / Measurement	#8	For each variable of interest give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group. Give information separately for exposed and unexposed groups if applicable.	6
Bias	#9	Describe any efforts to address potential sources of bias	6
Study size	#10	Explain how the study size was arrived at	7
Quantitative Variables	#11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen, and why	12
Statistical Methods	#12a	Describe all statistical methods, including those used to control for confounding	7
Statistical Methods	#12b	Describe any methods used to examine subgroups and interactions	12
Statistical Methods	#12c	Explain how missing data were addressed	N/A

Appendix 3. Continued.

		Reporting Item	Page Number
Title and abstract			
Statistical Methods	#12d	If applicable, describe analytical methods taking account of sampling strategy	12
Statistical Methods	#12e	Describe any sensitivity analyses	N/A
Results			
Participants	#13a	Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed. Give information separately for exposed and unexposed groups if applicable.	7
Participants	#13b	Give reasons for non-participation at each stage	6
Participants	#13c	Consider use of a flow diagram	6-7
Descriptive data	#14a	Give characteristics of study participants (e.g., demographic, clinical, social) and information on exposures and potential confounders. Give information separately for exposed and unexposed groups if applicable.	6-7
Descriptive data	#14b	Indicate number of participants with missing data for each variable of interest	N/A
Outcome data	#15	Report numbers of outcome events or summary measures. Give information separately for exposed and unexposed groups if applicable.	6-8
Main results	#16a	Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (e.g., 95% confidence interval). Make clear which confounders were adjusted for and why they were included	12
Main results	#16b	Report category boundaries when continuous variables were categorized	N/A
Main results	#16c	If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	N/A
Other analyses	#17	Report other analyses done—e.g., analyses of subgroups and interactions, and sensitivity analyses	N/A
Discussion			
Key results	#18	Summarise key results with reference to study objectives	12-13
Limitations	#19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias.	13
Interpretation	#20	Give a cautious overall interpretation considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence.	13
Generalisability	#21	Discuss the generalisability (external validity) of the study results	13
Other Information			
Funding	#22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	N/A