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Workplace bullying among residents in Saudi board training programs of all specialties in Riyadh, Saudi Arabia 2017-2018 prevalence, influencing factors and consequences: A cross-sectional survey

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Abstract
Background: Workplace bullying is considered one of the most occupational stressors. It is widely prevalent worldwide, and healthcare settings are not an exception. Over the past few years, numerous Studies have been produced across the globe about how widespread bullying is as a behavior. One of the main areas of investigations is bullying of healthcare workers. Workplace bullying can have serious implications and significant consequences for those who are exposed like less job satisfaction, ineffective teamwork and poor communication, unnecessary leaves, reducing staff commitment to the organization, burnout, Depression and quitting.
Since there is no study done in the Middle East before on bullying among postgraduate trainee we aimed in our study to measure the prevalence of bullying among residents in Saudi Arabia. And to identify the types and sources of bullying behavior faced during training years to establish roles and policies to prevent bullying based on the result of the study. As well as encourage the residents to report workplace bullying to eliminate bullying behavior in the field of healthcare.
Objectives: This study aims to estimate the prevalence of workplace bullying targeting residents. Also, it aims to identify the influencing factors and consequences of workplace bullying.
Methods: In this cross-sectional survey study, 500 doctors were surveyed using a self-administrated electronic questionnaire. The completed questionnaires are 419 which accounts for 83.8% response rate. Statistical analysis using the index of job satisfaction, descriptive statistics, and logistics regression was employed. The results were obtained using SPSS package version 23.
Results: The estimated prevalence rate of experiencing any bullying was 70% among the sampled residents. The estimated prevalence for persistent bullying was 20 – 50%. The job satisfaction index was 55 (54.15, 55.88, p-value = 0.023). Colleagues, supervisors and team leaders are considered the main sources of bullying. The logistic regression identified certain hospital (OR = 0.07), the second-year of residency (OR = 2.17), working more than 8 hours (OR = 2.17), and on-call days per months per each day (OR = 1.13)
Conclusion: Bullying among residents is a silent epidemic. Policies, awareness campaigns, and monitoring programs should be employed to effectively tackling the problem.

Keywords: Bullying, HCWs, Residents

Introduction
Since the beginning of the current century, numerous studies have been produced across the globe about how widespread bullying is as a behavior, especially, workplace bullying [1-3]. One of the main areas of investigations is bullying of healthcare workers.
Bullying consists of the behavior that is targeted towards groups or individuals with an intention to humiliate or stigmatize [4]. Workplace bullying is defined as "a situation in which one or several individuals persistently, and over a period of time, perceive themselves as being on the receiving end of negative actions from superiors or coworkers, and where the target of the bullying finds it difficult to defend him or herself against these actions [5]. In a major difference of other types of interpersonal aggression that take forms of episodes, workplace bullying is more of systematic and prolonged exposure to the negative and aggressive behavior of mainly psychological nature, including passive-aggressive acts such as social exclusion [6].

Workplace bullying can lead to psychological, and health-related complications. The consequences of workplace bullying were investigated by a meta-analysis of 137 studies [7]. In this meta-analysis, the study reported a statistically significant association with "job-related and health- and well-being-related outcomes, such as mental and physical health problems, symptoms of post-traumatic stress, burnout, increased intentions to leave, and reduced job satisfaction and organizational commitment [7].

Healthcare workers are part of the working societies that can be exposed to workplace bullying. In the next section, we review studies that tried to measure some of the aspects related to the prevalence, factors, sources, types, and consequences of workplace bullying targeting physicians.

In Saudi Arabia, a study conducted in 2012 investigated bullying among medical students [8]. The study recruited 542 clinical years' medical students (5th and 6th years, and interns) from one medical school. Bullying was defined in the study as "persistent behavior against a medical student that is intimidating, degrading, offensive or malicious and undermines the confidence and self- esteem of the recipient [8]. The study employed a questionnaire survey to collect the information about bullying. The results showed that 28% of the participants were exposed to some level of bullying. Those who reported being bullied, 90% reported verbal bullying, 6% sexual, and 4% physical. This study has several weaknesses. It was conducted in one medical school only. The study reported two outcomes only as a short communication study (exposure to bully, and type of bully). There is no additional information about the respondents apart from their gender. Also, the study reported 52% response rate only without discussing further details about the possibility of response bias (the tendency to respond to the certain issue when you only have a strong opinion about it).

Regionally, we found a study published in 2014 in Turkey [4]. This study included both physicians and nurses. We report the results of the 201 physicians involved in the study. The study main objective was investigating the effect of bullying. The prevalence of experiencing any bullying was 74% among the physicians. The study reported an association between the increase of experiencing violent behavior and lower job performance and depression. This study used the self-administrated questionnaire in a major Turkish hospital. They divided bullying as experience and intentional. Experienced bullying is less frequent and is not systematic. Whole intentional bullying is systematic and more frequent. However, it seems that in the analysis of the results there was no distinction between the two types. Additionally, the study was conducted in only one location, which limits the study's generalizability.

Another regional study was published in Pakistan [9]. The study is also cross-sectional that used a questionnaire survey for data collection. The study concentrated on bullying behavior that targets junior doctors. The study was conducted in 3 tertiary hospitals from 2 provinces. The sample consisted of 654 physicians. The author's defined junior doctors as "Junior doctors included house officers with a minimum of six months clinical experience, postgraduate residents in Year 1 to Year 4, as well as resident medical officers who were regular junior doctors in the Pakistani hospital setup but not necessarily in a postgraduate training program [9]. The results showed that 63.8% of the participants experienced at least one type of bullying in the 12 months before the study, 66.7% witnessed the bullying of others. The main source of bullying was consultants (51.6%). This study is similar in the targeted population for our study. The study also was conducted in multi-locations. However, the study only described the prevalence and sources of bullying. There is no discussion about any consequences or factors associated with bullying behavior.

Finally, we will discuss an example of a global study which is we used to develop our questionnaire. The study by Prof. Lyn Quine was conducted in the UK on junior doctors [10]. The study defined junior doctors as doctors with job grades from house officers to senior registrars. A random sample of 1,000 participants was generated using the British Medical Association's mailing list. The questionnaire is a mix of two reliable and validated tools. The job satisfaction scale is an 18-item measure produced to measure facet-free job satisfaction. The Negative Affectivity Scale provides a 21-item measure of negative affectivity. A third dimension used GHQ-12 for measuring psychiatric disorders was not included in our study but was incorporated in Prof. Quine's study. The results showed a 37% prevalence of bullying experience in the last 12 months, and 69% witnessed others being bullied. The highest source of immediate bullying supervisor or team leader (60%). The study used reliable and validated tools to develop a questionnaire to measure bullying and work satisfaction. In Prof. Quine's study two separate analyses, were conducted, one for job satisfaction and one for psychological distress. The results showed that physicians who reported being bullied had significantly lower levels of job satisfaction (adjusted mean 61.5 versus 64.9, p 0.001; 95% CI) and higher levels of psychological distress (adjusted mean 4.0 versus 2.7, p 0.001; 95% CI) in comparison to those who did not report it [10]. However, incorporating three tools seems to affect the overall tool validity as response rate was moderate (62%). However, the well-defined questions psychometrically promoted us to adopt this tool without including the GHQ-12 mental health measurement tool. The randomization of the sample and the national coverage of the study give the study more robust design, and the generalizability of the data can be more reliable.

Objectives

To estimate the prevalence of bullying among residents currently in Saudi board training programs of all specialties at all levels of residency in Riyadh, Saudi Arabia.

To identify the factors affecting the bullying among residents currently in Saudi board training programs of all specialties at all levels of residency in Riyadh, Saudi Arabia.

Methods

This section will describe the methodology employed in this study. The design of the study, the sampling method and technique, the investigation tool, the data collection, and the data analysis.

Study Area

Inclusion criteria

Resident physicians in the region of Riyadh.

Any specialty

Contact registered at Saudi Commission for Health Specialties (SCHS).

Exclusion criteria
Residents who do not have registered e-mail.
Residents outside the region of Riyadh.

Study design and sampling method
The study design is a cross-sectional survey conducted between 22nd of February 2018 and the 18th of March 2018. The survey questionnaire form was prepared electronically and sent via e-mails. All the residents registered in the area of Riyadh were considered. The Saudi Commission for Health Specialists (SCFHS) were contacted and provided with the questionnaire and the IRB. The SCFHS launched the questionnaire to 500 residents registered on their database. The selection of the participants was conducted without the principle investigator influence. The sampled residents provided 419 fully answered questionnaires which represents 83.8% response rate.

Sample size
The Sample size was calculated by using a single population proportion sample size estimation method by assuming a 50% prevalence rate from the literature review.
The sample size was determined using this formula: N = (Z) 2*P*(1-P)/(d) 2 = 385

- ✓ N represent the sample size=385
- ✓ Z represents the confidence level, with 95% confidence being the standard choice. For this level, Z=1.96
- ✓ P= 50% is the expected prevalence of bullying among residents
- ✓ Delta= error tolerance= precision= 0.05
- ✓ Population= number of all residents in SCFHS (p<20,000)

Adding 10% for possible un-responses=39
Sample size = 424

The research tool
The questionnaire used was developed by Prof. Quine from a study surveyed bullying among junior doctors [10, 11]. The approval to adopt the questionnaire was secured from the author (see the appendix-3). The questionnaire was piloted on 15 resident from different specialties and levels at the PSMMC to test the understanding of respondents and appropriateness of the content to be used in cross-cultural adaptation.

Questionnaires
The questionnaire consists of 51 items divided into 4 sets, General Information (10 items), i.e., demographic details of age, gender, nationality, hospital where the participant work, position, medical specialty, etc.; Work satisfaction measured by 18 items; experience with bullying (being subject, witness, and source of bullying) this dimension is measured by 4 items. Finally, the types of bullying experienced or witnessed (21 items). The questionnaire contained different types of questions such as multiple-choice questions, polar questions, and Likert scales.

The participants
The final draft of the questionnaire administered to all residents in Riyadh, Saudi Arabia. There were no restrictions on the physicians' selection about age or other characteristics. IRB approval to conduct the study was secured through the PSMMC research committee. The consent form and information page were provided before filling in the questionnaire. Confidentiality and anonymity of participants were maintained. Voluntary self-administration of the questionnaire was conducted.

Sampling techniques
There were no randomization techniques employed by the research as the study was conducted on a survey basis. All the residents registered in the area of Riyadh were considered. The Saudi Commission for Health Specialists (SCFHS) were contacted and provided with the questionnaire and the IRB. The SCFHS launched the questionnaire to 500 residents registered on their database. The selection of the participants was conducted without the principle investigator influence. The sampled residents provided 419 fully answered questionnaires which represents 83.8% response rate.

Statistical analysis
The analysis was conducted according to the manual of the questionnaire [10]. The satisfaction score was calculated using the Brayfield and Rothe approach [12]. In short, the 18-items score is marked from 1 – 5 depending on the question's positive or negative statement, i.e. if positive statement is marked from 1 to 5, then the negative statement is marked in reverse. The marks will have a minimum of 18 and a maximum of 90. The mark 54 is considered the point of undecided, marks lower than 54 are considered to be unsatisfied by the job, and over 54 are satisfied. The rest of the results will be analyzed descriptively according to the manual. The factors will be investigated using logistic regression. The response will be experienced bullying (yes/no), while the respondents' characteristics will be considered as independent variables.

Ethical consideration
Ethical approval was obtained from the research ethics committee at Prince Sultan Military Medical City (see the appendix-1&2).
Permission was taken from The Saudi Commission for Health Specialties (SCHS) before distribution of Questioners (see the appendix-4).
Consent and a statement detailing the purpose of the study and what it entails. We provided assurance that participation is voluntary and participants' identity remained anonymous and confidential (see the appendix-5). All the data collected were used for research purposes only.

Results
The results of the answered questionnaires and the statistical analysis results are presented in this section. First, in Table 1 we present the participants' characteristics.

Table 1: Participants' characteristics (n = 419)

Characteristic	Mean ± SD*	Frequency	Percentage
Age	**28.1 ± 3.2**		
Gender			
Male		215	51.3
Female		204	48.7
Nationality			
Saudi		389	92.8
Non-Saudi		30	7.2
Hospital			
PSMMC		82	19.6
KKUH		56	13.4
PMAH		15	3.6
KSMC		66	15.8
KFSH		3	0.7
KKESH		3	0.7
MOH		28	6.7
Al-Eman General Hospital		10	2.4
Al-Amal Mental Health Complex		3	0.7
Forensic Center		2	0.5
Joint Program		9	2.1
KAMC		24	5.7
KFSHRC		37	8.8
King Salman Hospital		6	1.4
NGH		48	11.5
SFH		22	5.3
Other Hospitals		5	1.2
Position			
R1		127	30.3
R2		98	23.4
R3		105	25.1
R4		68	16.2
R5		11	2.6
R6		7	1.7
R7		3	0.7
Specialty			
Neurology		6	1.4
Anesthesia		17	4.1
Dermatology		10	2.4
Emergency Medicine		13	3.1
ENT		4	1.0
Family medicine		64	15.3
General surgery		45	10.7
Forensic medicine		3	0.7
ICU		3	0.7
Internal Medicine		49	11.7
Neurosurgery		7	1.7
OB/GYN		31	7.4
Ophthalmology		9	2.1
Dentistry specialties and subspecialties		17	4.1
Pediatrics and pediatrics subspecialties		72	17.2
Other specialties		12	2.9
Pathology		4	1.0
Psychiatry		14	3.3
Plastic surgery		6	1.4
Radiology		28	6.7
Urology		5	1.2
Working hours			
8 hour/day		180	43.0
8 hours/day or more than 8 hours/day sometimes		20	4.8
More than 8 hours/day		219	52.3
Nature of work			
Inpatients		51	12.2
Inpatients, OPD		118	28.2
Inpatients, Shifts		24	5.7
Inpatients, OPD, Shifts		130	31.0
OPD		72	17.2
OPD, Shifts		24	5.7
Working Shifts			
Morning		79	18.9

Afternoon		1	0.2
Night		3	0.7
Morning, Afternoon		50	11.9
Morning, Night		13	3.1
Morning, Afternoon, Night		172	41.1
Afternoon, Night		3	0.7
No Answer		98	23.4
Number of on calls per month	4.3 ± 2.6		

* SD: Standard Deviation

The results in Table 1 show the average of participants is 28.1 years. Males are slightly more represented with 51.3% are males. The majority of the participants are Saudi nationals (92.8%). The sample is distributed over a large number of hospitals with Prince Sultan Military Medical City (PSMMC) has the largest representation (19.6%). Pediatrics and pediatrics subspecialties (17.2%) and family medicine (15.3%) are the most represented specialties. The rest of the results are shown in the table.

Table 2: Job satisfaction statements (n = 419)

Question	Strongly Disagree (%)	Disagree (%)	Do not know (%)	Agree (%)	Strongly agree (%)
My job is like a hobby to me	43 (10.3)	74 (17.7)	79 (18.9)	153 (36.5)	70 (16.7)
My job is usually interesting enough to keep me from getting bored	29 (6.9)	57 (13.6)	63 (15.0)	211 (50.4)	59 (14.1)
It seems that my friends are more interested in their jobs	31 (7.4)	129 (30.8)	131 (31.3)	88 (21.0)	40 (9.5)
I consider my job rather unpleasant	60 (14.3)	152 (36.3)	106 (25.3)	78 (18.6)	23 (5.5)
I enjoy my work more than my leisure time	101 (24.1)	159 (37.9)	86 (20.5)	58 (13.8)	15 (3.6)
I am often bored with my job	52 (12.4)	176 (42.0)	90 (21.5)	78 (18.6)	23 (5.5)
I feel fairly well satisfied with my present job	31 (7.4)	51 (12.2)	86 (20.5)	201 (48.0)	50 (11.9)
Most of the time I have to force myself to go to work	53 (12.6)	140 (33.4)	99 (23.6)	82 (19.6)	45 (10.7)
I am satisfied with my job for the time being	29 (6.9)	47 (11.2)	87 (20.8)	197 (47.0)	59 (14.1)
I feel that my job is no more interesting than others I could get	60 (14.3)	128 (30.5)	104 (24.8)	102 (24.3)	25 (6.0)
I definitely dislike my work	145 (34.6)	149 (35.6)	71 (16.9)	41 (9.8)	13 (3.1)
I feel that I am happier in my work than most other people	38 (9.1)	83 (19.8)	110 (26.3)	140 (33.4)	48 (11.5)
Most days I am enthusiastic about my work	23 (5.5)	71 (16.9)	133 (31.7)	157 (37.5)	35 (8.4)
Each day of work seems like it will never end	32 (7.6)	165 (39.4)	102 (24.3)	81 (19.3)	39 (9.3)
I like my job better than the average worker does	26 (6.2)	73 (17.4)	116 (27.7)	154 (36.8)	50 (11.9)
My job is pretty uninteresting	99 (23.6)	182 (43.4)	67 (16.0)	52 (12.4)	19 (4.5)
I find real enjoyment in my work	25 (6.0)	66 (15.8)	97 (23.2)	175 (41.8)	56 (13.4)
I am disappointed that I ever took this job	128 (30.5)	137 (32.7)	88 (21.0)	40 (9.5)	26 (6.2)

The statements about job satisfaction are presented in Table 2. Using Brayfield and Rothe index calculation, we described earlier; the average job satisfaction was 55.0 with a 95% confidence interval (54.15, 55.88). The confidence interval means that the average satisfaction is slightly above the 54-undecided threshold but statistically significant (p-value = 0.023).

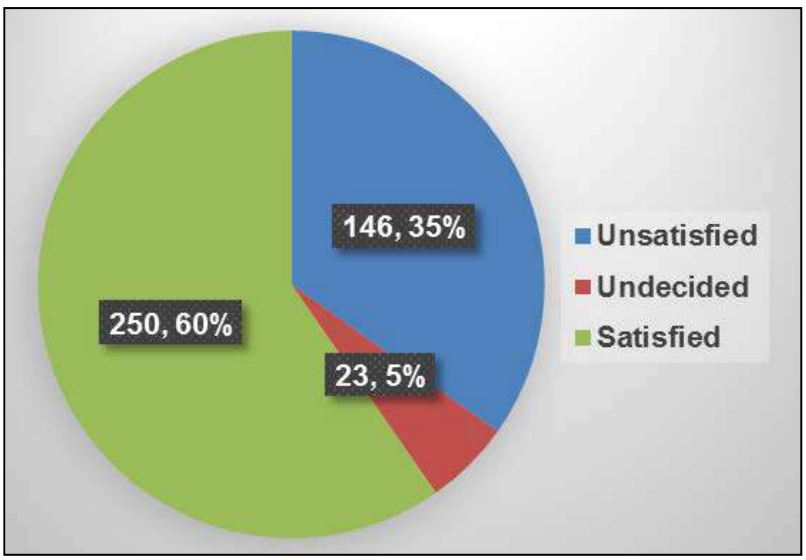

Fig 1: Participants' classification according to their job satisfaction

The classification of the participants according to their job satisfaction using the index shows that 60% of the participants are satisfied (Figure 1).

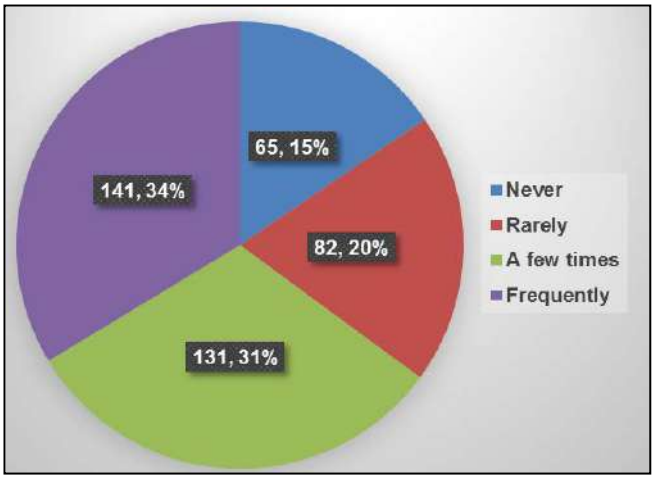

Fig 2: Frequency of witnessing others being bullied in the last 12 months

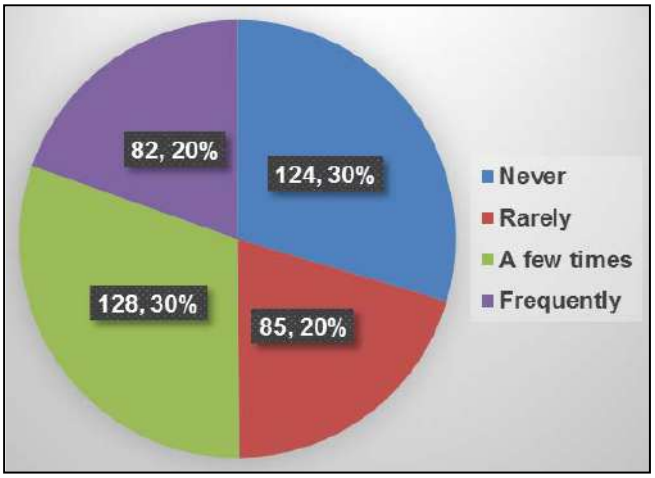

Fig 3: Frequency of exposure to workplace bullying in the last 12 months

In Figure 2, only 15% (65/419) of the participants stated that they never witnessed others being bullied in the last 12 months. The rest of the participants distributed as follows: 20% rarely, 31% a few times, and 34% frequently.

When questioned about the frequency of being exposed to workplace bullying in the last 12 months, only 30% (124/419) reported not being exposed (Figure 3).

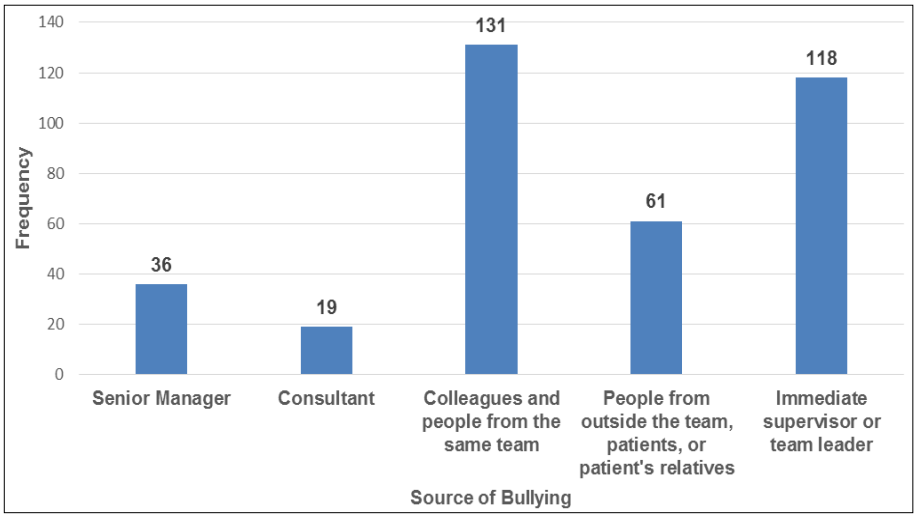

Fig 4: Sources of workplace bullying

The participants who reported being exposed to workplace bullying identified the sources of bullying (Figure 4). The two main sources of bullying are colleagues and people from the same team 35.9% (131/365) and immediate supervisors and team leaders 32.3% (118/365).

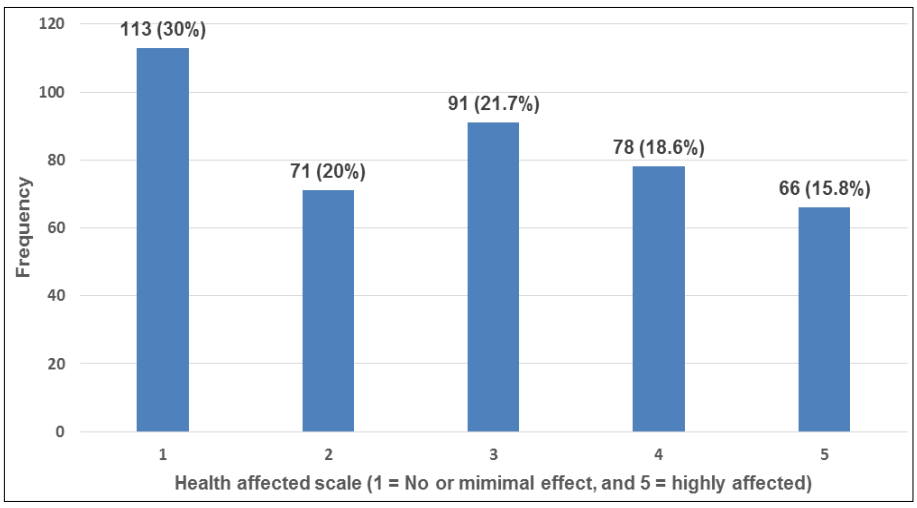

Fig 5: Self-assessment of the participants for the effect of bullying on their health

The participants assessed the extent they think workplace bullying affected their health. The participants used a scale of 1 – 5, with 1 being not affected or minimal effect and 5 being highly affected (Figure 5).

Table 3: Forms of workplace bullying the participants experienced over the last 12 months

Question	Never (%)	Rarely (%)	A few times (%)	Frequently (%)
Persistent attempts to belittle and undermine your work?	118 (28.2)	92 (22.0)	160 (38.2)	49 (11.7)
Persistent and unjustified criticism and monitoring of your work?	112 (26.7)	108 (25.8)	135 (32.2)	64 (15.3)
Persistent attempts to humiliate you in front of colleagues?	167 (39.9)	105 (25.1)	103 (24.6)	44 (10.5)
Intimidating use of discipline or competence procedures?	177 (42.2)	105 (25.1)	91 (21.7)	46 (11.0)
Undermining your personal integrity?	180 (43.0)	103 (24.6)	103 (24.6)	33 (7.9)
Destructive innuendo and sarcasm?	173 (41.3)	97 (23.2)	108 (25.8)	41 (9.8)
Verbal and non-verbal threats?	228 (54.4)	76 (18.1)	81 (19.3)	34 (8.1)
Making inappropriate jokes about you?	201 (48.0)	114 (27.2)	71 (16.9)	33 (7.9)
Persistent teasing?	205 (48.9)	114 (27.2)	67 (16.0)	33 (7.9)
Physical violence?	353 (84.2)	38 (9.1)	20 (4.8)	8 (1.9)
Violence to property?	329 (78.5)	52 (12.4)	29 (6.9)	9 (2.1)
Withholding necessary information from you?	220 (52.5)	89 (21.2)	72 (17.2)	38 (9.1)
Freezing out, ignoring, or excluding?	178 (42.5)	111 (26.5)	82 (19.6)	48 (11.5)
Unreasonable refusal of applications for leave, training, or promotion?	225 (53.7)	82 (19.6)	69 (16.5)	43 (10.3)
Undue pressure to produce work?	174 (41.5)	96 (22.9)	91 (21.7)	58 (13.8)
Setting of impossible deadlines?	211 (50.4)	97 (23.2)	64 (15.3)	47 (11.2)
Shifting of goalposts without telling you?	225 (53.7)	97 (23.2)	64 (15.3)	33 (7.9)
Constant undervaluing of your efforts?	167 (39.9)	95 (22.7)	100 (23.9)	57 (13.6)
Persistent attempts to demoralize you?	245 (58.5)	80 (19.1)	61 (14.6)	33 (7.9)
Removal of areas of responsibility without consultation?	234 (55.8)	88 (21.0)	62 (14.8)	35 (8.4)
Discrimination on racial or sexual grounds?	247 (58.9)	68 (16.2)	63 (15.0)	41 (9.8)

The forms of workplace bullying the participants were exposed to over the last 12 are presented in Table 3. Persistent and unjustified criticism and monitoring of work is the highest form of workplace bullying, 47.5% reported being bullied a few times or frequently with this form of bullying over the last 12 months. The least form of workplace bullying is physical violence (6.7%).

Table 4: Ordinal logistic regression showing the relationship between the participants' characteristics and the risk of workplace bully (Only significant relations reported)

Variable	OR*	SE**	P-value†	95 CI‡ of the coefficient ($\hat{\beta}$)	
				Lower Bound	Upper Bound
Hospital: KFSH vs. Other hospital category	0.07	0.09	0.032	0.01	0.8
Position: R2 vs. R7	2.17	0.62	0.007	1.24	3.82
Working Hours: More than 8 hours vs. Working 8 hours only	2.17	0.57	0.003	1.3	3.65
Number of monthly on calls per increase in 1 on call per month	1.13	0.06	0.025	1.015	1.25

* OR: Odds Ratio
** SD: Standard Error
† P-value is considered statistically significant when it is < 0.05
‡ CI: Confidence Interval

The results from the ordinal logistic regression in Table 4 show a statistically significant relationship between certain characteristics of the participants and experiencing bullying. Working at KFSH hospital seems to reduce the odds ration of having to experience bullying by 97%. This means that KFSH has a safer environment and intolerance to workplace bullying. The second factor is being a second-year resident. This factor increases the odds of experiencing bullying by 117% in comparison to seventh-year residents. Similarly, working more than 8 hours increase the odds by 117% in comparison to those who work 8 hours only. Finally, each on call per month increases odds of experiencing bullying by 13%.

Discussion

This study aimed to estimate the prevalence, influencing factors, and consequences of workplace bullying among resident doctors in Riyadh, Saudi Arabia. The prevalence of persistent bullying can be estimated between 20% - 50% depending on what criteria we use. Since words like frequently and a few times are not quantifiable by the exact amount; then it can be understood differently by the respondents. Experiencing any bullying over the last 12 months can be estimated around 70%. This prevalence is similar to many studies reported workplace bullying among doctors. In Saudi Arabia, the prevalence among Saudi clinical year's medical students was 28% in a medical school in Jeddah [8]. The difference in the estimation can mainly attribute to the difference in nature between learning and practical life environments. The prevalence rates from working doctors are comparable to our result. In Turkey the prevalence was 74% [4] in Pakistan 63.8% [9] junior psychiatrists in Pakistan reported 80%, [13] in the UK 84.0% among junior doctors [11]. However, in other countries, lower levels of bullying were reported, for example in Australia only 25% of doctors experienced being bullied, [14] in the UK among training doctors 37% [15] another study in the US, found the prevalence among residents to be around [16]. This discrepancy between countries can be due to many factors. Cross-cultural differences can play a major role in

the development of such behavior.

The second objective is to determine the influencing factor behind workplace bullying. We conducted ordinal logistic regression to model the relationship between the residents' characteristics and experiencing bullying. The results showed that one hospital has a high preventive effect (KFSH). This high level of prevention should be investigated and adopted by other hospitals as the work culture has a crucial impact on the development of bullying behavior [17]. If the hospital is implementing a certain policy, or effective complaining procedure, or other approaches, then it will be sensible to adopt this system in the rest of the hospitals. The second-year residents are the most vulnerable when compared to their senior colleagues. The residents in the second year are 117% at higher odds to receive abuse when compared to reference group residents in year seven. There is some correlation between reduced bullying with age, [18] however, it seems the correlation between the years of residence and the decrease in the odds ratio is not gradual. This result we think can be explained as second-year residents can have more intensive training, or it is a psychological reaction after moving from the first year. The third factor is working more than 8 hours can lead to higher level of bullying by as much 117% when compared to those who work only 8 hours. There is no correlation that we can find the literature, as far as our search is concerned, that identified this variable as a risk factor. We think this is an important overlooked factor. People who work long hours can be more prone to making mistakes and consequently to criticism. Finally, each on-call duty per month increases the risk by 13%. This is again another factor that we could not find in the studies we reviewed. We suggest the same approach of interpreting the result as of working hour's variable. On-calls can lead to higher fatigue, burnout, and other problem that make people more vulnerable.

The most mentioned sources of bullying are colleagues and people from the same team 35.9% (131/365) and immediate supervisors and team leaders 32.3% (118/365). Our study finding of the abuse of colleagues agrees with the results from studies in the US and India [19-21]. While consultant and senior doctors were reported in other studies [9, 22]. Both sources and other sources should be tackled by more efficient policies, a higher level of awareness about the consequences of such behavior, more efficient complaining procedures, and constant monitoring.

The effect of bullying on the bullied health status is documented through several studies [3, 7, 23-27]. The effect can range from mild psychological work stress to very severe damage health consequences. In our study, the self-assessment of bullying effect shows that 34.4% assessed themselves to be highly affected by bullying health wise. Such a high proportion reflects the borderline satisfaction level of the physicians about their jobs. The index of satisfaction was higher by 1 point over the undecided and the dissatisfaction threshold. Bullying is strongly associated with work dissatisfaction, burnout, and low levels of commitments [7, 17, 23].

Conclusion

The results show a high level of experiencing bullying among residents. There are several methods to tackle this problem through effective policies, awareness campaigns, and regular monitoring. Longitudinal designed studies can be beneficial for studying the effect of any policies, campaigns, or monitoring programs. These are some recommendation to minimize bullying behaviors in health care setting:

A clear statement of "zero tolerance" to bullying behaviors, regardless of seniority of the medical practitioner.

Adopting specific anti-bullying policy organizational wide.

Clear examples of what are the bullying behaviors.

Identify the managers and staff responsibilities and authorities.

Early intervention and resolving of problems.

Provides a confidential & safe environment for investigation and disciplinary procedures.

Ensure appropriate support mechanisms, in both internal and external setting.

Encourage victim feedback to offer proper support and additional, external source of surveillance in relation to problem behaviors.

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