

Bullying in the Nuclear Medicine Department and Clinical Education

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Abstract

Workplace bullying in the medical field is a significant occupational hazard and health care safety concern, though many cases go unreported. Often regarded as a rite of passage to desensitize and toughen up new employees and students, psychological harm during medical preparation creates an unsafe working environment resulting in health complications, anxiety, depression, low self-esteem, difficulty concentrating, and self-harm. Decreased productivity, increased absenteeism, high turnover rates, and inappropriate patient care are linked to bullying, perpetrating organizational dysfunction. This research study evaluated workplace bullying (prevalence, frequency, and behaviors; associated characteristics; effects on patient care; and awareness and enforcement of antibullying protocols) in nuclear medicine departments and clinical education. **Methods:** A quantitative single-group correlational analysis was used to survey certified nuclear medicine technologists and students in the Nuclear Medicine Technology Certification Board email database ($n = 20,389$). The highest response rate for any individual question was $n = 836$. Data were collected using the Short Negative Acts Questionnaire along with a researcher-created survey and analyzed using chi-square and central tendencies. **Results:** Bullying existed in varying degrees (46.8%) within the previous 6 months; predominantly by being ignored, excluded, subjected to repeated reminders of errors, and withholding information affecting their performance. Nuclear medicine professionals are more likely to witness and experience workplace bullying than students and are more likely to be bullied by a fellow technologist. Characteristics, such as gender, age, and occupation, were statistically significant while others, such as race, height, body type, experience, and education showed no significant correlation. Attention to patient care decreased (39.6%) when bullying was present. An 8% variation exists between antibullying policies being enforced/not enforced,

with 26% of professionals unaware of antibullying policies at their place of work. **Conclusion:** Explanations for underreported workplace bullying include fear of retaliation; nonenforcement and lack of awareness of antibullying policies; organizational complacency; and perceived hierarchical power. Recommendations to minimize workplace bullying include adopting and publicizing a descriptive definition, implementing antibullying policies, mediation procedures, and noncompliance penalties. Decreasing incidences of workplace bullying increase employee satisfaction and retention, patient safety, and enhances student success.

Keywords: nuclear medicine, allied health, radiologic sciences, workplace bullying.

Bullying in the Nuclear Medicine Department and Clinical Education

Workplace bullying (WPB) has become a significant occupational hazard in medical education for workplace health and health care safety (1-5). WPB can be described as intentional harm or aggressive behavior occurring repeatedly and can be an actual or perceived threat between the aggressor and the target (2). Therefore, WPB is not a one-time event (6) but progressively occurs where an employee is exposed to harassment behavior from which they cannot stop or escape (7,8). In its simplest form, WPB represents an asymmetrical balance in perceived power (8).

Teaching by fear, humiliation, and intimidation are well-established practices noted in the medical field for decades (2,9-11), with one in four health care professionals experiencing WPB (12). The medical profession has an unspoken code of silence, where many suffer in solitude and do not report WPB for fear of retaliation (2). WPB thrives in an environment where it is accepted behavior in management hierarchy and in competitive environments such as teaching hospitals and patient-directed services, where bullying may be established as a form of strong management and motivation in the workplace (9,13,14). WPB may be initiated when an individual or group attempts to exert their power over another to establish a hierarchy or social network and can be normalized as a rite of passage (9,14). Psychological violence and behaviors of bullying have been identified as physical (direct touching, humiliating or intimidating acts), verbal (jokes directed at the individual, gossip, and verbal mistreatment), relational (isolating an individual, e.g., not including him or her in functions), work sabotage (e.g., offering wrongful blame or taking credit for something the individual did) and cyberbullying (2,14,15).

WPB is strongly associated with both physiological and psychological stress responses in targets and witnesses (2,12,16-18). WPB is positively correlated with emotional distress

(12,17,19-21), negative job performance, job dissatisfaction (19), anxiety (22), sleep deprivation (21,23), depression (3), altered thinking and decision making (23), health issues (20), self-harm, suicide (2), and diminished patient care (3,5,11,23). Targets perceive bullying as a personal attack on their self-worth and experience increased social isolation at work (2,15,20), subsequently creating an adverse distortion in personality traits (16,24). WPB does not leave a physical scar, but rather an internal one that effectively lowers an individual's self-esteem, resilience, and self-identity (2).

WPB has effects that extend far beyond the individuals involved and reflects broken professional relationships within an organization (11,12,16,23). Unequal treatment among employees may foster a hostile work environment. External hires are at risk of not being accepted by current employees who feel cheated out of a promotion, and internal hires may not be respected by their former peers. Conflict among coworkers may be viewed by management as a personality conflict rather than WPB, and is, therefore, less likely to intervene (2,25). Patient care and mental well-being of health care providers are concerns of health care organizations (5,6,20) and are indicative of organizational dysfunction and performance (3,11,12,23). Previous studies have identified adverse events in patients and patient mortality rates positively associated with WPB (23).

WPB is associated with decreased organizational commitment (19), decreased productivity (6,11), decreased motivation (5), and increased employee turnover (25,26). Passive bystanders of the bullying may cognitively distance themselves as a coping mechanism (15), experience negative psychological effects, and perceive WPB as indicative of how employees are treated within the organization (11,22). Similar to findings for WPB in health care, WPB in

higher education employees results in increased health issues, disengagement, lower morale, and higher turnover for faculty (27).

When nuclear medicine technologists (NMT), students, educators, and organizations remain silent and do not acknowledge or address behavior, WPB will continue to permeate throughout the organization and have lasting detrimental effects for employees, organizations, and educational programs. Physiological distress, such as panic attacks, anxiety, decreased self-esteem, and loss of confidence have been reported by students during clinical placements that involved bullying (13,14). Negative academic environments allowing a culture of silence, hostility, and bullying, damage the reputation of the educational institution and NMT program. Eighteen percent of staff technologists reported training students while on the job; however, only 1.4% reported receiving compensation for their teaching time and effort (28). Lack of reimbursement for time and effort may increase the chance of WPB between preceptors and students, due to teaching being an assigned duty for the preceptor rather than a choice (29). Professional and self-identity development are particularly vulnerable during clinical rotations, as self-identity is strongly connected to professional identity. For most U.S. workers, their profession describes who they are, not just what they do (30).

In this research study, WPB (prevalence, frequency, and behaviors; associated characteristics; effects on patient care; and awareness and enforcement of antibullying protocols) were evaluated in NM departments and during clinical education. The following hypotheses were explored: (1) Does WPB occur in NM departments? (2) How frequently does WPB occur in NM departments? (3) Does an association between position and experiencing or witnessing WPB exist? (4) Does an association between WPB and demographic characteristics exist? (5)

Does WPB affect patient care? (6) Are NM professionals and students aware of antibullying protocols at their places of work or educational institutions? If so, are the protocols enforced?

Materials and Methods

The A.T. Still University Institutional Review Board approved this study as exempt under Section 45CFR46.104 and the requirement to obtain informed consent was waived. All participants were provided full disclosure and voluntarily indicated informed consent when selecting to open the survey. No identifiable information was collected. This study was a purposive sample of NMTs and NMT students in the Nuclear Medicine Technology Certification Board database who predominantly reside in the United States. Approximately 100 email addresses were associated with Certified NMTs (CNMT) residing outside of the United States. The total population size for this study was 20,385. Data were collected using the Short Negative Acts Questionnaire (SNAQ) and a researcher-created survey specific to nuclear medicine. The SNAQ was designed to measure the frequency, intensity, and prevalence of WPB and had a high level of internal consistency in this study ($\alpha = .948$). Permission was granted by the authors to use the SNAQ (31,32). The researcher-created survey was pilot-tested and further modified based on feedback from the pilot-test participants and selected NM experts. WPB was defined in the survey as a situation where one or several individuals persistently over a period of time perceive themselves to be on the receiving end of negative actions from one or several persons, in a situation where the target of the bullying had difficulty in defending him or herself against these actions. We did not refer to a one-time incident as bullying (31,32). REDCapTM was used to collect the responses from the final survey tool (see Supplemental Material A).

A total of 870 (4.3%) participants opened the survey. Of the 870 participants who opened the survey, 757 (87%) of participants completed the survey fully, while 113 (13%) of the surveys

contained missing data. Surveys not attempted were deleted, and incomplete items on surveys were coded as 99. All completed data were analyzed. The highest response rate for any individual question was 96% (836/870), as participants could refuse to answer any or all the questions. The IBM SPSS Statistics 26 and Microsoft Excel were used for numerical data and precise measurements. Frequencies, chi-square (χ^2) test for independence, and the assumption of normality were assessed where warranted. A predetermined α level was .05, and Cramer's V effect sizes of .10 (small), .30 (medium), and .50 (large) were used (33). Fisher's exact tests were performed for low cell frequencies as needed. Statistical calculations, tables, and empirical reasoning were presented in the data findings. The researcher presented and analyzed 6 research questions for this study.

Results

Research Question 1. Does WPB occur in NM departments? Survey item 10 question “ please state whether you have been bullied at work over the last 6 months” responses were analyzed. Five ordinal Likert response choices were recoded into two distinct nominal categories of either No or Yes. Of the 835 respondents who answered this question, 444 (53.2%) stated they had not been bullied within the previous 6 months, and 391 (46.8%) stated they had been bullied in varying degrees within the previous 6 months (see Table 1).

Research Question 2. How frequently does WPB occur in NM departments? Survey items 1-10 data were used by the researcher to measure underlying constructions, which were derived from the SNAQ (see Table 2). Frequency, median, index of qualitative variation (IQV), and the number of participants for each SNAQ question were evaluated. Individual counts and frequencies reported from survey question 10 contained 5 Likert responses: No (444/835, 53.2%), and 4 Yes (391/835, 48.6%) responses included: Yes, but only rarely 82 (9.8%); Yes,

now and then 152 (18.2%); Yes, several times per week 90 (10.8%); and Yes, almost daily 67 (8.0%). The majority of respondents selected Never for all of the SNAQ questions with the second most frequently chosen response being Now and Then. Practical jokes carried out by people you don't get along with had the highest response percentage of Never (632/834, 75.8%). The reported choices of Never declined for Being ignored or excluded (324/835, 38.8%), with Now and then, reported at (226/835, 27.1%). Someone withholding information which affects your performance was reported as Never at 42.8% (358/837), with Now and then reported at 26.9% (225/837). Repeated reminders of your errors or mistakes were reported as Never by 43% (359/835) of respondents, with Now and then reported as 27.8% (232/835).

Research Question 3. Does an association between experiencing or witnessing WPB and position exist? Survey items 14-17 were analyzed by the researcher (see Table 3). No statistically significant associations between experiencing and witnessing WBP as an NMT student existed; however, statistically significant associations existed between experiencing ($P = .001$) and witnessing ($P = .001$) WPB as an NMT professional. Effect sizes for bullying in NMT professionals were large (experiencing, $V = .794$ and witnessing, $V = .811$).

Research Question 4. Does an association between WPB and demographic characteristics exist? Survey items 13, 31-37 were analyzed by the researcher (see Table 4). Statistically significant associations existed between experiencing WPB within the previous 6 months for gender $P = .003$, $V = .123$; age $P = .029$, $V = .119$; and occupation $P = .005$, $V = .134$. While no statistically significant associations between WPB within the previous 6 months existed, a slight propensity was observed for height $P = .052$, $V = .088$ and body type $P = .051$, $V = .101$. No significant association existed for race, experience, or level of education.

Research Question 5. Does WPB affect patient care? Survey items 1 (dichotomized: Yes/No) and 28 were presented at different intervals in the survey and contain different placement of responsibility (self or others). Someone withholding information which affects your performance: Yes (479/836, 57.3%); No (357/836, 42.7%). Do you feel the attention to patient care by you or others decreased as a result of experiencing or witnessing workplace bullying: Yes (308/777, 39.6%); No (239/777, 30.8%); and No bullying was experienced or witnessed (230/777, 29.6%).

Research Question 6. Are NM professionals and students aware of antibullying protocols at their places of work or educational institutions? If so, are the protocols enforced? Survey items 13 and 29 were evaluated by the researcher (see Table 5). Survey item 13 was recoded into dichotomized categories: NM professional or student. A statistically significant association existed between NM professionals and students, and awareness of antibullying protocols $\chi^2 (3) = 10.048$, $n = 777$, $P = .018$, $V = .114$. Fisher's exact test $P = .035$. Of the 777 NM professionals and students who responded to this question, 753 (97%) were NM professionals, and 24 (3%) were students. Of the students, 54% (13/24) were not aware of antibullying policies at their facility, and 25% (6/24) aware of antibullying policies, and they were enforced. Alternately, 21% (5/24) were aware of antibullying policies, and they were not enforced. Of the NM professionals, 26% (196/753) were not aware of antibullying policies at their facility and 7% (49/753) stated their facility does not have antibullying policies. Leaving 38% (287/753) who said their facility has antibullying policies and they were enforced, with 26% (196/753) unaware if their facility had antibullying policies.

Additional Findings

The researcher analyzed survey items 18-21 (see Table 6). Those who experienced WPB reported fellow technologists (398/780, 51%) as being the primary aggressor followed by administrators (213/780, 27.3%) and radiologists (171/780, 21.9%) as secondary aggressors. Technologists (467/779, 59.9%) are more likely to experience WPB followed by students (162/779, 20.8%) to a lesser degree. Witnesses stated fellow technologists (398/778, 51.2%) initiated the bullying followed by administrators (201/778, 25.8%) and radiologists (166/778, 21%). Witnesses stated the target of the bullying was primarily toward a fellow technologist (465/776, 59.9%) followed by a student (191/776, 24.6%). Answers with lower counts are located in Table 6 data. A few participants did not answer every question; therefore, on average, 33% (255/778) of respondents had not experienced or witnessed bullying in nuclear medicine. Only primary responses are reported for items 22-27 and 30, with lesser values provided by request: The majority of respondents (265/778, 34.1%) reported WPB was never reported and fearful (431/778, 55.4%) of reporting WPB due to fear of retaliation. Most witnesses of WPB were also fearful (401/775, 51.7%) of retaliation if they had stood up to the bully or reported it. Item 25 also showed almost half of respondents (332/776, 42.8%) did not report WPB. Despite being fearful of retaliation, most respondents (421/777, 54.2) defended someone during WPB and have never (746/777, 96%) initiated WBP toward someone else. The majority of respondents (547/777, 70.4%) strongly support the enactment of a law that would protect all workers from WPB.

Discussion

This is the first study to examine WPB in NM departments and during clinical education. Surveys were distributed to potential respondents in which bullying was defined as a situation

where one or several individuals persistently over a period of time perceive themselves to be on the receiving end of negative actions from one or several persons for which there is little or no possibility of self-defense (31). We did not refer to a one-time incident as bullying (see Supplemental Data).

Findings showed WPB occurs in NM departments almost as frequently as it does not. Almost half of the NM professionals and students reported they had been bullied in various degrees within the previous 6 months, which exceeded the national average of WPB (46.8% compared to 19%) (34). Prior studies involving healthcare-related fields reported 47% of surgeons (35) and 71% of radiation therapists experienced bullying (36), which may indicate healthcare workers are more likely to experience bullying than in other professions due to performance-driven and high-stress environments.

Exposure to WPB is associated with decreased job satisfaction, decreased organizational commitment, an increase in intention to leave their position, burnout, post-traumatic stress, and mental and physical health issues (2,26). When mental distractions and health issues are caused by WPB in NM departments, lives are endangered.

The frequency in which WPB occurs showed similar results. Bullying was primarily experienced by being ignored, excluded, subjected to repeated reminders of their errors or mistakes, and by someone withholding information thereby affecting their performance. Bullying tactics experienced less frequently included being subjected to practical jokes carried out by people with whom they did not get along, being shouted at, or being the target of spontaneous anger. Therefore, WPB behaviors were subtle rather than direct offenses. Results from the SNAQ portion of this research survey supports previous research showing bullying behaviors

primarily involve exposure to being socially excluded or ignored, being exposed to verbal abuse and hostility, and having one's work obstructed (10,26).

NMTs reported being bullied at work within the previous 6 months while NM administrators, educators, and students were less likely to have experienced bullying. Previous studies of WPB reported students being bullied at a higher percentage than professionals (1). Differences in the results may be attributed to a longer timeframe of medical education (4+ years) compared to NMT education (1-2 years). Differences may also be attributed to shorter clinical rotations, which may consist of three to seven different facilities during NMT clinical education.

Certain demographic characteristics were statistically significant, such as gender, age, and occupation, while others, such as race, experience, and education demonstrated no statistically significant results with experiencing WPB. A slight propensity was observed in height and weight (variance from average in either direction). Females are significantly more likely to experience WPB within the previous 6 months than males; this finding is slightly greater than previous findings with females being the target (66%) of WPB (34). Differences in how males and females perceive bullying may contribute to a greater number of females acknowledging being bullied in the workplace. Respondents 36 - 45 years old were significantly more likely to have experienced WPB within the previous 6 months than other age groups. These findings may be attributed to the composition of the sample: 62.5% females, 35.8% males, and other/prefer not to answer at 1.7% and perceptions of WPB between males and females.

Almost half of the respondents reported the attention to patient care by themselves or others decreased 39.6% due to experiencing or witnessing WPB. Previous findings show WPB is a dangerous occupational hazard and can lead to detrimental patient care consequences (3,4).

Patient care is compromised, and departmental teamwork is impaired when a culture of bullying exists within an organization. Previous studies indicate health care professionals lose confidence in treating patients and committing more medical errors when subjected to WPB (2,14).

Appropriate patient care is the goal of health care facilities and when appropriate patient care is not given or withheld, the patients suffer the consequences.

The research question regarding NM professionals and students being aware of antibullying policies and enforcement at their facilities produced interesting results. The majority of NM professionals are aware of antibullying policies with the policies being enforced; however, an approximately 8% difference exists among those who are aware of antibullying policies, but the policies are not being enforced at their facility. Students are more likely not to be aware of their educational institution or clinical facility having antibullying policies. A surprising result is 26% of NM professionals stated they were not aware of their facility having antibullying policies. Martin and LaVan (37) point to a lack of antibullying policies (64.4%), that may contribute to the lack of awareness and knowledge of antibullying policies at their facility or educational institution.

How educators and organizations handle WPB plays a significant part in reducing the negative effects caused by bullying and reduces the occurrence of bullying. Students and employees need to be educated, engaged, and encouraged to overcome barriers of embarrassment and shame to gain the skills and confidence needed to report WPB incidences (13). Without antibullying policies in place and with workers not knowing how to seek assistance in sensitive situations, WPB will continue to permeate an organization.

Additional findings provided insight into the dynamics of WPB in NM. Results concluded NMTs both initiate and experience the majority of WPB. These findings suggest a

significant problem with WPB in the NM profession culture. Fellow technologists may unconsciously feel a threat to their job security, or that toughening up a peer is making him or her into a better technologist (10,14). A perceived hierarchy and power structure within the organization may exist (1,9,14). WPB is less likely to be reported by targets and witnesses due to fear of retaliation. Overwhelming response existed for supporting a law that provides protection against WPB. Limitations of this study included environmental factors and timeline of the survey distribution, data coding errors for various items, and respondent perceptions of WPB and self-identity.

Conclusion

WPB represents an asymmetrical balance in perceived strength and should not be regarded as a rite of passage or part of hierarchical status. The majority of U.S. citizens find their identity in their profession; when the protection of their mental and physical stability is threatened at work, they lose confidence in their skills and experience distractions during the workday, affecting their patients safety and personal wellbeing. When NM professionals and students are bullied within their environment, their self-identity is damaged, some to a point of self-depreciation and self-harm.

Reasons for overlooking WPB included fear of retaliation, lack of awareness and nonenforcement of antibullying policies, organizational complacency, and perceived hierarchical power and status. A law that protects workers from WPB is strongly supported by respondents. Organizations should adopt and publicize a descriptive definition, developing and implementing antibullying policies that include education, mediation procedures, and penalties for noncompliance. Actions such as these can decrease incidences of WPB in NM, increase

employee satisfaction and retention, enhance student success, and improve patient safety and security.

Disclosure

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Tables

Table 1. Bullied at Work in the Previous 6 Months (%)

	<i>n</i>	%	μ	σ
No	444	53.2		
Yes	391	46.8		
Total	835	100	2.1066	1.36306

Note. *n* = Sample; μ = Mean. σ = Standard Deviation

Table 2. Frequencies of Negative Behaviors, in Counts (%)

Item	Never	Now and Then	Monthly	Weekly	Daily	Median (<i>IQV</i>)	<i>n</i>
Someone withholding information which affects your performance	358 42.8%	225 26.9%	36 4.3%	94 11.2%	124 14.8%	1 (3)	837
Repeated reminders of your errors or mistakes	359 43%	232 27.8%	40 4.8%	93 11.1%	111 13.3%	1 (2)	835
Persistent criticism of your work	417 49.9%	175 21%	33 4.0%	91 10.9%	119 14.3%	1 (3)	835
Spreading gossip and rumors about you	392 46.9%	216 25.9%	40 4.8%	62 7.4%	125 15%	1 (2)	835
Having insulting or offensive remarks made about your person (i.e. habits and background), your attitudes, or your private life	446 53.4%	180 21.6%	34 4.1%	68 8.1%	107 12.8%	.0000 (2)	835
Being shouted at or being the target of spontaneous anger (or rage)	482 57.7%	204 24.4%	33 4.0%	56 6.7%	60 7.2%	.0000 (1)	835
Being ignored or excluded	324 38.8%	226 27.1%	33 4.0%	87 10.4%	165 19.8%	1 (3)	835
Facing a hostile reaction when you approach	442 52.9%	172 20.6%	28 3.4%	68 8.1%	125 15.0%	.0000 (2)	835
Practical jokes carried out by people you don't get along with	632 75.8%	122 14.6%	15 1.8%	27 3.2%	38 4.6%	.0000 (.00)	834
Please state whether you have been bullied at work within the past six months	444 53.2%	82 9.8%	152 18.2%	90 10.8%	67 8.0%	1 (2)	835

Note. *IQV* = Index of Qualitative Variation; *n* = Sample

Table 3. WPB and Position

Category	<i>n</i>	Chi square tests of independence	<i>p</i> value	Cramer's V	Fisher's exact test
Experienced bullying as a student	780	$\chi^2 (1) = 1.741$	.187	.047	-
Witnessed bullying as a student	780	$\chi^2 (1) = .722$	.396	.030	-
Experienced bullying as a professional	780	$\chi^2 (2) = 492.224$	.001	.794	.001
Witnessed bullying as a professional	778	$\chi^2 (2) = 511.588$	.001	.811	.001

Note. *n* = Sample; $P \leq 0.05$

Table 4. NM Respondent Demographics and WPB

Characteristics	<i>n</i>	% of Total	Bullied at work within previous 6 months		<i>P</i> value	Cramer's <i>V</i>
			No	Yes		
Gender						
Male	271	35.8	168	103		
Female	474	62.5	233	241		
Other/prefer not to answer	13	1.7	7	6		
Total	758	100	408	350	.003	.123
Age, years						
<25	22	2.9	10	12		
26-35	70	9.2	43	27		
36-45	167	22.0	74	93		
46-55	222	29.3	119	103		
>56	277	36.5	162	115		
Total	758	100	408	350	.029	.119
Race						
African American	47	6.2	27	20		
Asian	33	4.4	19	14		
Hispanic	46	6.1	25	21		
White	586	77.3	312	274		
Other/prefer not to answer	46	6.1	25	21		
Total	758	100	408	350	.971	.026
Height						
Petite	161	21.3	75	86		
Average (Female 5'4"; Male 5'9")	362	47.8	194	168		
Tall	234	20.9	138	96		
Total	757	100	407	350	.052	.088
Body Type						
Underweight	12	1.6	3	9		
Healthy	479	63.2	266	213		
Overweight	242	31.9	130	112		
Obese	25	3.3	9	16		
Total	758	100	408	350	.051	.101

Note. *n* = Sample; $P \leq 0.05$

Table 4 cont. NM Respondent Demographics and WPB

Characteristics	<i>n</i>	% of Total	Bullied at work within previous 6 months		<i>P</i> value	Cramer's <i>V</i>
			No	Yes		
Experience, years						
≤1	23	3.0	14	9		
1<2	20	2.6	8	12		
2<4	24	3.2	12	12		
4<6	24	3.2	9	15		
6<10	41	5.4	25	16		
10<15	107	14.1	50	57		
15<20	117	15.4	58	59		
≥20	402	53.0	232	170		
Total	758	100	408	350	.138	.121
Education Level						
Certificate	40	5.3	21	19		
Associates	209	27.6	123	86		
Bachelors	412	54.4	217	195		
Masters	90	11.9	44	46		
Doctoral	7	.9	3	4		
Total	758	100	408	350	.464	.069
NM Occupation						
Administrator	65	7.8	47	18		
Educator	12	1.4	8	4		
Technologist	696	83.4	350	345		
Student	24	2.9	13	11		
Other	38	4.6	25	13		
Total	835	100	443	391	.005	.134

Note. *n* = Sample; $P \leq 0.05$

Table 5. Awareness of Antibullying Policies

		Nuclear Medicine Technology Professional or Student			
			Professional	Student	Total
Are you aware of your facility or educational institution having anti-bullying policies	No, my facility does not have anti-bullying policies	Count	49	0	49
		Percent	6.5%	0%	6.3%
		Expected Count	47.5	1.5	49.0
	Yes, my facility has anti-bullying policies and they are enforced	Count	287	6	293
		Percent	38.1%	25%	37.7%
		Expected Count	283.9	9.1	293.0
	Yes, my facility has anti-bullying policies, but they are not enforced	Count	221	5	226
		Percent	29.3%	20.8%	29.1%
		Expected Count	219.0	7.0	226.0
I do not know/am unaware if my facility has anti-bullying policies	Count	196	13	209	
	Percent	26.0%	52.4%	26.9%	
	Expected Count	202.5	6.5	209.0	
Total	Count	753	24	777	
	Expected Count	753.0	24.0	777.0	

Table 6. WPB in NM

Position	If you experienced bullying in NM, who initiated the bullying (n=780)	If you experienced bullying in NM, what position were you in at the time (n=779)	If you witnessed bullying in NM, who initiated the bullying (n=778)	If you witnessed bullying in NM, who was the target of the bullying (n=776)
Administrator	213, 27.3%	23, 3.0%	201, 25.8%	21, 2.7%
Radiologist	171, 21.9%	3, 0.3%	163, 21.0%	13, 1.7%
Radiology Nurse	43, 5.5%	0, 0.0%	48, 6.2%	16, 2.1%
Radiology Scheduler/Sec. Technologist	31, 4.0%	3, 0.4%	31, 4.0%	30, 3.9%
Student	398, 51.0%	467, 59.9%	398, 51.2%	465, 59.9%
Educator	16, 2.1%	162, 20.8%	17, 2.2%	191, 24.6%
Did not experience bullying	39, 5.0%	7, 0.9%	36, 4.6%	7, 0.9%
	251, 32.2%	250, 32.1%	258, 33.2%	260, 33.5%

Supplemental Material A

Final Survey

Workplace Bullying in Nuclear Medicine Technology and Clinical Education Survey

Thank you for your participation! Have you ever been bullied while at work? Your answers will help to evaluate whether bullying occurs in the nuclear medicine department and/or during nuclear medicine technology clinical education. All responses are voluntary, anonymous, and no identifiable information is recorded or used. Voluntary consent is implied when the survey is submitted.

We define bullying as a situation where one or several individuals persistently over a period of time perceive themselves to be on the receiving end of negative actions from one or several persons, in a situation where the target of bullying has difficulty in defending him or herself against these actions. We will not refer to a one-time incident as bullying.

This survey is intended for Nuclear Medicine Technologists and Nuclear Medicine Technology Students. If you are not an NMT or NMT-S, please disregard this survey and do not complete it. This survey will take approximately 5 minutes to complete and will provide valuable insight on this topic!

The following behaviors are often seen as examples of negative behavior in the workplace. Over the last six months, how often have you been subjected to the following negative acts at work?

- | | |
|---|---|
| 1) Someone withholding information which affects your performance | <input type="radio"/> Daily
<input type="radio"/> Weekly
<input type="radio"/> Monthly
<input type="radio"/> Now and then
<input type="radio"/> Never |
| 2) Repeated reminders of your errors or mistakes | <input type="radio"/> Daily
<input type="radio"/> Weekly
<input type="radio"/> Monthly
<input type="radio"/> Now and then
<input type="radio"/> Never |
| 3) Persistent criticism of your work and effort | <input type="radio"/> Daily
<input type="radio"/> Weekly
<input type="radio"/> Monthly
<input type="radio"/> Now and then
<input type="radio"/> Never |
| 4) Spreading gossip and rumors about you | <input type="radio"/> Daily
<input type="radio"/> Weekly
<input type="radio"/> Monthly
<input type="radio"/> Now and then
<input type="radio"/> Never |

-
- 5) Having insulting or offensive remarks made about your person (i.e. habits and background), your attitudes, or your private life
- Daily
 - Weekly
 - Monthly
 - Now and then
 - Never
-

- Being shouted at or being the target of spontaneous anger (or rage)
- Daily
 - Weekly
 - Monthly
 - Now and then
 - Never
-

- Being ignored or excluded
- Daily
 - Weekly
 - Monthly
 - Now and then
 - Never
-

- Facing a hostile reaction when you approach
- Daily
 - Weekly
 - Monthly
 - Now and then
 - Never
-

- Practical jokes carried out by people you don't get along with
- Daily
 - Weekly
 - Monthly
 - Now and then
 - Never
-

- 10) Using the bullying definition provided at the beginning of this survey, please state whether you have been bullied at work over the last six months
- Yes, but only rarely
 - Yes, now and then
 - Yes, several times per week
 - Yes, almost daily
 - No, have not been bullied
-

- 11) Please check all of the appropriate box(es) below to state who you were bullied by:
- My immediate superior
 - Other superiors/managers in the organization
 - Colleagues
 - Subordinates
 - Customers/patients/students, etc.
 - Others
 - Have not been bullied
-

- 12) Please state the gender(s) of your perpetrators
*Check all that apply
- Male
 - Female
 - Have not been bullied
-

13) Which of the following best describes your occupation Nuclear Medicine Administrator
 Nuclear Medicine Educator
 Nuclear Medicine Technologist
 Nuclear Medicine Technologist Student-in-Training
 Other

14) Have you ever experienced bullying as a student Yes
 No

15) Have you ever witnessed bullying as a student Yes
 No

16) Have you ever experienced bullying as a technologist Yes
 No
 I am a student/does not apply

17) Have you ever witnessed bullying as a technologist Yes
 No
 I am a student/does not apply

18) If you experienced bullying in nuclear medicine, who initiated the bullying
*Check all that apply

- Administrator
- Radiologist
- Radiology Nurse
- Radiology Scheduler/Secretary
- Technologist
- Student
- Educator
- Did not experience bullying

19) If you witnessed bullying in nuclear medicine, who initiated the bullying
*Check all that apply

- Administrator
- Radiologist
- Radiology Nurse
- Radiology Scheduler/Secretary
- Technologist
- Student
- Educator
- Did not experience bullying

20) If you experienced bullying in nuclear medicine, what position were you in at the time
*Check all that apply

- Administrator
- Radiologist
- Radiology Nurse
- Radiology Scheduler/Secretary
- Technologist
- Student
- Educator
- Did not experience bullying

21) If you witnessed bullying in nuclear medicine, who was the target of the bullying
*Check all that apply

- Administrator
- Radiologist
- Radiology Nurse
- Radiology Scheduler/Secretary
- Technologist
- Student
- Educator
- Did not experience bullying

-
- 22) To your knowledge, was the bullying ever reported Yes
 No
 No bullying was experienced or witnessed
 Do not know
-
- 23) If you experienced bullying, were you fearful of retaliation if you had reported it or stood up to the bully Yes
 No
 No bullying was experienced
-
- 24) If you witnessed bullying, were you fearful of retaliation if you had reported it or stood up to the bully Yes
 No
 No bullying was witnessed
-
- 25) If the bullying was reported, did the bullying Increase
 Decrease
 No change
 No bullying was reported
 Do not know if bullying was reported or changed
-
- 26) Have you ever defended someone being bullied Yes
 No
 No bullying was witnessed
-
- 27) Have you ever initiated bullying toward someone else Yes
 No
-
- 28) Do you feel the attention to patient care by you or others decreased as a result of experiencing or witnessing workplace bullying Yes
 No
 No bullying was experienced or witnessed
-
- 29) Are you aware of your facility or educational institution having anti-bullying policies Yes, my facility has anti-bullying policies and they are enforced
 Yes, my facility has anti-bullying policies but they are not enforced
 No, my facility does not have anti-bullying policies
 I do not know/am unaware if my facility has anti-bullying policies
-
- 30) Do you support or oppose the enactment of a law that would protect all workers from workplace bullying Strongly support
 Somewhat support
 Not sure
 Somewhat oppose
 Strongly oppose

Demographic questions will assist the researcher in evaluating any associations between the variables. No identifiable information is recorded. Thank you for completing this important section of the survey!

31) Gender Male
 Female
 Other/Prefer not to answer

32) Age Range <25
 26-35
 36-45
 46-55
 >56

33) Race African American
 Asian
 Hispanic
 White
 Other/Prefer not to answer

34) Height Petite
 Average (Female 5'4; Male 5'9)
 Tall

35) Body Type Underweight
 Healthy
 Overweight
 Obese

36) Highest Education Level Certificate
 Associates degree
 Bachelor's degree
 Master's degree
 Doctoral degree

37) Experience in nuclear medicine technology Less than one year
 1 - 2 years
 2 - 4 years
 4 - 6 years
 6 - 10 years
 10 - 15 years
 15 - 20 years
 20 years or more
 Not sure/do not know

Thank you for taking the time to complete this survey!