

# Work place bullying: the characteristics of victims and perpetrators at a Middle Eastern health care facility

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## Research

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# Abstract

**Background:** Workplace Bullying (WPB) is any form of verbal, physical or sexual harassment that an employee endures by a person or a group. In health care settings, practitioners are occasionally victims of WPB. The aim of this study was to evaluate the various characteristics of WPB incidents at a multi-regional healthcare facility in a Middle Eastern country. **Methods:** A cross sectional study survey was conducted in 2018, distributing a self-administrated questionnaire via private electronic mails among fulltime healthcare practitioners in multi-regional hospitals. Eligible participants were 684 practitioners who have been exposed to a WPB incident in the past five years. Factors associated with either being a victim or perpetrators were analyzed, including their age, sex, marital status, level of education, nationality, years of experience, and job title Data were analyzed using SPSS statistical software version 25, applying both descriptive and inferential statistical analysis as appropriate. **Results:** Majority of participants were females (89.2%), and 39.3% were <30 years old. Practitioners were nurses (49.1%), administrative staff (24.3%), physicians (14.6%), technicians (10.8%) and pharmacists (1.2%). WPB perpetrators were mainly patients (36.1%), their families/relatives (29.5%), other colleagues (27.2%) or their managers/supervisors (7.2%). The type of WPB incident was mainly a verbal abuse (98.1%), a physical harassment (11.8%) and sexual connotations (5.8%). WPB mainly occurred during day duties (80.3%) and at working stations/offices (52.6%). Higher-risk groups among nurses/allied health were mainly females,  $\geq 30$  years old, and expatriates. Among physicians and pharmacists, males, younger age groups, and locals were more prone to WPB. Nurses/allied health were more likely to encounter WPB in offices/non-clinic areas, whereas physicians/pharmacists encountered them in patient rooms/clinics. Older practitioners ( $\geq 30$  years) were mainly exposed to WPB by perpetrators who were employees, while younger practitioners encountered WPB by patients/relatives. Perpetrators who were employees committed WPB in offices/non-clinic areas, while patients/their relatives committed WPB in patient rooms/clinics. **Conclusion:** WPB might occur at anytime or anywhere within hospitals and by any person. This study shared the characteristics of WPB incidents that did occur in one setting and might occur in any other setting too. Analyzing the victim's, the perpetrator's and the setting's characteristics provides a clear picture on the early warning signs that might predict a high-risk environment and alert hospital safety officers and hospital administration.

## Background

Workplace Bullying (WPB) is generally known as a repeated and unreasonable health-harming mistreatment by a person or a group [1]. WPB in some countries is epidemic, and it exemplifies itself in various forms such as verbal, physical or sexual harassment [2, 3]. Its prevalence varies across different industries all over the world, as some professions face a greater risk of exposure than others [4]. In health care settings, practitioners are occasionally victims of workplace hostility. For instance, physical violence rates against physicians and nurses were 16.2 per 1,000 and 21.9 per 1,000 employees, respectively [5]. Around 12% of emergency practitioners experience physical violence, while 59% of them encounter verbal

abuse [6]. Apparently, WPB occurs because of a triad that constitutes of a vulnerable victim, an unmonitored situation and a non-deterrent perpetrator.

WPB varies in its prevalence and its characteristics across countries. In the European Union, 52% of the victimized healthcare employees have experienced some sort of aggression at work, followed by 39% of social care workers and 25% of service workers [7]. A recent report released in 2018 by the [Medscape Report on Sexual Harassment of Physicians](#) found that about 10%-16% of female physicians were victims of WPB over the past three years [8]. Moreover, results derived from 3,700 respondents concerning the perpetrators showed that 47% of females were bullied by another physician, 29% by administrators, non-medical personnel, or patients, 17% by nurses, 4% by medical residents and fellows and 1% by medical students [9]. However, what turns an individual into a victim is the situation or the circumstance that nourishes and releases the hidden internal bully that pre-exists inside the perpetrator.

Many experts in the healthcare environment view bullying as a direct reflection of the misused power of the traditional hierarchy that exists in many healthcare organizations [7]. For example, individuals with authority are usually the perpetrators who bully their subordinates, solely driven by the virtue of their position [10]. In addition, the absence of a stringent prohibition may lead employers to pay less attention to prevent it [11]. It is believed, almost 40% of the bullied victims suffer from adverse health effects, while 29% of the targets remain silent about their WPB experiences [12]. However, considering those individuals who tried to stop it, these victims might lose their jobs [12]. Unfortunately, WPB in healthcare settings affects the teamwork and jeopardizes its integrity [10]. WPB negatively affects patients' safety and quality of care [13]. Studies found that the intimidating and disruptive behaviors associated with WPB fuel medical errors and lead to adverse outcomes [13, 14]. In addition to being a dramatic threat to patient safety [15], WPB declines staff morale and increases absenteeism, leading to a high turnover rate of qualified staff [16].

Although a number of studies have extensively examined the prevalence and characteristics of WPB, it is unfortunate that this phenomenon has not been addressed sufficiently in Middle Eastern settings. For instance in Saudi Arabia, studies on WPB are few which leaves numerous gaps in the body of knowledge [13]. The Saudi Arabian community is distinctive compared to Western settings, in terms of race and ethnicity, with deeply rooted traditions framed by tribal bounds and religious constraints. The Saudi Arabian health industry is in high demand for international expatriates, and hospitals in this region employ health practitioners from all over the world. In addition to the rules and regulations that ban WPB, the cultural and religious restraints supposedly create further restraints on harming other individuals. On the other hand, victims of WPB in such settings might underreport such unfortunate occasions, driven by the fear of being laid off or disrupting the reputation of the perpetrator who could be a patient/companion or a colleague. With the presence of video cameras on smart phones, an incident of WPB circulated through social media often triggers a wild fire ruining the image of hospitals. On certain occasions tables are turned around where the perpetrator becomes the victim of blackmailing. Therefore, it is imperative for all health care settings to detect any case of WPB, to analyze its characteristics and to determine high risk groups. The purpose of this study was to evaluate the various aspects of WPB

incidents at a multiregional tertiary health care facility in Saudi Arabia. These include the characteristics of victims, perpetrators, and incident circumstances that were analyzed as potential determinants of WPB.

## Methods

### Study design and setting

This was a cross sectional study, based on a self-administered survey that was approved by the Institutional Review Board at the targeted setting (SP18/057/R). The setting comprised four hospitals situated in various geographical regions of Saudi Arabia (two Eastern, one Central and one Western) all affiliated with one governmental institution. Its total bed capacity exceeds 1,000 beds and it has been accredited by the Joint Commission International. Study participants were all fulltime health practitioners (physicians, nurses, pharmacists, administrative employees and technicians) and of all career levels and registered under the Saudi Commission for Health Care Specialties. Eligible cases were those who admitted being victims of WPB in the past five years. The health care industry in Saudi Arabia comprises local Saudi health care workers who serve a relatively religious, tribal, and conservative culturally oriented community. However, due to the severe shortage in the work force employed in the Saudi health care industry, an influx of expatriates from all over the world and from various races, ethnicities and cultures have been observed.

Due to the sensitivity of this topic and to maximize on the participants' privacy and comfort, the data collection package constituted of a cover letter of invitation, a consent and an English language survey, all electronically accessible through hyperlink sent by an electronic mail. English was the official language of communication at this setting among health practitioners. A written informed consent was completed by electronically ticking on an "agreement to participate" statement. By convenience, all participants were exposed to the study as the survey was distributed via mass email service, twice with a one-month interval in 2018. Those who participated in the first time were instructed to refrain from participating again. A disabled tracing of the filed surveys to the participants' email addresses insured confidentiality of participants.

### Data collection

WPB was evaluated in terms of the victim, perpetrator and incident characteristics. Victims' characteristics included gender, age (years), marital status, level of education, nationality, work duration (years), job position (physicians, pharmacists, nurses, or others), and any previous training on WPB. The World Health Organization (WHO) defined WPB as a multifaceted form of mistreatment, characterized by the repeated exposure of one person to physical and/or emotional aggression. It was explained to the participants as either a physical, verbal, sexual or social bullying. Physical bullying causes injuries to an individual's body or property by beating, kicking, spitting, pinching, pushing, and using a rude body language. Verbal bullying involves the use of offensive words through teasing, name-humiliating, and unacceptable sexual comments [17]. The timing (day, evening or night shift) and the area (patient or

treatment room and others) where the incident occurred were also collected. The perpetrators characteristics were being either a hospital employee (colleague or managerial position) or patient/relatives. In addition, victims were questioned about their personal reactions or responses to the incident, if they received any support, as well as the underlying cause of WPB. The consequences of WPB against the perpetrator were also recorded. An additional question about the victims' levels of satisfaction in handling the WPB incident was rated on a Likert scale.

## **Statistical analysis**

Data entry and analyses were conducted using SPSS v.25 (IBM, NY). The characteristics of the victims, the perpetrators and the incident were presented in frequencies (n) and percentages (%). Factors associated with being a victim and a perpetrator were tested using Fisher's exact test or Pearson's chi-square. Binary logistic regression models were constructed to control for any potential confounders and to determine the significantly associated factors with either being a victim or a perpetrator of WPB. The adjusted Odds Ratio (adj.OR) and 95% Confidence Interval (95%CI) were presented. Statistical significance was originally set at P-value<0.05.

## **Results**

### **Victim, perpetrator and incident characteristics**

A total of 684 responses were collected, all of whom admitted to having encountered an incident of WPB and agreed to disclose its details. The ultimate majority were females (89.2%), while 39.3% were <30 years of age. Half of the victims were nurses (49.1%), followed by administrative staff (24.3%), physicians (14.6%), technicians (10.8%) and pharmacists (1.2%). Other victims' characteristics are presented in Table 1.

WPB perpetrators were mainly patients (36.1%), their relatives of patients (29.5%), work colleagues (27.2%) and managers/supervisors (7.2%). The type of incident was mainly a verbal abuse (98.1%), a physical harassment (11.8%) and sexual connotation (5.8%). WPB mainly occurred at day duties (80.3%) and at working stations/offices (52.6%). Almost half of the victims decided to inform a friend or a family member (48.4%) and/or report to a senior staff (28.8%). Most of the nurses claimed that the cause of the incident was misunderstanding (77%), yet 58.2% referred it to a lack of disciplinary actions that holds perpetrators accountable to their behavior. As reported by the WPB victims, only 33.6% of perpetrators received verbal warning, while no action was taken in 23.4% of the incidents. Other incident characteristics have been enlisted in Table 2. Almost 50% of the victims of WPB in this setting were very dissatisfied about the manner of handling the incident (Figure 1).

### **Factors associated with victim characteristics**

Female victims of WPB were significantly higher among nurses/allied health (92.4%), while male victims were significantly higher among physicians/pharmacists (27.8%), P<0.001. Younger

physicians/pharmacists (53.7%) were more prone to WPB, while nurses/allied health victims were >40 years (41.7%),  $P=0.003$ . Nurses/allied health expatriates comprised the majority of victims of WPB (81.1%), while 51.9% of local physicians/ pharmacists were victims,  $P<0.001$ . For nurses/allied health victims, offices/non-clinical areas were the main sites of WPB, while among physicians/ pharmacists victims it was inside patient rooms/clinics (66.7%),  $P<0.001$  (Table 3).

### **Factors associated with perpetrators' characteristics**

Nurses/allied health were mainly victims of other employees (90.3%), whereas physicians/ pharmacists were mainly victims of patients/relatives (18.9%),  $P=0.002$ . Younger practitioners of age (<30) and less experienced practitioners ( $\leq 10$  years) were both mainly the victims of patients/relatives (46.1% and 63.0%), while older practitioners (>40) and more experienced (>10 years) were both victims of other employees (42.6% and 45.5%),  $P<0.001$  and  $P=0.03$  respectively. WPB of sexual connotation was more prevalent among perpetrators who were employees (10.2%),  $P<0.001$ . The main area for WPB incidents was the patient room/clinic for perpetrators who were patients/relatives (55.2%),  $P<0.001$ . The level of satisfaction in handling the WPB incident was higher when the perpetrator was a health care practitioner,  $P<0.001$  (Table 4).

### **Odds of being a victim or a perpetrator**

The odds of being a victim of WPB was 3.5 times higher among female nurses/allied health and 2 times more likely among older nurses/allied health compared to their counter groups,  $P<0.001$  and  $p=0.013$  respectively. Expatriate nurses/allied health practitioners were also 3.9 times to be victims of WPB, compared to local health practitioners,  $P<0.001$ . There is 3.3 chance that nurses/allied health practitioners will encounter WPB in offices/non-clinical areas,  $P<0.001$ . Perpetrators who are employees were 3 times more likely to bully older health care practitioners ( $\geq 30$ ), compared to younger ones,  $P<0.001$ . The chances of being bullied by an employee were 4.1 times more likely to occur in office and non-clinic areas,  $P<0.001$  (Table 5).

## **Discussion**

WPB is an unfortunate incident and it is the duty of all hospital administrators to insure that their health practitioners are safe from it. This study analyzed the details of actual WPB incidents in attempt to reveal those at higher risk of being exposed to WPB and its circumstances. Accordingly, action plans must be launched to educate and train vulnerable groups, and to closely monitor the work environment. By highlighting the variables significantly associated with WPB victims, we focus on the modifiable factors, based on which more stringent policies can be generated to deter potential perpetrators. It is the employee's and patients' right, as well as the duty of all hospital administrators to promote a safe working environment, free of any type of harassment. Therefore, the focus on these high-risk groups should be higher, so that early warning signs of WPB are detected, reported and counteracted upon. Regrettably, some studies believe that interventions to prevent WPB are ineffective, with emphasis on the

fact that WPB is being primarily facilitated by organizational causes that hinders the formation of collegiality and trust among health practitioners [18].

Hospital administrators are cautioned that female nurses/allied health employees were more prone to become victims of WPB compared to female physicians/pharmacists, whereas among male HCWs it was vice versa. This finding was similar to the report of a Swedish health care system where victims of WPB were predominantly women (90%) and nurses/allied health employees (87%) [19]. Gender indeed plays an important role in predicting WPB victims [20]. However, gender should not be accounted as a single precursor of WPB at health care facilities. In this setting, nurses/allied health were mainly victimized by other employees, whereas physicians/pharmacists were victimized by patients/relatives. This phenomenon can be attributed to the scope of practice in a sense, nurses/allied health practitioners are more involved in bedside care and differ in their chain of command compared to physicians/pharmacists. Nurses/allied health practitioners report to unit managers, nurse coordinators, shift supervisors, and other health disciplines. They operate in larger teams and their workload is more physically demanding, though limited to fewer patients when compared to physicians/pharmacists. Authors believe that this difference in scope of practice and work relationships contributed to the variation in WPB incidents between them. On the other hand, physicians/pharmacists tend to rotate between various hospital wards. They usually communicate more with patients/families, especially when it has to do with reporting medical diagnoses, clinical progress and critical lifesaving decisions. Therefore, WPB among physicians/pharmacists might have been due to disrupted communication with the patients/families, lack of patients' expectations, or misinterpretation of the delivered messages. Any disrupted communication or relationship between families and health care teams eventually results in stress, temper, lack of confidence, and subsequently violence [21].

Age was a significant factor with WPB in this setting, as younger physicians/pharmacists were more prone to WPB. Younger practitioners were more prone to being bullied by patients and their relatives. On the same hand, less experienced employees were at higher risk of being bullied by patients/relatives, rather than by employees. Authors believe that age and work experience are collinear, as employees who are fresh graduates are also juniors in practice and have not developed their interpersonal work relationships or communication skills sufficiently. A synthesis of evidence from 16 studies showed that newly graduated employees were at higher risk of being exposed to a negative workplace behavior [22]. The young and less experienced might be partially incapable of delivering the message properly to patients/relatives. Furthermore, in one study, nurses who have been abused by a patient or family member failed to find support from their managers [23]. Authors speculate that junior practitioners might be subject to criticizing comments from the senior practitioners. In addition, the stressful work environment might be challenging to them, which makes them loose focus on properly handling a WPB incident or even setting red lines when the need arises. However, this study showed that older nurses/allied health was more prone to WPB, compared to younger ones. This might have been attributed to the type of perpetrator that nurses reported in this setting, which was predominantly other employee (90.3%). For instance, it has been reported that nurses usually focus on their own patient assignments with little time or concern for conflict resolution [23]. However, hectic duties and stressful work

environments witnessed by these nurses might trigger loose tempers and any lack of communication or collaboration might be exemplified in one form of WPB. Furthermore, nurses regularly find short-noticed and multiple batched admissions or discharges as major stressors, especially if it is not coordinated with physicians and the admission office. The lack of vacant beds, unmet patient/family expectations and absence of resources will eventually create a chaotic work environment where WPB might arise [23].

Expatriate nurses and allied health were more susceptible to WPB compared to physicians and pharmacists. These employees are descending from various nationalities and sought jobs at this Middle Eastern setting. Authors believe that cultural difference and language barriers might aggravate WPB. In this setting, English language is the predominant language used among health care practitioners, yet Arabic language is the official language among the community. Expatriate health care practitioners strive to communicate with their patients using simplified Arabic terms. Non-Arabic speakers regularly try to utilize an unstructured Arabic/English dialect between non-Arabic speakers and the local community. These factors might have aggravated a potential misunderstanding that escalated to WPB, simply due to a failure in expressing the true thoughts. Currently, there has been no previously published studies that related WPB to language and cultural differences between health practitioners and patients/their relatives. Authors believe that some expatriate healthcare practitioners who have been victims of WPB might refrain from disclosing such unfortunate incidents based on the fear of a scandal or a threat to their career. Accordingly, hospital administrators are encouraged to disseminate educational offerings throughout the health care settings about proper work relationships and professional communication.

A number of limitations have been observed in this study. Authors believe that WPB is an underreported phenomenon, so the recruited sample might not be exhaustive in terms of representativeness. Disclosing the incidents WPB to hospital administrators necessitates a supportive work culture and a transparent reporting system that insures the privacy and safety of WPB victims. Another limitation could have been the recall bias taking into consideration the retrospective design of the study. However, authors believe that the details of WPB, whether it is an isolated incident or a repetitive, are unlikely to be forgotten by the victims. In addition, certain conflicts, among employees or between employees and patients/their families, might have been misinterpreted by the victims as an act of aggression or bullying. Furthermore, some life factors such as the social/financial stressors, previous mental/psychological disorders or even prior traumas might have elicited a WPB incident from the perpetrator's side or increased the vulnerability from the victim's side. Therefore, in-depth analyses of the true causes and implications of WPB incidents require a more personal qualitative research methodological approach, which was beyond the scope of this study.

## **Conclusions And Recommendations**

WPB is unfortunate and traumatic in various degrees, but when it occurs in health care settings, its extent of damage can be great. A health care facility is supposed to be a safe work environment where employees perform a humane career to cure diseases, heal traumas and alleviate pain. It is a place where well-educated practitioners occupying descent careers provide services to vulnerable patients who a

sought safe and trustworthy place to recover. WPB might occur at anytime, anywhere within the health care facilities and by any person. The importance of this study and other similar studies is to share the characteristics of WPB incidents that did occur in one setting and might occur in other settings too. Analyzing the victim's, the perpetrator's and the setting's characteristics provides a clear picture on the early warning signs that might predict a high-risk environment and alert hospital safety officers.

The leading form of WPB in this setting was verbal abuse that mainly occurred during day shifts. A higher-risk group for WPB were female nurses/allied health, above 30 years of age, and expatriates. Among physicians and pharmacists, males, younger age groups and locals were more prone to WPB. Nurses/allied health were more likely to encounter WPB in offices/non-clinic areas, whereas physicians/pharmacists encountered them in patient rooms/clinics. Older victims ( $\geq 30$  years) were mainly exposed to WPB by perpetrators who were employees, while younger victims encountered WPB by patients/relatives. Perpetrators who were employees committed WPB in offices/non-clinic areas, while patients/their relatives committed it in patient rooms/clinics.

### **Key points:**

- Leading type of WPB is verbal abuse that mainly occurred during day shifts.
- High-risk groups were female nurses/allied health, >30 years of age, and expatriates.
- Among physicians and pharmacists, males, younger age groups and locals were more prone to WPB.
- Nurses/allied health were more likely to encounter WPB in offices/non-clinic areas, whereas physicians/pharmacists encountered them in patient rooms/clinics.
- Older victims ( $\geq 30$  years) were mainly exposed to WPB by perpetrators who were employees, while younger victims encountered WPB by patients/relatives.
- Perpetrators who were employees committed WPB in offices/non-clinic areas, while patients/their relatives committed it in patient rooms/clinics.

## **List Of Abbreviations**

Workplace bullying: WPB

World Health Organization: WHO

Adjusted Odds Ratio: adj.OR

95% Confidence Interval: 95%CI

## **Declarations**

**Ethics approval and consent to participate:**

A self-explanatory letter of invitation to participate was presented to each of the participants. All participants had given written informed consents for their participation in the research presented in this manuscript with full knowledge of the possible risks and benefits of participation. Participants consented by ticking “agree”, indicating their agreement to provide their feedback for this research study. Study was approved by the Institutional Review Board of the Saudi Ministry of National Guard Health Affairs, Riyadh, Saudi Arabia (Protocol # SP18/057/R). This study followed the recommendations of the International Conference on Harmonization for Good Clinical Practice (ICH-GCP).

**Consent for publication:**

Not applicable.

**Availability of data and material:**

The datasets generated and/or analyzed during the current study are not publicly available due the institutional rules and regulations, but are available from the corresponding author on reasonable request.

**Competing interests:**

The authors declare that they have no competing interests

**Funding:**

None to declare.

**Authors' contributions:**

All authors conceptualized and designed the study. KA and KAla supervised the conduct of the study and data collection. MAO undertook the recruitment of subjects and managed the data. KA, KAla and MS were accounted for the quality control. MS provided statistical advice on study design, data analysis and correspondence. All authors drafted the manuscript, and contributed substantially to its revision as submitted and agree to be accountable for all aspects of the work.

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## Tables

Table 1: Victims' characteristics

	n(%) 684(100%)
<b>Gender</b>	
Male	74(10.8)
Female	610(89.2)
<b>Age (years)</b>	
<30	269(39.3)
30-40	139(20.3)
>40	276(40.4)
<b>Marital status</b>	
Single	344(50.3)
Married	311(45.5)
Divorced/Widowed	29(4.2)
<b>Educational status</b>	
Diploma's degree	111(16.2)
Bachelor's degree	438(64.0)
Master's degree/PhD	135(19.8)
<b>Nationality</b>	
Local	165(24.1)
Expatriate	519(75.9)
<b>Work experience (years)</b>	
<1	61(8.9)
2-5	141(20.6)
6-9	209(30.6)
≥10	273(39.9)
<b>Job position</b>	
Nurse	336(49.1)
Administrative	166(24.3)
Physician	100(14.6)
Technician	74(10.8)
Pharmacists	8(1.2)
<b>Previous training on work place bullying</b>	
Yes	81(11.8)
No	603(88.2)

n: frequency, %: percentage.

Table 2: Perpetrator and incident characteristics

	n(%)
<b>Perpetrator of incident</b>	
Patient	247(36.1)
Relatives of patients	202(29.5)
Manager or supervisor	49(7.2)
Colleagues	186(27.2)
<b>Type of incident*</b>	
Verbal	671(98.1)
Physical	81(11.8)
Sexual	40(5.8)
<b>Time of incident</b>	
Day shift	549(80.3)
Evening shift	46(6.7)
Night shift	89(13.0)
<b>Area of incident</b>	
Patient room	142(20.9)
Treatment room/Clinic	157(23.0)
Working station/office	360(52.6)
Non clinic areas	24(3.5)
<b>Reaction to work place bullying*</b>	
Told friends/family	331(48.4)
Reported to senior staff member	197(28.8)
Told the person to stop	183(26.8)
Told a colleague	180(26.3)
Tried to defend self physically	124(18.1)
Completed incident or accident form	76(11.1)
Sought counseling	55(8.0)
Transferred to another position	46(6.7)
No action, Pretended it never happened	71(6.6)
<b>Perceived causes of work place bullying*</b>	
Misunderstanding	527(77.0)
Lack of discipline to hold people accountable about their behavior	398(58.2)
Concern of patients	279(40.8)
Communication or Language barriers	267(39.0)
Lack of explicit rights or procedure	118(17.3)
Illness	106(15.5)
Personal problem of coworker	96(14.0)
Scapegoat for medical dispute	26(3.8)
Low of training nurses	24(3.5)
Fault of oneself	23(3.4)
Drunk problem	15(2.2)
<b>Consequences for the attacker</b>	
Verbal warning issued	230(33.6)
None	160(23.4)
Don't know	134(19.6)
Written warning	83(12.1)
Care discontinued	58(8.5)
Counseling	10(1.5)
Reported to police (prosecution)	9(1.3)

n: frequency, %: percentage, \*: non-mutually exclusive

Table 3: Factors associated with victim characteristics

	Nurse/Allied health n(%)	Physician/ Pharmacists n(%)	Analysis, P-value
<b>Gender</b>			
Female	532(92.4)	78(72.2)	$\chi^2=38.2, P<0.001^*$
Male	44(7.6)	30(27.8)	
<b>Age (years)</b>			
<30	211(36.6)	58(53.7)	$\chi^2=11.722, P=0.003^*$
30-40	125(21.7)	14(13.0)	
>40	240(41.7)	36(33.3)	
<b>Marital status</b>			
Single/ Separated	311(54.0)	62(57.4)	$\chi^2=0.428, P=0.513$
Married	265(46.0)	46(42.6)	
<b>Educational status</b>			
Diploma's/Bachelor's degree	469(81.4)	80(74.1)	$\chi^2=3.101, P=0.078$
Master's/PhD degree	107(18.6)	28(25.9)	
<b>Nationality</b>			
Expatriates	467(81.1%)	52(48.1)	$\chi^2=53.875, P<0.001^*$
Locals	109(18.9%)	56(51.9)	
<b>Work experience (years)</b>			
$\leq 10$	341(59.2)	70(64.8)	$\chi^2=1.195, P=0.274$
$>10$	235(40.8)	38(35.2)	
<b>Type of incident*</b>			
Verbal	565(98.1)	106(98.2)	$\chi^2=0.002, P=0.968$
Physical	70(12.2)	11(10.2)	$\chi^2=0.337, P=0.561$
Sexual	35(6.1)	5(4.6)	$\chi^2=0.346, P=0.557$
<b>Time of incident</b>			
Day shift	459(79.7)	90(38.3)	$\chi^2=0.763, P=0.382$
Evening/Night shift	117(20.3)	18(16.7)	
<b>Area of incident</b>			
Patient room/Clinic	228(39.6)	72(66.7)	$\chi^2=27.093, P<0.001^*$
Office/Non-clinic areas	348(60.4)	36(33.3%)	
<b>Rate of satisfaction with handling the incident (PMS<math>\pm</math>SD)</b>	26.8 $\pm$ 29.7	22.0 $\pm$ 29.7	t= -1.713, P=0.087

PMS: percentage mean score, n: frequency, %: percentage, \*: mutually exclusive,  $\chi^2$ : Pearson's Chi-square, t: students t-test, P: P-value, SD: standard deviation

Table 4: Factors associated with perpetrator characteristics

	Patient/Relatives n(%)	Employee Staff n(%)	Analysis, P-value
<b>Job</b>			
Nurse/allied health	364(81.1)	212(90.3)	$\chi^2=9.700$ , P=0.002*
Physician/ Pharmacists	85(18.9)	23(9.7)	
<b>Gender</b>			
Female	395(87.9)	215(91.5)	$\chi^2=1.977$ , P=0.160
Male	54(12.1)	20(8.5)	
<b>Age (years)</b>			
<30	207(46.1)	62(26.4)	$\chi^2=36.012$ , P<0.001*
30-40	66(14.7)	73(31.1)	
>40	176(39.2)	100(42.6)	
<b>Marital status</b>			
Single/ Separated	249(55.5)	124(52.8)	$\chi^2=0.450$ , P=0.502
Married	200(44.5)	111(47.2)	
<b>Educational status</b>			
Diploma's/Bachelor's degree	362(80.6)	187(79.6)	$\chi^2=0.107$ , P=0.743
Master's/PhD degree	87(19.4)	48(20.4)	
<b>Nationality</b>			
Non-Saudi	345(76.8)	174(74.0)	$\chi^2= 0.658$ , P=0.417
Saudi	104(23.2)	61(26.0)	
<b>Work experience (years)</b>			
≤10	283(63.0)	128(54.5)	$\chi^2=4.714$ , P=0.030*
>10	166(37.0)	107(45.5)	
<b>Type of incident*</b>			
Verbal	442(98.4)	229(97.4)	F-exact, P=0.266
Physical	51(11.4)	30(12.8)	$\chi^2=0.293$ , P=0.589
Sexual	16(3.6)	24(10.2)	$\chi^2=12.387$ , P<0.001*
<b>Time of incident</b>			
Day shift	355(79.1)	194(82.6)	$\chi^2=1.185$ , P=0.276
Evening/Night shift	94(20.9)	41(17.4)	
<b>Area of incident</b>			
Patient room/Clinic	248(55.2)	52(22.1)	$\chi^2=68.665$ , P<0.001*
Office/Non-clinic areas	201(44.8)	183(77.9)	
<b>Rate of satisfaction with handling the incident (PMS±SD)</b>	22.9±30.0	32.1±28.3	t=-4.530, P<0.001*

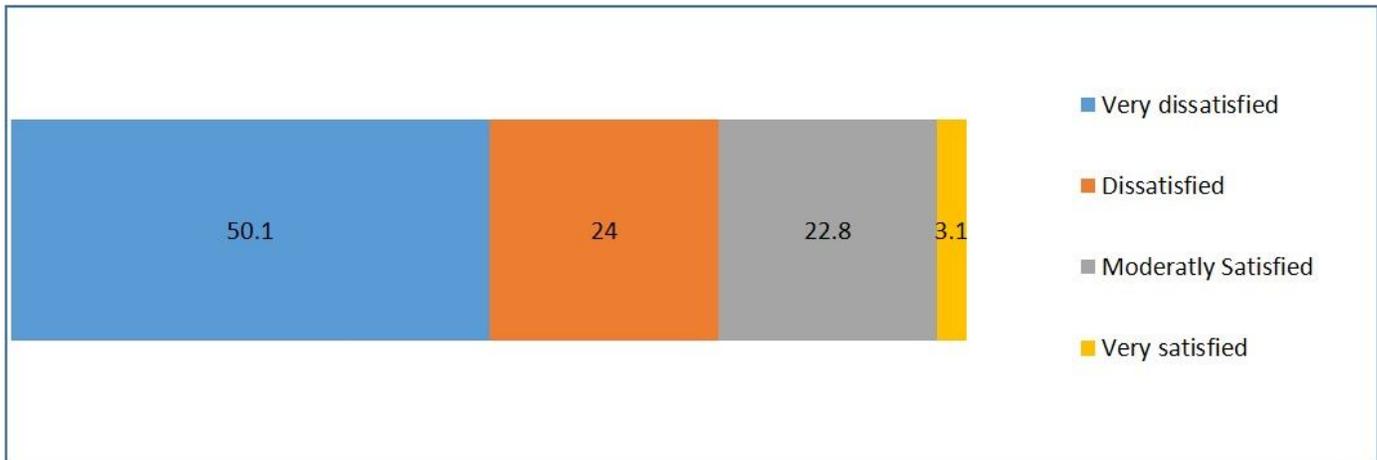
PMS: percentage mean score, n: frequency, %: percentage, \*: mutually exclusive,  $\chi^2$ : Pearson's Chi-square, t: students t-test, P: P-value, SD: standard deviation

Table 5: Regression analysis for factors of odds of being a victim versus perpetrator of WPB

	Victim		Perpetrator	
	Nurse/Allied health vs. Physician/ Pharmacists <sup>0</sup>		Employee versus Patient/Relatives <sup>0</sup>	
	Adj.OR[95%CI]	Adj.P-value	Adj.OR[95%CI]	Adj.P-value
<b>Gender</b> (Female vs. male <sup>0</sup> )	3.5[2.0-6.2]	<0.001	1.2[0.7-2.2]	0.529
<b>Age</b> (≥30 vs. <30 <sup>0</sup> )	2.0[1.2-3.4]	0.013	3.0[2.0-4.7]	<0.001
<b>Marital status</b> (Married vs Single <sup>0</sup> )	1.2[0.7-2.0]	0.603	1.5[0.9-2.2]	0.053
<b>Education</b> (Higher vs. Lower <sup>0</sup> )	1.6[-0.9-2.8]	0.085	1.1[0.7-1.7]	0.713
<b>Nationality</b> (Expatriate vs. local <sup>0</sup> )	3.9[2.4-6.2]	<0.001	0.7[0.4-1.0]	0.073
<b>Time</b> (Day vs. Evening/night <sup>0</sup> )	0.7[0.4-1.3]	0.287	1.1[0.7-1.7]	0.738
<b>Place</b> (Office/Non-clinic areas vs.Patient room/Clinic <sup>0</sup> )	3.3[2.1-5.3]	<0.001	4.1[2.8-6.1]	<0.001
<b>Victim</b> (Nurse/Allied health vs Physician/ Pharmacists <sup>0</sup> )	-	-	1.4[0.8-2.5]	0.214

Adj: adjusted; OR: odds ratio, CI: confidence interval, \*: statistically significant at <0.05, <sup>0</sup>: reference group.

## Figures



**Figure 1**

Rate of satisfaction with handling the WPB incident