Understanding How Medical Residents Respond to Harassment During Simulation

Training: A Thematic Qualitative Study

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Abstract

Harassment remains prevalent in Canadian medical spheres, negatively affecting trainees' well-being, learning, and professional development. Anti-harassment programs have been developed and implemented but are often untested and/ or ineffective, leaving trainees feeling unprepared to recognize and respond to harassment. There have been shifts toward innovative solutions such as simulation-based training to make medical training more effective and engaging. However, empirical research on exactly how medical trainees intervene in anti-harassment simulations remains unexplored. This study thus investigates how Internal Medicine (IM) residents navigate and respond when witnessing harassment during a simulation.

Twenty IM residents participated in a simulated harassment scenario where they were asked to perform a central line placement on a manikin, while a senior resident (SR) verbally harassed a medical student (MS). Both the SR and MS were standardized participants (SPs) Following the simulation, residents engaged in a debriefing session to reflect on their experiences. Simulation sessions were videotaped, and debriefings were audio recorded.

Residents' verbal and nonverbal reactions to the harassment displayed during the simulation were examined using inductive thematic analysis. Debriefings were used to compare residents' self-reported responses with actual observable ones via video recordings. Sessions were also analysed through inductive coding to explore the trainees' motivations behind their responses.

Results revealed great variation in IM residents' reactions to harassment. Reactions were categorized into three group: (1) MS-centered (defending and supporting the MS), (2) SR-centered (confronting and condemning the SR), and (3) passive responses (prioritizing the medical procedure or ignoring the harassment). Debriefing responses indicated that most residents accurately report their interventions, and while some were hesitant to stop the harassment due to

the hierarchical nature of medicine or wanting to prioritize the procedure, others intervened to protect the MS or challenge unfair expectations.

This study presents novel insight on the responses and actions of IM residents when they witness incidents of harassment, and on the underlying motivations driving their interventions. Specifically, this is the first investigation of how IM trainees responded to harassment while being engaged in a simulated medical procedure.

Résumé

Le harcèlement demeure répandu dans les milieux médicaux canadiens, et a un impact négatif sur le bien-être et le développement des apprenants. Malgré la mise en place de programmes de lutte contre le harcèlement, ces derniers s'avèrent souvent inefficaces, laissant les apprenants inaptes à reconnaître et à réagir lorsque confrontés au harcèlement. Une tendance vers des solutions novatrices, telles que l'apprentissage par simulation, vise à rendre la formation médicale plus efficace et engageante. Cependant, la recherche sur de telles interventions lors de simulations anti-harcèlement en médicine reste largement inexplorée. S'appuyant sur l'efficacité d'études sur l'effet du témoin dans le domaine de l'éducation médicale, cette étude se penche sur la façon dont des résidents en médecine interne réagissent lorsqu'ils sont témoins de harcèlement au cours d'une simulation.

Vingt résidents en médecine interne ont participé à un scénario sur le harcèlement où ils devaient effectuer un cathéter veineux central sur un mannequin, tandis qu'un résident superviseur (RS) harcelait verbalement un étudiant en médecine (EM). Après la simulation, les résidents ont participé à un débriefing afin de réfléchir à leurs expériences. Les sessions de simulation ont été enregistrées sur vidéo et les débriefings ont été enregistrés en audio.

Les réactions verbales et non verbales des résidents face au harcèlement lors de la simulation ont été examinées à l'aide d'une analyse thématique inductive. Les débriefings ont été utilisés pour comparer les interventions rapportées par les résidents avec celles observées. Les séances ont également été analysées à l'aide de techniques de codage inductif pour explorer les motivations des participants sous-jacentes à leurs interventions.

Les résultats ont révélé des différences dans les réactions des résidents en médecine interne face au harcèlement. Les réactions ont été catégorisées en trois groupes : (1) centrées sur l'EM

(défense et soutien de l'EM), (2) centrées sur le RS (confrontation du RS), et (3) interventions passives (centrées sur la procédure). Les débriefings ont indiqué que la majorité des résidents rapportent adéquatement leurs interventions. Certains hésitaient à mettre fin au harcèlement en raison de la hiérarchie médicale ou priorisait la procédure, tandis que d'autres intervenaient pour protéger l'EM ou remettre en question des attentes injustifiées.

Cette étude contribue aux connaissances sur les réactions et les actions des résidents en médecine interne lorsqu'ils sont témoins d'incidents de harcèlement, ainsi que sur les motivations sous-jacentes à leurs interventions. Il s'agit notamment de la première étude sur la manière dont les apprenants réagissent au harcèlement lors d'une procédure médicale simulée, fournissant des résultats novateurs.

Preface

I would like to express my sincere gratitude to everyone who contributed to the completion of this thesis. I would especially like to thank my supervisor, Prof. Jason Harley for their guidance, expertise, and continuous support throughout this research project. I would also like to thank my Research Advisory Chair, Dr. Girsowicz, the members of my Research Advisory Committee, Prof. Susanne Lajoie and Prof. Julio F. Fiore Jr.. I would also like to thank my external evaluator, Dr. Beth Cummings. I would also like to extend my thanks to Caroline White and the rest of the members of the McGill University Health Centre for Interprofessional Simulation for their invaluable help during data collection. I am thankful to all the members and volunteers who are part of the SAILS lab for their valuable contributions and unconditional support through this project. On a personal note, I would like to thank my family, especially my parents, for their infinite support throughout this very condensed journey. Furthermore, I would also like to acknowledge the funding support from the Social Sciences and Humanities Research Council of Canada (430-2020-00573) awarded to Prof. Harley, which financially supported my master's thesis fellowship. Finally, I am grateful to the medical community for their ongoing dedication to advancing knowledge and improving the learning environment in healthcare settings.

Contribution of Authors

Prof. Jason M. Harley (*J.M.H.*) supervised this entire thesis and was involved throughout the entire process. Byunghoon "Tony" Ahn (*B.T.A*), Negar Matin (*N.M.*), and Dr Ning-Zi Sun (*NZ.S*) also provided wonderful contributions as described below.

Chapter 1 to Chapter 4 was written by M.J and J.M.H reviewed and edited each section.

Chapter 3 is the manuscript to be submitted to Medical Education .

Conceptualization: M.J. and J.M.H conceived the presented ideas, research aims and objectives.

Data Curation: M.J. and B.T.A conducted the data extraction, data cleaning, and data organization.

Formal Analysis: M.J carried out the qualitative thematic analysis of the data with continuous iterative feedback from B.T.A, N.M and J.M.H. In addition, N.M also took part in the interrater agreement to evaluate the possibility of bias.

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Investigation: B.T.A., NZ.S. and J.M.H. NZ.S. conducted the recruitment of the participants. B.T.A, N.M. and M.J., conducted data collection sessions.

Methodology: J.M.H and B.T.A, designed the methodology of the study. M.J and J.M.H. designed the methodology of the research presented in this thesis.

Resource and Material Development: B.T.A, NZ.S. and J.M.H designed and developed the videos and simulation scenario used during data collection sessions.

Project Administration: J.M.H and B.T.A managed the project that the data for this thesis came from.

List of Abbreviations

- IM Internal Medicine
- JR Junior Resident
- MS Medical Student
- **SP** Standardized Participant
- **SR** Senior Resident

Chapter 1: Introduction

This chapter serves as an extended introduction, providing additional context and background information to complement the introductory section of the manuscript (Chapter 3). By expanding upon the initial discussion and presenting a more comprehensive overview of the subject matter, this chapter aims to set the stage for the subsequent sections and deepen the understanding of the research topic. Through an exploration of the relevant literature, this chapter provides a broader perspective, aims to help enhance the reader's understanding of the subject, and lay the foundation for the subsequent discussions and analyses presented in the manuscript.

Navigating the Storm: The Landscape of Harassment in Medical Education

Medical trainees face distinct challenges in their learning process due to the specific environment and culture of their profession, setting it apart from many other fields. The high-stakes nature of their tasks can make their learning process stressful and overwhelming^{1,2}. During their education and training, medical trainees heavily rely on interactions with various individuals, including patients, supervisors, colleagues, peer learners, and other healthcare professionals³. These individuals may not only serve as mentors, but they also play a significant role in shaping the trajectory of the trainees' professional careers. Unfortunately, it is not uncommon for these same individuals to become sources of discomfort, stress, harassment, or mistreatment⁴.

What Is Harassment?

Harassment encompasses a broad array of unwanted or unwelcome behaviors that cause distress, discomfort, or harm to the individuals experiencing it⁵. It can include actions or comments that undermine, intimidate, degrade, or create a hostile environment for the targeted individuals^{6,7}. Harassment can manifest in various forms, such as verbal, non-verbal, physical and it can occur in different online and offline settings, including workplaces, educational institutions, public spaces, and social interactions^{5,8}. While harassment often involves persistent and ongoing actions, it is important to note that a single instance of unwelcome behavior can also be considered harassment⁵.

The definition adopted by the Canadian Government refers to any "repeated and persistent behaviours towards another with the intent to torment, undermine, frustrate or provoke a reaction"⁶. This definition encompasses various forms of harassment, such as intimidation, discrimination, and bullying based on race, religion, ethnicity, gender or sexual orientation⁶. The Resident Doctors of Canada also aligns with that definition, stating that harassment may include "any behaviour, educational process, or tradition that induces fear in the learner or has a detrimental effect on the learning environment"⁹. Similarly, the Royal College of Physicians and Surgeons of Canada defines harassment as "any unwanted physical or verbal behavior that offends or humiliates"¹⁰. Although the latter emphasizes that harassment typically persists over time, they also acknowledge that "one single incident, if sufficiently serious, can constitute harassment"¹⁰. These definitions not only provide a framework for identifying and addressing harassment but also emphasize the importance of creating a supportive and nurturing learning environment^{6,9,10}.

The variability in the perceived prevalence of harassment can be attributed to the evolving and shifting definitions of what exactly constitutes harassment. Factors such as individual experiences, backgrounds, and personal sensitivities can influence one's perception of harassment¹¹. Additionally, power dynamics and fear of retaliation may affect individuals' willingness to label certain behaviors as harassment¹². It is important to note that the terminology associated with harassment, such as mistreatment, intimidation, or discrimination, is often used interchangeably^{9,10}. McGill University (Montreal, Canada) also conceptualized harassment, along with belittlement, humiliation, and hostility, under the broader term of mistreatment ¹³. Given the intricate and evolving nature of harassment's definition, this thesis will draw upon articles that employ closely related terms such as mistreatment, discrimination, and intimidation for its literature review and manuscript to capture the multifaceted aspects of the phenomenon.

Rates of Harassment in Medical Training

Research dating back decades detailing the unfair expectations, maltreatment, and abusive conduct of instructors towards medical trainees, have gradually unveiled the realities and firsthand experiences of medical trainees, providing valuable insights into their professional journey.^{14,15}. In 1982, Silver shed light on this issue by comparing the change of behaviours and attitudes of medical students before and after they completed their medical schooling¹⁶. He described the

distinct transformation in some students, who transitioned from being "alert, enthusiastic, and excited"¹⁶ to feeling "cynical, dejected, frightened or depressed, and filled with frustration"¹⁶ as they progressed along their medical path¹⁶ and suggested that the problems of abuse and harassment may permeate medical training and be considered an unavoidable rite of passage in the journey to becoming a physician¹⁶. This opened the door to further studies aimed at acknowledging the prevalence of harassment and mistreatment of learners within the realm of medical institutions.

In 1990, the Journal of the American Medical Association published a landmark study that documented the abuse and its severity from medical students' perspectives. This anonymous cross-sectional questionnaire showed that 46.4% of the participants reported being mistreated during medical school¹⁷. Since then, multiple studies have addressed these issues and found that harassment directed at medical trainees is a highly prevalent phenomenon, leading to medical school and professional health organization to denounce harassment in medicine and to institute anti-harassment policies and reporting channels^{18–21}. However, despite these efforts and the increased awareness surrounding the issue, reports of harassment in medical training continue to be prevalent. In Canada, the 2018 National Resident Survey in Canada reported that 78.2% all medical residents experienced at least one form of harassment in the previous year²². This percentage reflects a 30% increase compared to a similar survey conducted over a decade ago among Canadian medical trainees²³. This is consistent with a 2019 systematic review and meta-analysis of 52 cross-sectional studies that found that more than half of medical trainees (64%) had personal experiences of harassment and discrimination²⁴.

Hierarchy in Medicine

The medical training system is one based on hierarchies of knowledge and experience. With medicine being historically hierarchical, there is a long tradition of an apprenticeship model where attending physicians, fellows, and more senior residents supervising and transferring skills along to more junior residents and medical students²⁵. One of the primary reasons for this hierarchical nature is the complex and specialized nature of medical knowledge^{25,26}. Medical education involves acquiring extensive amounts of information, ranging from anatomy and physiology to diagnostic techniques and treatment strategies²⁷, and therefore, its hierarchical structure allows for a structured progression of knowledge and skills²⁸. This structured progression ensures that trainees gain a comprehensive understanding of medical practice and can gradually assume greater responsibilities as they advance in their careers^{27,28}. Over time, medical education has become more formalized, with the introduction of structured curricula and standardized assessments ²⁹. Its hierarchical structure has endured, as it continues to offer benefits in terms of mentorship, guidance, and the passage of clinical skills^{29,30}. Senior staff members also provide valuable feedback and serve as role models for professionalism and ethical conduct.

Nevertheless, this hierarchy can also have negative consequences as senior members hold considerable authority over trainees, leading to a power imbalance that can create an environment where reporting harassment becomes challenging. Trainees may feel that senior staff members hold significant control over their professional development and evaluations, making them hesitant to speak up about any harassment they experience or witness. The fear of potential retaliation or negative repercussions can be a strong deterrent in reporting such incidents³¹ Verbal harassment is one of the most reported form of harassment in the medical field, often perpetrated by senior

consultants and authority figures^{31,32}, with medical students and residents being the most vulnerable. However, it's important to note that harassment can also occur between and among residents and medical students, from other healthcare professionals, and even from patients³³. Furthermore, abusive behaviours are often seen as "rites of passages" that all medical professionals go through or also seen as "beneficial to training" can perpetuate a culture of harassment within medicine, where trainees may believe that it is a necessary part of their education³⁴.

Impacts of Harassment

Medical trainee harassment is particularly problematic due to the dire consequences it has on the students and on their learning environment³⁵. The effects of harassment are far-reaching, causing emotional and psychological harm to the trainees and potentially derailing their professional development³⁶. Moreover, an environment that tolerates or enables harassment not only jeopardizes the well-being and safety of trainees but also undermines the overall quality of the clinical learning space.

One of the primary consequences of harassment in medical education is the significant decrease in self-confidence and self-esteem experienced by trainees^{37–39}. Harassment can undermine trainees belief in their own abilities and worth, leading to doubts about their skills and knowledge⁴⁰. This erosion of confidence creates a negative cycle where trainees become more susceptible to self-doubt and have diminished trust in their professional capabilities^{39,40}For example, studies have found that harassment is associated with increased contemplation of discontinuing medical school studies and to plan careers outside of academic medicine highlighting the negative impact that it can have on trainees' career choices and aspirations^{17,37,41}. This can have particularly devastating consequences, especially in the context of massive

healthcare shortages, as it further exacerbates an already strained healthcare workforce in need of growth, not decline^{42,43}. When harassment occurs in the learning environment, there can be an impact on the trainee's trajectory, as well as limitations in research, scholarship and career-advancement⁴⁴. In addition to the psychological impact, the emotional toll of harassment can also have adverse effects on the physical health of individuals. The constant stress and anxiety that can result from harassment can contribute to increased cardiovascular risks, weakened immune system, and potentially lead to the misuse of alcohol as a coping mechanism^{38,45,46}.

Additionally, harassment contributes to heightened feelings of distress, anxiety, and depression, which can be further exacerbated by the anticipation of future mistreatment or encountering challenging situations that trigger negative emotions^{37,45}. Harassment is also associated with heightened stress levels, with some medical trainees exhibiting symptoms of post-traumatic stress or experience episodes of burnout as a result⁴⁶. The constant stress and anxiety they endure can impair cognitive abilities and hinder their ability to concentrate^{39,40}. Consequently, this can lead to decreased acquisition of necessary skills and knowledge, ultimately impacting their overall academic performance³⁹. On a professional front, trainees who have experienced harassment may struggle to maintain their empathy towards patients, potentially resulting in sub-optimal patient care⁴⁷.

It is also important to note that harassment may have an impact beyond the professional realm and seep into the personal lives of students, significantly affecting the quality of their relationships and overall well-being¹⁷. The toll of harassment can manifest in various ways, including increased irritability, mood swings, and a tendency to withdraw from social interactions.

These behavioral changes can strain relationships with friends, family, and romantic partners, as the emotional turmoil experienced by trainees permeates their interactions^{2,48}.

In addition to such effects, there also appears to be a cyclic effect where those who have experienced harassment during training are more likely to repeat and enact the same actions when they become more senior residents or staff physicians^{49,50}. The perpetuation of learning environments where harassment occurs without being remedied could have dire consequences as it could lead to a transgenerational effect in which learners are harassed or mistreated by more senior medical professionals who were treated the same way during their training⁵⁰.

Anti-Harassment Initiatives

As a result, there have been active calls for anti-harassment training programs, policies, and reporting protocols to be developed and implemented across Canada to help promote equity, diversity, and inclusivity in order to create a safe and respectful learning environment, and overall ensure the well-being and professional development of trainees and medical staff^{18,19,21}. However, while anti-harassment training programs are an important step towards addressing and preventing harassment in the medical field, there are also some challenges associated with the current programs. Researchers and practitioners have observed that current anti-harassment training programs often fall short in their effectiveness to prevent or address harassment^{51,52}. These programs typically employ a one-size-fits-all approach and lack hands-on training (i.e., active learning), focusing primarily on conveying information (i.e., passive learning) about policies and procedures and as a result, they often fail to build the necessary core skills and bring about meaningful changes^{51,53}. For example, these programs aim to educate individuals on the importance of identifying and responding to harassment, and commonly rely on standardized

approaches, such as slide-based presentations, handouts, multiple-choice quizzes, and completions of online training modules⁵⁴. As a result, they can be perceived as tedious, repetitive, and unengaging, rendering them ineffective for many participants^{51,55}. Furthermore, anti-harassment trainings are often a one-time event, rather than an ongoing process, which can limit its effectiveness in creating lasting positive change⁵⁵.

Current anti-harassment trainings often overlook the evaluation of trainees' behaviors and their application of learned skills in real-life scenarios⁵⁶. While these trainings provide information on policies and procedures, they often fail to assess the effectiveness of the training in promoting behavioral change and preventing harassment incidents⁵¹. The lack of follow-up evaluations or opportunities for application, such as through simulation, means there is limited opportunity to observe whether trainees can effectively apply what they have learned and potentially reported learning in real-life scenarios. Consequently, this gap in assessment hinders the ability to gauge the true effectiveness of anti-harassment training programs, preventing meaningful improvements, and potentially leaving individuals ill-prepared to address harassment situations confidently^{51,52,56}. These shortcomings are further corroborated by the under-reporting of harassment incidents in the medical field. Despite increased awareness of reporting mechanisms among medical students over time, a 2018 study revealed that more than 80% of mistreated trainees did not report the incidents⁵⁷. Furthermore, less than 36% of those who did report felt satisfied with the institution's response⁵⁷. For instance, some trainees reported instances where their reports were met with skepticism or downplayed, leaving them feeling unheard and unsupported⁵⁸. Trainees also expressed frustration with the limited supportive measures offered by their institutions, such as inadequate access to counseling services or insufficient temporary arrangements to ensure their safety and well-being^{57–59}. These inadequate

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responses not only failed to address the immediate concerns of the trainees but may also perpetuate a sense of disillusionment and mistrust in the institution's commitment to combating harassment⁵⁹. This trend could be attributed to a deep-rooted mistrust between trainees and schools, as many fear potential repercussions on their evaluations, residency positions, reputation, or future career prospects if they were to report such incidents to the faculty⁵⁹. While some universities have attempted to address these concerns by implementing anonymous reporting processes⁶⁰, resulting in an increased number of students willing to come forward, there are still numerous individuals who do not feel comfortable or safe enough to voice their concerns openly^{59,60}.

To address these limitations, we propose an innovative educational intervention that utilizes simulation-based training, a promising and novel alternative, to assist post-graduate medical trainees (i.e., residents and fellows) in recognizing and effectively addressing harassment in learning environments. To our knowledge, this intervention is one of its kind, as it is one of the first to integrate simulation into anti-harassment trainings. The only study we are aware of was conducted at the Université de Montréal, and focused on whether undergraduate medical students who participated in a standardized simulated scenario, that illustrated harassment of a fellow student by a surgeon, would be more likely to report such incidents during their surgical rotation⁶¹. In this case, the study assessed participants' likelihood of reporting harassment by examining their pre- and post-intervention surveys, analyzing the reporting rates of incidents of intimidation, and exploring the participants' perceptions and barriers to reporting through qualitative thematic analysis.

By moving beyond trainings focused solely on policy information, these simulations would create a more interactive learning environment⁶². They could provide trainees with realistic scenarios where they can actively participate and make decisions, allowing them to practice applying their knowledge. Such trainings could not only enhance their understanding of harassment dynamics but also encourage a shift in behavior and mindset⁶³. Through realistic role-playing, trainees can develop the skills and confidence necessary to effectively tackle harassment in their professional lives. By incorporating simulations into anti-harassment training, the assessment process becomes more robust, as assessors could directly observe and evaluate how trainees respond to complex situations⁶⁴. This multifaceted approach to assessment would ensures a more comprehensive understanding of what trainees have learned and how they apply that knowledge in real-world contexts.

Simulation Training in Medical Education

Medical simulation has gained popularity throughout healthcare education and is now employed across a wide range of clinical disciplines, enabling learners to engage in hands-on patient care away from the direct clinical environment^{65,66}. Simulation refers to learning activities that take place in simulated real-world environments, through methods such as role play or immersive devices, with the aim frequently revolving around showcasing procedures, decisionmaking, and critical thinking^{35,67} and is considered an effective clinical teaching strategy^{63,68}. The use of simulation provides a controlled and secure environment for learners, enabling deliberate practice and self-reflection⁶⁹. It has been shown that simulation as an educational technique enhances learning outcomes and can have a positive impact on patient outcomes as well⁷⁰. Simulation-based learning can be used for training and assessing a broad range of skills, both technical (including medical expertise or procedural competency) or non-technical skills, which encompass social, cognitive or personal resource skills^{71,72}.

Although studies have demonstrated the effectiveness of simulation-based teaching strategies, studies investigating the effects of such trainings on workplace harassment prevention are limited. Our study greatly extends on the research previously conducted at the University of Montreal⁶¹, as referred previously, by exploring Internal Medicine (IM) residents' live verbal and non-verbal responses to harassment, as well as potential motivations for these interactions. Notably, IM residents are further along in their medical training and have more experience in clinical settings than the undergraduate medical students previously studied, making this a distinct population.

Bystander Intervention Framework

As mentioned earlier, the field of medical education is a dynamic entity with its own written and unwritten rules and standards, which can be tightly tied to its organizational culture. Changing any social constructs, especially in the case of harassment, requires holistic interventions that set clear standards, define harassment and mistreatment, and motivate health professionals to uphold such standards. Bystander intervention trainings are a behavioural intervention that could offer such a desirable end point, as it has the potential to target underlying factors that shape toxic organisational cultures, challenge pre-existing social norms and encourage positive behavioural change⁷³.

Developed by the Green Dot Campaign, the bystander intervention program first aimed to decrease violence on university campuses⁷⁴. Bystander intervention refers to the act of individuals taking proactive steps to intervene in a situation where someone is being subjected to harm. In the context of harassment, bystander intervention involves recognizing the signs of harassment and

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choosing to take action to prevent or stop it⁷⁵. Bystanders can play a crucial role in creating safe and supportive environments by speaking up, offering support to the victim, or confronting the perpetrator. Bystander intervention empowers individuals to challenge inappropriate behavior, disrupt harmful dynamics, and contribute to a culture that promotes respect, inclusivity, and wellbeing^{75,76}. It encourages bystanders to become active participants in promoting positive change and fostering a sense of collective responsibility for creating and maintaining safe spaces⁷⁶. Unfortunately, research on the bystander effect indicates that most people will fail to interrupt a harassment instance for a variety of reasons, including fear of getting involved and the belief that someone else is better equipped to respond.^{77,78}

Active bystander intervention programs have gained popularity as effective strategies, initially targeting sexual assaults and violence on university campuses by engaging students who were not directly involved in the victim or perpetrator roles, with research showing a decrease in sexual violence following the implementation of these programs⁷³. An active bystander is someone who actively engages in a situation, assesses the appropriate actions to offer help, and intervenes to address unacceptable behaviors⁷⁵. These intervention programs have been specifically designed to tackle and combat various forms of discrimination, such as harassment arising from racism, sexism, as well as other aggressive behaviors present within the clinical learning environment⁷⁹. For example, a 2023 study looked at the ability of residents to recognize and respond to microaggressions from patients towards other members of the health care team in simulation scenarios, and found that such role-playing simulations could be an effective teaching strategy to help medical professionals navigate through such aggressions during patient encounters⁸⁰.

While bystander interventions began to address mistreatment in the field of medical education, there is still a significant gap in research specifically examining harassment that may occurs within medical team members themselves. To overcome this, we developed a novel active bystander training program for medical residents, including IM residents which this thesis focuses upon. This program specifically focused on a simulated and scripted harassment scenario, enabling learners to cultivate skills within a controlled and less high-stakes environment. The aim was to equip residents with practical strategies that could then be applied in the more challenging and less controlled settings of wards and medical centres, where errors can have more serious consequences. To the best of our knowledge, our curriculum is the first of its kind to use the simulation methodology for residents to actively practice bystander strategies and mitigate instances of harassment within clinical settings in a context that includes both harassment within the medical team, but also the accompanying power dynamics.

Chapter 2: Research Objectives

The purpose of this qualitative research study was to investigate how IM residents respond when faced with harassment directed towards a medical student (MS) by a senior resident (SR) during a learning simulation. This thesis contributes to the existing body of knowledge in medical education by shedding light on the responses and interventions of IM residents in the context of harassment during learning simulations. The objectives of this research, therefore, was to explore the verbal and nonverbal reactions of IM residents in these situations, the possible motivations underlying those reactions and examine any potential discrepancies between self-reported interventions by junior residents during the debriefings and observed interventions during the simulation.

To do so, we aim to answer the following research questions:

- 1. How do IM residents react verbally and nonverbally to harassment during the simulation?
- 2. Do the interventions self-reported by IM residents during the simulation debriefing align with the interventions observed during the simulation?
- 3. What were the motivations provided in the debriefing by IM residents for their actions during the simulation?

Overall this study aims to address the gap in knowledge surrounding harassment response patterns among IM residents, to spark discussions and drive positive change in medical education. By delving into how residents both verbally and nonverbally address harassment, we strive to understand the link between their responses and the motivations that underlie these reactions and explore the potential factors influencing their decision-making process when witnessing harassment in simulated medical learning environments.

Chapter 3: Manuscript

Understanding How Medical Residents Respond to Harassment During Simulation Training: A Thematic Qualitative Study

Manuscript to be submitted to Medical Education

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Abstract

Introduction: Harassment remains prevalent in Canadian medical spheres, negatively impacting trainees' well-being and learning. Anti-harassment programs have shown limited effectiveness, leaving trainees ill-prepared to recognize and respond to harassment incidents. This study offers pioneering insights into IM residents' responses and actions when witnessing incidents of harassment. It presents a unique examination of real-time reactions to harassment within a simulation-based training setting.

Methods: Twenty residents participated in a scenario where they performed a central line procedure on a mannikin while observing a senior resident (SR) engaging in verbal harassment towards a medical student (MS). The residents' reported interventions during debriefing sessions were compared with the interventions observed by facilitators during the simulation. The motivations behind these interventions were also explored. Video and audio recordings from the simulation, along with audio recordings from the debriefings, were utilized for qualitative thematic analysis.

Results: The findings revealed significant variations in the responses and interventions of IM residents towards harassment. A comparison between reported interventions and observed interventions highlighted some discrepancies. While some residents hesitated to respond due to medical hierarchy or prioritizing the ongoing procedure, others intervened to protect the MS or challenge unfair expectations.

Conclusion: This study provides novel insights into IM residents' responses to witnessing harassment and sheds light on the underlying motivations guiding their behaviors. It represents the first investigation into trainees' direct responses to harassment within a simulated medical procedure.

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Introduction

Harassment is regarded as an ingrained aspect of medical culture^{16,34} and seen as an inevitable rite of passage in the path towards becoming a physician^{4,34}. The Canadian medical scene is no exception, with a 2018 national survey reporting that more than 75% of residents have experienced at least one form of harassment²². This longstanding issue has dire consequences on trainees' physical^{17,39} and psychological well-being^{37,38,46}, but also their learning abilities^{39,40} and professional development^{36,37}.

Intervening when witnessing harassment can play a crucial role in diffusing hostile situations⁷³. However, trainees often feel ill-prepared regarding how to recognize harassment and respond appropriately⁸¹. The inherent power dynamics in medical training, with senior physicians and residents exerting their authority over junior trainees^{31,82,83}, can also create an environment where individuals are hesitant to address harassment^{31,83}. Studies indicated that many individuals choose to ignore incidents of harassment due to fear of engagement, lack of self-assurance, or the presumption that others are more capable of handling the situation^{77,84,85}. Fear of retaliation, embarrassment, or a belief that nothing will change³¹, may prevent trainees from speaking up, which further reinforces this culture of silence and makes it challenging to address and prevent harassment effectively^{31,32,34}. To better equip trainees, bystander intervention programs have now gained popularity as effective strategies, especially in targeting various forms of harassment rooted in discrimination as well as other aggressive behaviors prevalent in the clinical learning environment⁷⁹.

While all Canadian universities have policies against harassment and discrimination^{13,19,20}, anti-harassment training programs often lack effectiveness and can be viewed as tedious, repetitive, and unengaging^{51,52}. Simulation-based trainings refer to activities that employ

techniques like role play or immersive devices to replicate real-world scenarios^{35,67} By incorporating simulation-based trainings that specifically focuses on bystander interventions, the effectiveness and engagement of anti-harassment training could be enhanced, leading to long lasting changes.

We developed an active bystander training program for medical residents that specifically focused on providing fundamental knowledge of harassment and bystander intervention strategies through series of video lectures, in addition to a simulated harassment scenario that allowed learners to cultivate skills within a safe, and less high-stakes environment. Our unique study integrates active bystander simulation into anti-harassment training, setting it apart as one of a kind in this field. To the best of our knowledge, the only similar study was conducted at the Université de Montréal, which focused on undergraduate medical students' likelihood of reporting harassment incidents during their surgical rotation after participating in a standardized simulated scenario. Their study assessed reporting rates and participants' perceptions through pre- and post-intervention surveys and qualitative thematic analysis. In comparison, our study allows residents to take on an active role in the simulation, leading to a more realistic experience. Through this innovative and hands-on method, our study strives to provide richer insights into residents' responses and motivations when confronted with such situations.

Objective

The purpose of this study was to understand how Internal Medicine (IM) residents intervene when faced with a senior resident (SR) harassing a medical student (MS) during a learning simulation, and in addition, to explore the motivations behind those interventions. This is achieved by addressing the following research questions:

- 1. How do Internal Medicine residents react verbally and nonverbally to harassment during the simulation?
- 2. Do the interventions self-reported by Internal Medicine residents during the simulation debriefing align with the interventions observed during the simulation?
- 3. What were the motivations provided in the debriefing by Internal Medicine residents for their actions during the simulation?

Methodology

This study is part of a larger research project focused on evaluating an educational program designed to help post-graduate medical trainees identify and address harassment in simulated clinical settings aiming to enhance learning and professional development. An experimental methodology was used where residents were randomly assigned into one of three groups. In one group, trainees watched a series of video lectures about harassment and bystander interventions before participating in a simulation exercise, whereas the other group reversed the order of these two activities. The control condition is outside the scope of our research questions, so we will only describe the two experimental groups.

Participants and Data Collection

Following institutional review board ethics approval, year 1 and 2 IM residents enrolled in a Canadian school during the 2022-2023 academic year were recruited to participate in a randomized controlled trial. We selected the first 20 participants (8 in the video-first group and 12 in the simulation-first group) that consented to having both their audio and video recorded. The simulation intervention was planned to last 10 minutes each. Participants had a mean age of 26 years (SD: 1.64), 35% were females and 55% self-identified as a member of a visible minority.

Video Intervention

The educational videos were created as a screen-cast video of a slideshow featuring custom illustrations and animations that aimed to engage the learners and elucidate concepts and examples of harassment, intervention strategies, and related policies. There were 5 videos, totalling to 37 minutes and 44 seconds of viewing time.

Simulation intervention

During the simulation, participants acted as a junior resident (JR) and were asked to perform a central line placement on a high fidelity mannikin (CAE Blue Phantom Central Line Ultrasound Training Model). Standardized participants (SPs) played the MS, whose role was to observe and SR, whose role was to supervise, and if needed, guide the JR's performance. In this case, the SR verbally harassed the MS and left before the end of the procedure. More information about the simulation, including the pre-briefing given to trainees, SP involvement and guidelines, and details of the debriefing can be found in Appendix A.

Simulation debriefing

The debriefing followed the simulation and had a semi structured approach. While a set of pre-determined questions were used to guide the debriefings, the flow of follow-up questions was dependent on previous responses to seek clarification when appropriate. This allowed for a more individualistic approach and to gather more detailed and rich data and was more aligned with the pedagogy expected from simulation debriefings⁸⁶.

Qualitative thematic content analysis

Thematic analysis, a widely used method for identifying and analyzing patterns in qualitative research⁸⁷, was used to code the data. It involves developing codes based on the researcher's interpretation of the data, allowing for a more nuanced understanding⁸⁸. An inductive

approach was adopted, enabling themes to emerge naturally from the data. This approach was deemed appropriate due to its exploratory power, allowing for a more comprehensive understanding of the phenomenon^{87,89}. The analytical process of thematic analysis was iterative, resulting in the emergence of three overarching themes with fifteen subordinate codes. An important part of this phase of analysis involved allocating subordinate codes to only one theme and was done by promoting clear definitions to the themes and codes.

This analysis was used for both the simulation and debriefing. The recordings were transcribed verbatim and reviewed to observe the diversity of responses amongst participants. The first author reviewed data to develop initial codebooks that were then reviewed by co-authors. Microsoft Excel was utilized for frequency analysis.

This paper is positioned within the realm of qualitative research, focusing on thematic analysis as the primary means of understanding the data. Descriptive frequencies are presented to enhance the depth of the findings and add richness to the themes, codes and quotes. This approach aligns with common practices in the field of medical education^{90–92}, ensuring a comprehensive exploration of the subject matter⁹³.

Research Reflexivity

The transformative paradigm, which emphasizes the importance of reflexivity and the need to challenge power dynamics, social inequalities, and dominant ways of thinking, guided this study⁹⁴. The first author took an active role in the data collection part of this study, including as a SP, primarily for the MS and in some instances the SR.

This active participation allowed for a more nuanced and holistic perspective on the participants' dynamics during the simulation, enabling the researchers to grasp subtle details and

intricacies that may not have been fully caught through observation of the simulation videos alone. However, it may also have introduced potential biases stemming from the background and previous experiences of the first author, especially during thematic analysis development. To address this, the first author engaged in reflexivity by continuously reflecting and questioning how their previous experiences may influence their perspectives and sought out diverse perspectives from coauthors to ensure a comprehensive and well-rounded interpretation of the data.

Results

RQ1: How do IM residents react verbally and nonverbally to harassment during the simulation?

Three themes emerged (Table 2): (1) MS-centered responses, focused on supporting the MS; (2) SR-centered responses, characterized by the JR addressing the SR's behaviors, and; (3) passive-responses including the JR not acknowledging the harassment.

1. MS-Centered Responses:

These responses emerged as a crucial aspect of responding to harassment, as they provide potential support to the victim. This theme was comprised of three sub-categories:

- A. Reassuring Responses: characterized by actions such as providing simple reassurance, checking on the MS' well-being, and looking at the MS following a harassing comment. For example, participants asked "How are you feeling?" (participant O116 to MS), and "Do you want to talk about it to me" (participant O321 to MS).
- B. Empathetic Responses: characterized by more nuanced actions, including offering sympathy, comfort, or making self-reflective statements. For example, participants mentioned "You remind me of me when I was a med student" (participant T110 – to MS),

and "There is going to be a lot of things in medicine, things don't always go as planned, and so we keep trying until we get it right" (participant T25 – to MS).

- C. Knowledge-Driven Responses:
 - i. Empowering Responses: characterized by actions aimed at assisting MS, such as directing MS to appropriate resources or reporting channels. For example, a participant mentioned "There are ways of reporting this if you need or if you feel you need to" (participant O321 to MS).
 - ii. Pursuit of Knowledge: characterized participants encouraging questions or offering further practical assistance. For example, a participant stated, "We'll go over the steps together, and the next time you'll be able to scrub in with me and we'll be able to go over it" (participant T17 – to MS).

Reassuring and empathetic responses (1A and 1B) were prevalent, with all participants utilizing reassuring words like 'don't worry' or 'it's okay' following instances of harassment. 65% offered comforting words or showed sympathy, and 40% shared personal experiences. Only 15% of residents invited further discussion after the simulation.

Knowledge-driven responses (1C) were also popular, particularly to encourage the pursuit of knowledge (1Ci), with 80% encouraging the MS to ask questions and 45% actively helping the MS by adjusting equipment or guiding the MS to a better observation spot. However, few used empowering responses (1Cii), with only 10% offered to review the central line procedure and 15% informed the MS about reporting options.

2. SR-Centered Responses:

These interventions emerged as another important theme as they can challenge the notion that harassment is an acceptable behaviour. This theme comprised two main categories:

- A. Immediate Direct Responses:
 - i. Verbal Immediate Direct Responses: involved confronting the SR in a clear and unambiguous manner. Some participants challenged the SR, such as "I don't think we need to be that hard on [the MS]" (participant T229 to SR). Others disagreed with the SR, for example, "Do you [SR] think [the central line] is a bit early for a first year?" (participant T312 to SR) or "I don't think anything [on the sterile field] was touched" (participant O211 to SR).
 - ii. Nonverbal Immediate Direct Responses: involved looking at the SR or physically reacting through hand gestures or facial expressions, such as frowning their brows or widening their eyes, following instances of harassment. These responses were considered a direct response, as they could indicate disapproval of the SR's actions.
- B. Immediate Indirect Responses: involved strategies that aim to shift SR's attention away from the MS. Examples included distraction, "Do you mind reminding me what the next step is?" (participant O28 – to SR), or suggesting a follow-up conversation, "After this, if you wouldn't mind, you and I could have a talk outside" (participant T25 – to SR).
- C. Delayed Responses: involved condemning SR's actions when JR is left alone with MS. For example, "It was really inappropriate the way she shouted at you" (participant T235 to MS) or "I am sorry you had to deal with that" (participant T17 to MS).

75% used verbal immediate direct responses (2Ai), with 30% confronting the SR, 55% expressing disagreement without addressing the SR's behaviour, and 25% attempting to interrupt. On the other hand, all residents used non-verbal immediate direct responses (2Aii),

with 100% looking at the SR following a harassing comment and 35% displaying reactive facial or body reactions. 55% of participants used immediate indirect responses (2B), with 45% trying to distract the SR away from the MS, and 10% suggesting a follow up discussion. When left alone with the MS, 65% used delayed responses (2C), with 50% condemning the SR's actions to MS and 35% apologizing on behalf of the SR.

3. Passive Responses:

These interactions include when participants either acknowledged the harassment without intervening or did not acknowledge the problem at all. This theme comprised three categories:

- A. Education-Focused Responses: involved teaching the central line, soliciting the SR's help while explaining the procedure, or asking the MS additional knowledge-based questions.
- B. Avoidant Responses:
 - 1. Agreeing with the SR:
 - Procedural Agreement: involved agreeing with the SR on something that could compromise patient safety. For example, one participant followed up on the SR berating the MS for breaking the sterile field by saying "Yeah, remember when we said that this is sterile" (participant T312 – to MS)
 - Simple Agreement: involved agreeing with the SR following a harassing comment.
 It includes participants nodding or saying yes/yeah following some statements such as "Medicine is based on facts, not opinions." and "That's very stupid" (SR to MS)
 - Isolating the MS: involved isolating the MS by asking them to leave the simulation room.

C. Unresponsive Responses: referred to participants who did not verbally or physically respond to the harassment.

All participants used education-focused response (3A), with 100% teaching the central line to the MS and 95% asking for the SR's help at some point. However, only 10% asked for the SR to stay until they finished the procedure, with one of them requesting feedback on their skills instead of help.

30% of residents used procedural agreement responses (3B1i), with 35% using simple agreement (3B1ii), and only one asking the MS to leave the room before the simulation ended (3B2). In terms of simple agreement, most participants agreed with the SR commenting on the MS' preparedness or lack of knowledge towards the central line, with only one nodding following the SR calling the MS's actions stupid.

75% of participants did not react following a harassment comment (3C). This lack of reaction was particularly prevalent at the beginning of the simulation, but gradually became less common as harassment incidents accumulated. This frequency refers to participants not reacting to at least one specific event during the simulation, rather than their overall response.

RQ2: Do the interventions reported by *IM* residents align with the interventions observed during the simulation?

When comparing residents' self-reported actions to recorded interactions during the simulation, 77% of the reported responses aligned with their self-documented behaviour. Specifically, participants accurately described providing support to the MS and referenced specific statements made during the simulations. However, it was noted that half of the residents overestimated at least one of their reported interactions. Discrepancies arose when, for instance,

participants reported communicating to the SR that their actions were unacceptable, and that the MS did not deserve such treatment. Additionally, some mentioned following up with the MS after the SR had left, inquiring about their well-being, or explaining the inappropriateness of the situation. However, such behaviours were not observed during the simulation.

RQ3: What motivated IM residents to intervene or to not intervene to harassment during the simulation?

Thematic analysis was also used to explore possible factors that motivated or prevented interventions (Table 3). Findings are presented below in order from most to least frequent, and category titles were developed from participant quotes.

"Trying to perform a central line insertion."

Among residents, 70% of participants based their decision to intervene or not on their focus on the central line. This also included residents who relied on the SR's expertise or chose to prioritize the patient.

30% chose not to intervene to concentrate on the central line and 25% to benefit the patient or avoid arguments in front of the patient. 10% also mentioned feeling inexperienced and relying on the SR's assistance. Interestingly, 15% avoided addressing the senior resident due to fear of becoming a target of retaliation.

Lastly, 15% of participants stated that they intervened because the ongoing harassment was distracting them, hindering their ability to fully concentrate on the procedure and patient.

" Protect the medical student."

Among the participants, 65% stated that their motivation for intervention stemmed from a desire to defend the MS. They expressed empathy and a willingness to support the MS, feeling that the MS was in a vulnerable position and wanting to prevent the harassment from escalating. One participant (O211) found it easier to address the MS rather than directly confront the SR, as they perceived the latest to be already agitated and aggressive. Another participant (O321) mentioned their inclination to avoid confrontations, making it easier for them to reassure the MS.

"You're not equal colleagues."

Half of the participants specified that the power dynamics in medicine are further reasons to not intervene during the simulation. For example, one participant (O113) said, "The hierarchical power [...] made it difficult to like confront the SR" and another (O211) that "There's already that hierarchy between the two of you".

"I didn't know what to do."

35% of participants expressed uneasiness and uncertainty during the simulation, leading them to feel unsure about how to respond. They often remained silent due to being stunned by the occurring harassment. Additionally, 15% mentioned difficulties in communicating with the SR or the MS due to a lack of knowledge about their relationship and anticipated reactions.

"These aren't realistic expectations."

30% of participants expressed a desire to denounce the SR's actions and highlight the unrealistic expectations placed on the MS, as they themselves had not learned how to do central line insertion as medical students. They wanted to voice concerns about the SR's harsh treatment of the MS, including raised voices and aggressive behaviour.

" I've been in situations like that."

15% of participants shared that they had personally experienced or witnessed similar harassment in the past. They described instances of harassment by staff or observing their peers being subjected to such treatment.

Discussion

Our study seeks to enhance our understanding of how IM residents respond to harassment in a controlled learning environment, as well as the accuracy of residents' self-reported actions and their underlying motivations behind their responses.

MS-centered responses were predominantly utilized by residents, emphasizing support for the victim. While simple reassurance was mostly used in the presence of the SR, once alone with the MS, residents engaged in more meaningful conversations and were more willing to condemn the SR's actions. This suggests that residents tended to feel comfortable establishing rapport with the MS, especially once the SR was no longer present. Our findings may also highlight a potential fear of directly challenging the SR.

Similarly, fewer residents directly challenged the SR's behaviours, highlighting the potentially significant impact of hierarchies on the residents' responses. While some residents voiced concerns about the SR's unrealistic expectations for the MS, most were hesitant to confront the SR. Residents mentioned feeling uncomfortable due to the SR's higher position in the hierarchy, needing the SR's guidance during the procedure, as well as fearing repercussions of becoming a target. This hierarchy-related discomfort can create barriers to residents speaking out and contribute to a culture of silence. Further exploration would be warranted to explore strategies that can reshape institutional power dynamics and foster a more supportive learning and working environment for healthcare professionals.

On the other hand, there were instances where residents agreed with the SR during harassment situations that could affect patient care, such as breaking the sterile field. This alignment with the SR's behavior could further exacerbate the distress experienced by the MS which could lead to diminished self-confidence, lower academic performance and ultimately program dropout^{17,39,95}. While addressing such mistakes is crucial, it is important to approach them in a constructive manner that does not enable or justify harassment. The medical profession operates under strict regulations due to the importance of patient treatment and the potential consequences of medical practice. However, there is a dilemma that underscores the challenge of balancing these high standards with the need to foster a respectful and supportive learning environment.

Additionally, all participants took part in teaching the central line to the MS, with most displaying a positive approach by actively encouraging questions during the teaching process, which suggested their interest in fostering an effective learning environment in medical training. Another possible explanation is that residents deliberately chose to prioritize the teaching aspect of the simulation as a strategy to redirect the attention of the SR away from the MS, thereby preventing further harassment.

It is noteworthy that only a few residents mentioned reporting resources to the MS, indicating a potential lack of awareness or consideration of reporting as a valuable course of action. While some residents acknowledged the SR's actions as unacceptable, they often failed to emphasize the importance of reporting such behaviors. This trend aligns with findings from previous studies and highlights the need for improved education on the significance of reporting in addressing and preventing harassment in medical training^{96,97}. Additionally, some residents placed the responsibility of reporting incidents on the MS, undermining the collective

responsibility to report such behaviors. This may be attributed to residents feeling hesitant to get involved in the reporting process themselves, especially if they are not directly affected by the harassment, or perceiving reporting burdensome, leading them to defer it to the individual who experienced the harassment⁹⁸.

When assessing the accuracy of all residents' self-reported responses during the simulation, it was found that most responses were accurately reported. However, it is important to highlight that half of the residents overestimated at least one of their actions. Specifically, residents tended to overestimate instances of directly confronting the SR or offering follow-up aid to the MS, such as helping in reporting the SR's inappropriate behaviour. However, these behaviours were not observed during the simulation, indicating a disparity between self-reported and actual actions. This discrepancy may arise because residents could have overestimated their effectiveness in addressing harassment incidents and selectively remembered their responses in a more positive light. As a result, they may not realize the need for further anti-harassment training or areas where they can improve. Providing learners with feedback after such training is crucial to give them an accurate assessment of their responses. Additionally, as the debriefings 43irectly followed the simulation, residents may have positively influenced reporting accuracy by enhancing participants' recollection of their interventions. In other words, residents' may potentially have greater inconsistencies between actual versus remembered and reported responses to harassment should they have been prompted to report or remember at a later point in time. Conversely, it is also possible that due to social desirability, residents reported their responses in a direction they thought would be favorable to the debriefer.

Limitation and Future Directions

It is important to acknowledge this study's limitations. First, residents were informed that the study focused on harassment and were instructed to consider strategies to defuse it. This awareness might have made them more attuned to actions, and therefore, their response may have been more prompted than they would have been in real-life situation. Despite this, many residents did not engage in certain types of interventions, such as directly confronting the SR, highlighting the challenges they encountered even within the simulated environment. This raises concerns about their readiness to handle comparable situations in real-life settings. Secondly, different SPs took over the role of the SR and the MS throughout our study (Appendix A). This could have potentially influenced residents' perceptions and responses to harassment, as different SPs had some variance in their personality and reactions even when following a script they were trained to and practiced using. All SPs were female, and this gender composition may have influenced participants' perceptions and reactions. Future work within this program of research will use professionally trained actors for SPs rather than extensively script-trained but not professional actors. Next, technical challenges encountered with the mannikin used during the simulation could have distracted residents and shifted their focus away from the harassment scenario. Instances were observed where residents reached out to the simulation facilitator to seek assistance regarding the equipment. Future work within this program of research will benefit from more reliable mannequin models. Additionally, time constraints during debriefings limited the depth of understanding of participants' experiences and actions, potentially hindering a comprehensive exploration of their decision-making processes.

To broaden our understanding of harassment within medical training, future research could explore the transferability of our findings by investigating behaviours across different specialties to uncover if similar patterns emerge and to gain insights into their distinct dynamics. Moreover, it could be interesting to explore the responses of other individuals within the medical hierarchy, including senior residents, fellows, attending physicians and other healthcare professionals. By understanding how these individuals react to instances of harassment, a more comprehensive grasp of power within medical education may be attained. Integrating simulation-based training into the current medical curriculum is therefore a crucial step forward and it is important to recognize that implementing such trainings is not the endpoint, but rather the beginning of a transformative approach to addressing harassment in medical education.

In conclusion, this study offers valuable insights into how IM residents maneuver and respond to instances of harassment within the learning environment. The findings highlight the prevalence of MS-centered responses, emphasizing support for the victim, but also reveal nuanced behaviors and hesitancies in directly confronting perpetuators. The study sheds light on the accuracy of residents' self-reported actions, uncovering potential instances of overestimation. By continuing to delve into these areas, we can work towards fostering a culture of respect, support, and accountability in medical training that support diversity, professional development, healthcare professional well-being and retention and ultimately patient care.

Tables and Figure

Table 1: Observations et Definitions of Harassment Related-Responses of Participants during Simulated Scenario (N=20)

		Frequency (% of
Responses observed during the simulation	Definitions	participants)
MS-Centered Responses.		
Reassuring Responses.		
JR looks at MS following a harassing	JR looks at MS during the simulation, directly following	217(100)
comment.	a harassing comment made by SR.	217 (100)
JR uses simple reassurance words to MS.	JR provides simple words of comfort, to help to alleviate MS' stress or anxiety.	71 (100)
JR checks on MS.	JR asks MS how they are feeling or how they are doing.	33 (75)
Empathetic Responses.		
JR makes proactive gestures to help MS.	JR facilitate MS's participation during the simulation.	15 (45)
JR sympathizes with MS	JR offers words of comfort or understanding to MS.	39 (65)
JR reflects on past experiences to MS.	JR share their own experiences or stories to MS.	12 (40)
JR propose to MS a following-up	JR offers to discuss after the simulation.	
communication.		6(15)
Knowledge-Driven Responses.		
Empowering Responses		
JR informs MS about reporting channels.	JR directs MS to appropriate resources or authority figures.	9 (15)
Pursuit of Knowledge.		
JR encourages questions and learning.	JR motivates MS to not give up, to ask questions or to continue pursuing knowledge.	55 (80)
JR offers MS supplementary knowledge.	JR offers to review or redo the central line together.	4 (10)
SR-Centered Responses.		
Immediate Direct Responses.		

Nonverbal Immediate Direct Responses.

JR looks at SR following a harassing comment.	JR looks directly at SR during the simulation.	245 (100)
JR displays a reactive facial expression due to SR's behavior.	JR intervenes using physical gestures or other nonverbal cues, such as frowning or widening their eyes.	11 (35)
Verbal Immediate Direct Response.		
JR confronts SR's behaviour.	JR express condemnation of SR's actions, by pointing out inappropriate behavior or asking them to stop.	9 (30)
JR disagrees with SR's comments or statements.	JR directly and express disagreement of JR's statements.	29 (55)
JR interrupts SR.	JR tries successfully or unsuccessfully cut off SR during a harassing comment.	13 (25)
Immediate Indirect Responses.		
JR distracts SR.	JR redirects SR's attention away from the MS.	14 (45)
JR suggests talking to SR after the simulation.	JR requests a following-up discussion to SR about their behaviour.	3 (10)
Delayed Responses		
JR apologizes for SR's behavior to MS.	JR apologizes to MS about SR's actions in the absence of SR.	9 (35)
JR condemns SR's behaviour to MS.	JR acknowledges to MS that SR's actions were inappropriate in the absence of SR.	23 (50)
Passive reaction		
Education-Focused Responses.		
JR teaches the central line procedure.	JR provides MS with knowledge and skills to perform the central line placement.	515 (100)
JR asks SR not to leave the simulation room before they finish the central line placement.	JR requests SR to stay till them finish the central line placement.	3 (10)
JR asks a knowledge-seeking question to MS.	JR asks MS a question to promote learning.	10 (20)
JR warns MS about the sterile field.	JR proactively cautions MS about the sterile field to maintain its integrity.	13 (40)

JR solicits SR's help regarding the procedure or equipment.	JR requests SR's help regarding the central line placement. It could be by asking what the next steps are, or requesting SR's assistance with tools or equipment.	105 (95)
Avoidant Responses.		
JR agrees with the SR.		
JR shows procedural agreement.	JR agrees with SR's comments on something that could affect patient safety.	10 (30)
JR shows simple agreement.	JR shows agreement following a harassing comment made by the SR.	9 (35)
JR isolates the MS.	JR asks MS to leave the simulation room.	5 (5)
Unreactive Responses.		
JR had no verbal interactions following a	JR does not interact with another standardized	32 (75)
harassing comment.	participant.	

Table 2.	Participants'	Report on	their	Interventions	During	the Simulation	(N=20)

Description	% of Interventions	
Interventions accurately reported by participants	77.3	
Interventions overestimated when reported by participants ¹	22.7	

1. Include a strategy reported by the resident to diffuse the harassment during the simulation that was not observed during the simulation.

Motivations stated during debriefings	Definitions	Participants (%)
"Protect the medical student."	Participant chose to intervene because they wanted to help and defend the MS	65
"Speak up"	Participant emphasizes the importance of speaking up and to denounce the SR behaviours.	35
"I've been in situations like that."	Participant wanted to intervene because they were confronted to harassment in the past	15
"My first obligation is to the patient."	Participant wanted to prioritize the patients, felt beholden to the SR knowledge and expertise to complete the procedure, or were distracted by the harassment taking place	70
"You're not equal colleagues."	Participant chose to not intervene because SR was their senior or because they didn't want to become the target to harassment	50
"I didn't know what to do."	Participant was taken aback by the harassment and didn't know what to do or felt uncomfortable intervening as they didn't know the MS or SR	40

Table 4: Participants' Motivations to Intervene or Not during Simulated Harassment Scenario (N=20)

Supplemental Material

Appendix A. SP involvement and guidelines, pre-briefing given to trainees, and details of debriefing.

In this study, the MS was first played by a researcher while the SR and the simulation technician were played by simulation staff of the McGill University Health Centre for Interprofessional Simulation. Halfway through the data collection, the roles of MS and the SR were taken over by researchers. One person predominantly served as the MS, while three others replaced them intermittently. Additionally, two individuals were the main SPs for the SR role, but another person also played it on certain occasions. To maintain consistency between simulations, training, scripts, pointers, and feedback were provided to all SPs.

Pre-briefings given to trainees:

"Welcome to the anti-harassment simulation training. I'll be your facilitator for the simulation. You'll be participating in this simulation with standardized participants but otherwise you will be working alone. The objective of this simulation is for you to practice technical skills while effectively applying bystander intervention strategies in a harassment scenario. The technical skill we have chosen for this scenario is a central line insertion. The scenario is as follows: You are a junior resident in a simulation setting, performing an internal jugular central line insertion on a mannikin simulator. With you are a medical student and a senior resident. The medical student is there to observe you and learn, while the senior resident is there to supervise both your and the medical students' performance. The senior resident will harass the medical student. There will be a simulation technician on standby in case of any issues. Think of an intervention strategy you can use to remedy the harassment. For the central line insertion, the patient will already have been positioned, and the tools you need are already gathered. The draping is already complete. You will begin the procedure starting from getting into the gown and gloves, priming the instruments, and using the ultrasound to locate the insertion area. You will not be suturing at the end of the procedure. Instead, if you reach this step of the simulation, consider the central line insertion to be complete. Before you insert the central line, you are expected to inject lidocaine in the surrounding area—please assume the drug takes effect immediately without waiting. Remember, the harassment occurring here is not real, and is simulated for your learning. Before we begin, I'd like to answer questions you have for this simulation."

Suggested Script for the harassment scenes given to SPs/Researchers:

First Harassment Scene:

Senior resident (SR): "Where is the medical student? I don't have time for this." (As SR helps JR get into gown)

Technician: "Let's just start right away. I'll be at my station in case any of you have issues."

Medical student (MS): "I'm sorry my bus was late"

SR: *Sighing, turns away from MS. "Nobody asked, we've already started."

Second Harassment Scene:

MS takes out his notepad but drops it on the floor.

SR: *Stares down MS. *Eye roll

MS: "I'm sorry. I'm just trying to take notes. This is my first observation for a central line insertion. In fact, it's my first observation period--"

SR: "Please. Stop." *Sighs

Third Harassment Scene

SR: "Hey, you, you're paying attention, right? Do you know where the sternocleidomastoid muscle is [replace this with any pimping questions]"

MS: "Uh. In my opinion... I mean, I used to know this, let me think about it-"

SR: *Stares down MS

"what do you mean 'in your opinion'? It's not an opinion, it's a fact. Do you know it or do you not?"

*** Pause ***

"Honestly, just keep your mouth shut if you don't know something. Why do you even talk? The way you talk is so weird. No, seriously, why? Answer me, why?"

*** Pause ***

"You know you look real good when you're not talking? I hate your voice."

MS: "I'll take notes. I'm sorry."

SR: "No, just stop! Stop what you're doing! All you do is observe."

MS: **very quietly* "I'm sorry"

SR: *Sighs

Fourth Harassment Scene

Medical student moves around to look at the ultrasound machine better. Bumps into tray (hard

enough to make noise).

SR: Sigh. "You're an idiot."

MS: "I'm sorry"

SR: "Ok no, stop. Just stop."

MS: "I-"

SR: "Stop. You're an idiot. Just stop."

Fifth Harassment Scene

SR: "Ok pause. Hey you. Tell me what comes next."

MS: "Um. I think you have to suture...?"

SR: "You know what, I'm done. You're done. We're just. Done. You're an idiot. You know that?"

MS: "…"

SR: "Tell me how stupid you are"

MS: "…"

SR: "Hey, hey, hey. Look at me. Tell me how stupid you are. Tell me."

MS: "I can't... do this."

SR: "Leave. You know what, I'm leaving. You're an idiot"

*** SR leaves the scene

Selected debriefings guiding questions for analysis:

During the debriefing sessions, residents were directed to a separate room away from the simulation room, where they could reflect on the simulation alone with the study facilitator. In one session, the regular facilitator was replaced by another member of the research team who had prior experience conducting debriefings. This research member had also been briefed and prepared by the main facilitator of the study to ensure a consistent debriefing experience for the participants. The following questions were selected to guide our results and analysis for the current analyses:

- 1. How would you describe the intervention method you chose?
- 2. What do you think you did well in addressing the harassment?

Chapter 4: Discussion and Conclusion

This chapter serves as an extended exploration and expansion of the discussion presented in the manuscript, delving deeper into the topics, findings, and implications discussed in the third manuscript-based (i.e., journal article) chapter of this thesis. By offering a more comprehensive analysis and elaboration than would be possible in a medical education journal article (chapter 3), this chapter aims to provide a thorough examination of the research outcomes and their significance, contributing to a more comprehensive understanding of the subject matter for the thesis. Through an in-depth exploration of the study's findings and their implications, this chapter seeks to shed further light on the key points and insights discussed in the manuscript. Our study presents novel findings, shedding light on the verbal and non-verbal behaviors displayed by IM residents when confronted with verbal harassment from SRs towards MSs. Additionally, we explore the accuracy of residents' self-reported actions and investigate the underlying motivations behind these actions, offering information on the multifaceted nature of residents' responses to harassment, contributing to a deeper understanding of this important issue.

First, MS-centered responses were the most prevalent response theme used by residents, suggesting a strong focus on supporting and addressing the needs of the victim. In response to verbal harassment, all residents utilized various forms of reassuring language, such as "it's okay" or "don't worry," when engaging with the MS. However, without actively addressing the underlying issue this approach may be perceived as dismissive or unhelpful to the overall resolution of the situation⁹⁹. It is worth noting that such reassurances were most often observed at the beginning of the simulation when the SR was still present in the room. Residents might have felt apprehensive about challenging the SR's actions more openly or may have been concerned about potential consequences or backlash. Furthermore, it is also possible that residents were too engrossed in the technical procedure, focusing their attention on the technical aspects of the task, which may have hindered their ability to address the harassment more prominently. This observation is corroborated by the shift in residents' responses once the SR left the room, where they became more inclined to engage in more complex conversations with the MS. This change could be attributed to residents feeling more comfortable and at ease when the SR was no longer present, which aligns with some residents' comments, expressing that they found it easier to communicate with the MS than with the SR. Additionally, as the procedure reached its completion, residents may have felt more inclined to address the harassment, as they were done with the most challenging parts of the central line placement. While about half of the residents highlighted to the

MS that the SR's actions were not acceptable,, only a few residents mentioned reporting resources to the MS. This finding suggests that residents may have limited awareness of the available reporting strategies or may not consider reporting as a valuable course of action. This trend has also been noted in other studies^{96,97}, and illustrates the need for improved education regarding the potential impact that reporting can have in addressing and preventing harassment in medical training. Additionally, some residents shifted the responsibility of reporting incidents onto the MS undermining the collective responsibility to handle such behaviors. It is possible that residents may feel hesitant to get involved in the reporting process themselves, especially if they are not directly affected by the harassment. They might also perceive reporting as a challenging or burdensome task, leading them to defer it to the individual who experienced the harassment⁹⁸.

Secondly, it is worth noting that three-quarters of the residents did not immediately react to at least one instance of harassment, particularly during the initial stages of the simulation. This observation, however, decreased as the simulation progressed. One possible explanation for this finding is that residents may have been initially cautious or less quick to jump into action as they were becoming familiar with the simulation setting and everyone's assigned roles. In the early stages, residents might have been focused on understanding the context and dynamics of the scenario, which could have temporarily hindered their immediate response to the instances of harassment. As the simulation unfolded and residents became more immersed in the situation, they may have gained a better understanding of their role and the importance of addressing harassment, leading to an increase in their reactions over time.

Finally, when examining the accuracy of reporting, it was revealed that while most interventions were accurately self-reported by the residents, half of them overestimated at least one of their actions. This could have implications for their understanding of their intervention skills and the effectiveness of their anti-harassment efforts where residents mistakenly believe that they are more proficient at intervening in harassment situations than they are. Consequently, they may not realize the need for further anti-harassment training or the areas in which they could benefit from improvement. To address this, it is crucial to provide residents with constructive feedback after anti-harassment trainings. Feedback can help ensure that participants have an accurate overview of their responses, highlighting areas of strength and areas that require further development¹⁰⁰. Therefore, our anti-harassment program can be valuable in providing learners with the necessary knowledge, skills, and feedback to actively address harassment in medical training settings.

This study had some limitations that need to be considered. First, it is essential to acknowledge that participants were aware that they were engaging in a simulation specifically designed to address harassment. This awareness likely had an impact on their reactions, heightening their sensitivity to statements or actions that may not have been immediately recognized as harassment in real-world scenarios. This means that their responses within the simulation might have been more immediate than what would typically occur in authentic situations. Despite participants' awareness of the simulation's focus on addressing harassment, this heightened sensitivity may have facilitated a more in-depth exploration of residents' responses. By creating an environment that explicitly addresses harassment, participants were more attuned to identifying and addressing problematic behaviors, offering valuable insights into their immediate reactions and interventions. Secondly, different SPs were used throughout the study to act as the SR and the MS, which introduced variation in the simulation conditions and may have led to variations in how residents perceived and reacted to harassment. And while the aspect of having different SPs may add richness by reflecting more of the diversity of interactions within medical

training environments, it is important to acknowledge that it added complexity when comparing the findings across participants. Lastly, due to time constraints, the debriefing sessions had to be kept relatively short. Accordingly, we only retroactively looked (using video recording) at whether residents intervened the way they said they intervened in response to our question in the debriefing (see Appendix A). While this was aligned with our research objective, it does not allow us to make claims about whether residents were able to accurately recall all of their reactions—only those they mentioned during the debriefing.

Future studies could explore the effects of visible racial minority status, particularly for the MS role, on residents' reactions in instances of harassment. Examining how residents respond to harassment when the MS belongs to a visible minority group can provide valuable insights into the intersectionality of harassment experiences and the potential impact of race on residents' reactions. Additionally, investigating the residents' own gender and racial/ethnic background may shed light on how these factors influence their perceptions, attitudes, and behaviors when addressing harassment. There is a possibility that residents' own background. Including but not limited to gender, race, and ethnicity, could significantly impact their reactions, potentially due to differences in the perceived importance or rigidity of the hierarchical structure within medical training. By considering these factors, future studies can contribute to a more comprehensive understanding of the complex dynamics surrounding harassment and inform the development of targeted interventions and training programs that address the specific needs of diverse residents. Secondly, it would be valuable to explore whether the the type of response and the target of the response (SR vs MS) varied depending on the timing of the harassment within the simulation. Examining how residents' reactions evolved throughout the simulation could provide insights into their level of engagement and responsiveness over time. Additionally, investigating the specific

types of harassment incidents to which residents reacted can offer valuable insights into their priorities and concerns. For example, understanding whether residents were more inclined to respond when harassment was related to patient safety concerns versus incidents involving namecalling or belittlement can provide insights into the factors that trigger their intervention. Finally, it is important to study the multiple types of harassment that exist within the medical sphere. While this study focused on verbal harassment, specifically instances of name-calling and belittlement based on a student's perceived lack of knowledge and skills, it is essential to recognize that this represents only one part of the problematic behaviors that can occur. Harassment can also manifest in forms related to race, religion, ethnicity, gender, or sexual orientation¹⁰. Additionally, microaggressions, which are subtle acts of discrimination, and peer-to-peer harassment among students are critical areas that warrant exploration.

In conclusion, this study presents novel insight on the responses and actions of IM residents when they witness incidents of harassment, and on the possible underlying motivations driving their reactions. Overall, our study contributes to the growing body of knowledge on the dynamics of harassment in medical training and emphasizes the importance of addressing this issue to foster a supportive and inclusive learning environment. By gaining insight into residents' behaviors and perceptions, we can work towards creating meaningful changes that promote a culture of respect, accountability, and professional growth within the medical community.

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