Violence Against Drivers and Conductors in the Road Passenger Transport Sector in Maputo, Mozambique

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ABSTRACT

This cross-sectional study examined the extent, nature and risk factors of workplace violence in the road passenger transport sector in Maputo, the capital city of Mozambique. A random sample of 504 participants was selected from a population of 2 618 registered bus, minibus, and taxi drivers/conductors. The results indicated that workplace violence, psychological as well as physical, is highly prevalent among drivers/conductors, with 77% reporting ever being abused and 64% reporting being abused during the past 12 months. Particularly vulnerable groups comprised illiterate employees, bus drivers/conductors, employees with long experience, and those holding a supervisory position. In addition, a high workload was associated with an increased likelihood of exposure to workplace violence in the road passenger transport sector. This article discusses the implications of the findings for possible interventions and further research.

INTRODUCTION

Workplace violence is an alarming phenomenon world-wide. A large European survey covering 31 countries and different work sectors placed the yearly prevalence of physical abuse in the workplace at 5%, sexual harassment at 2%, and bullying/harassment at 5% (European Foundation for the Improvement of Living and Working Conditions, 2007). Of

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the 4.5 million crimes of violence reported in the United States of America (USA), including assault, rape, sexual harassment and robbery, 16.3% were a result of violence directed towards employees while on duty (BJS, 2006).

An overwhelming majority of the studies on workplace violence have focussed on the healthcare sector. In this sector, prevalence studies have suggested that violence is common with little geographical variation. In the USA, for example, a prevalence of 8–38% has been reported in contrast with 15–39% in South America; 10–73% in Asia; 9–56% in the Middle East; 10–67% in Australia; and 4–52% in Africa (Carmi-Iluz, Peleg, Freud, & Shvartzman, 2005; Di Martino, 2002, 2003; Jackson & Ashley, 2005; Kasara, Pathrapon, & Bungorn, 2003; Kowalenko, Walters, Khare, & Compton, with the Michigan College of Emergency Physicians Workplace Violence Task Force, 2005; Kwok et al., 2006; Palacios et al., 2003; Steinman, 2003; Eduardo Mondlane University, 2003).

Workplace violence accounts for significant work-related mortality. In the USA, workplace homicide is the fourth leading cause of work-related death. In addition to homicides and injuries, workplace violence can lead to depression, anxiety, stress, psychosomatic complaints, helplessness and burnout (Arnetz & Arnetz, 2001; BLS, 2007; Chappell & Di Martino, 2006; Di Martino, 2003; Lanza, Zeiss, & Rierdan, 2006; Lundström, Saveman, Eissemann, & Astöm, 2007; Menckel & Viitasara, 2002; Soares, Lawoko, & Nolan, 2000; Winstanley & Whittington, 2002; NIOSH, 2007).

A myriad studies, particularly within the healthcare sector, have attempted to investigate those factors that may contribute to workplace violence. Workplace violence has been placed in a framework suggesting that the interaction between victim/perpetrator characteristics and work environmental factors increases/decreases employees' vulnerability to abuse (Chappell & Di Martino, 2006). Individual characteristics, such as age, gender and occupational experience, have previously been implicated as risk factors of workplace violence. For example, being of a young age, female, a nurse, and lacking work experience have been associated with increased vulnerability to workplace violence in the healthcare sector (Arnetz, Arnetz, & Petterson, 1996; Chappell & Di Martino, 2006; Fazzone, Barloon, MacConnell, & Chitty, 2000; Lee, Gerberich, Waller, Anderson, & MacGovern, 1999; Menckel & Viitasara, 2002; Lawoko, Soares, & Nolan, 2004; Soares et al., 2000). Moreover, employees' poor health conditions have been associated with increased vulnerability to abuse (Arnetz et al., 1996; Menckel & Viitasara, 2002). Exposure to violence may vary depending on conditions under which employees work, and in which occupational category, among other things (Chappell & Di Martino, 2006). Workplace characteristics, such as form of employment (full time working); type of care setting (e.g. psychiatric care, emergency department); working hours (evening and nights); working alone; working in public environments; high workload; and organisational changes (e.g. downsizing) are factors that may increase exposure to and risk of workplace violence (Arnetz & Arnetz, 2001; Chappell

& Di Martino, 2006; Kwok et al., 2006; Lawoko et al., 2004; Mayhew, 2000; Nolan, Soares, Dallender, Thomsen, & Arnetz, 2001; Soares et al., 2000; Viitasara, Sverke, & Menckel, 2003).

Despite growing evidence of workplace violence in the healthcare sector and increased knowledge regarding its risk factor and health consequences, studies from other sectors are comparatively scarce. Particularly, far less attention has been given to investigating violence in the transport, commerce, education, postal and telecommunication, hotels, public services, media and entertainment industries, catering and tourism sectors. This article scrutinises workplace violence in the road passenger transport sector. There is reason to suspect that the profile of abuse (e.g. nature, extent and risk factors) may be of a unique character. Unlike healthcare settings, where relationships between patients and care personnel can be established, the transport sector is characterised by a unique form of interaction. The work of drivers and conductors involves interaction with strangers on a daily basis. It is, therefore, a challenge to understand the extent, nature and risk factors of violence in this unique sector.

WORKPLACE VIOLENCE IN THE TRANSPORT SECTOR

The transport sector comprises air, railway, maritime and road transport. Employees in the road passenger transport sector are at potential risk of exposure to workplace violence as they meet a diversity of clients, including potential perpetrators (e.g. alcohol and drug abusers). Moreover, factors, such as delays in transportation; poor information following delays; the quality of environmental surroundings; and failure to meet passenger expectations, are likely to incite anger and frustration in the public, and increase the risk of aggression (Boyd, 2002; Chappell & Di Martino, 2006; Essenberg, 2003). Thus, violence against employees in the road passenger transport sector is usually triggered externally (e.g. violence occurring between an employee and any other person present at the workplace). There have, however, been reports of internally induced acts of violence involving employees and their managers and supervisors (Chappell & Di Martino, 2006; Essenberg, 2003; ILO, 2004). In addition, workers in the road passenger transport sector in several countries have complained of harassment and extortion by members of the armed forces, police officials, and customs agents at road blocks or border posts (Essenberg, 2003).

Violence in the road passenger transport sector is common. Reports from the developed countries have indicated that between 19–70% of taxi drivers have been subjected to abuse ranging from verbal to physical (Elzinga, 1996; Mayhew, 2000; Richardson & Windau, 2003). This violence is often associated with factors, such as working alone; working at night; availability of cash; and working in high crime areas (Castillo & Jenkins, 1994; Chappell & Di Martino, 2006; Elzinga, l996; Essenberg, 2003; Jenkins, 1996; Mayhew,

2000; Richardson & Windau, 2003). Among bus drivers, interaction with members of the general public who have been drinking; public frustration at having to wait; and fare evasion, put drivers at a heightened risk of abuse (Chappell & Di Martino, 2006; Essenberg, 2003).

In African countries there is lack of studies of workplace violence in the road passenger transport sector. In this study, workplace violence in the road passenger transport sector in Maputo has been scrutinised for the first time. More specifically, the study analysed the prevalence and nature of workplace violence against drivers and conductors and identified the individual and work-related risk factors associated with workplace violence in the road passenger transport sector in Maputo.

WORKPLACE VIOLENCE IN MOZAMBIQUE

Mozambique is located in South-Eastern Africa and has about 20 530 714 inhabitants (INE, 2007). The capital city of the country is Maputo. With an infant mortality rate of 107.9/1,000 births, a life expectancy at birth of 42.3 years, a total adult literacy rate of 46.4% (INE, 2005) and a GDP per capita of 197.4 USD (INE, 2002), Mozambique remains a developing country. As a consequence of almost two decades of armed conflict (1976–92), there is an apparent culture of violence in the country (Boothby, 1992). A study of mortality due to injuries in Maputo indicated that homicides accounted for about 20% of all injury mortalities (Nizamo, Meyrowitsch, Zacarias, & Konradsen, 2006). Concerning workplace violence, only one study has been published to date. The study investigated violence among healthcare professionals where a prevalence of workplace violence of over 40% was reported (Eduardo Mondlane University, 2003).

To date, no study has been undertaken to investigate violence in the transport sector in Mozambique. This study sought to investigate the extent, nature and risk factors of workplace violence in the road passenger transport sector in Maputo.

METHODS

DEFINITIONS

Workplace violence is defined as behaviour by an individual/individuals, within or outside an organisation, that is intended to physically and/or psychologically harm a worker/workers and occurs in a work-related context (Schat & Kelloway, 2005). In this study, the operational definition of workplace violence is: threatening or aggressive behaviour (verbal); spitting, scratching or pinching; use of physical force, such as punching, slapping and kicking; physical threat involving no actual physical violence; sexual harassment; and use of an object or a weapon against the employee. Thus, a victim of workplace violence is a driver or conductor who is subjected to one, several, or all of these abusive behaviours.

Work environment can be measured in terms of demand, control and support at work.

- Demand is classified under psychological and physical demand. Psychological work demand or workload is defined as stressors present in the work environment (e.g. high working pace, high pressure time, difficult and mentally exacting time); and physical work demand or workload is defined as efforts done at work (e.g. high efforts carrying heavy objects) (Karasek, 1979; Karasek & Theorell, 1990).
- Control constitutes the worker's ability to control his/her own activities and skill development (Karasek, 1979; Karasek & Theorell, 1990).
- Support is defined in terms of support received, such as emotional and instrumental support, cognitive guidance, social reinforcement, informative and appraisal support (Hirsch, 1980; House, 1985; Norbeck, Lindsey, & Carrieri, 1981).

The operationalisation of these concepts in the current study is presented under the "Measures" section below.

SETTINGS AND PARTICIPANTS

The research was conducted in the road passenger transport sector in Maputo. The city occupies 300 km^2 of land, with a population of 1 099 102 inhabitants (INE, 2007). Road passenger transport is provided by buses, minibuses and taxis belonging to one government bus company and two transport associations, namely, a bus and a taxi association. The total population of registered drivers and conductors in the city is 2 618 with the following distribution: 405 bus drivers; 377 bus conductors; 743 mini-bus drivers; 743 minibus conductors; and 350 taxi drivers. There are no taxi conductors.

A pilot study was first conducted (among 50 participants) to determine, among other things, the probability of workplace violence, in order to determine the required sample size for this study. The pilot study also investigated the cultural acceptability and validity of instruments to be used. The results of the pilot study indicated a prevalence of workplace violence of about 74%. Based on these results, a power analysis was performed and a sample size of 504 participants was considered adequate to ensure a power of over 80%. The participants were randomly selected from each stratum to ascertain representation: 144 minibus drivers;144 minibus conductors; 72 bus drivers; 72 bus conductors; and 72 taxidrivers.

THE EMPLOYMENT CONTEXT OF DRIVERS/CONDUCTORS IN MAPUTO

Drivers and conductors perform multiple duties. Conductors are expected to assist drivers in collecting fares from passengers and see to it that there is harmony among passengers. In addition, both drivers and conductors assist in loading passengers' belongings and perform several duties to ensure safety and hygiene in the vehicle. These include cleaning the vehicle; checking for mechanical problems; fixing punctures; and repairing any damage

that may occur to the vehicle. A driver or conductor can also hold a supervisory position. The supervisors are expected to resolve internal (between employees) and external (between employee and passenger) conflicts. They also check whether all vehicles have a valid licence; inspect whether vehicles have undergone the yearly service; and ensure that vehicles follow the order of arrival at the stations (e.g. taxi stops and bus/minibus terminals). Amidst high competition for passengers, the multiple duties of drivers and conductors imply that they have to work fast and intensively. Also, these multiple roles could imply that employees in this sector may be faced with conflicting job demands (e.g. conductors and drivers may not have prior knowledge of mechanical work; and supervisors may not have prior training in conflict resolution).

DESIGN AND PROCEDURE

The study design was cross-sectional. The questionnaire was translated into Portuguese, the official language of the country. The questionnaire covered socio-demographic characteristics; access to information; literacy level; occupational experience; organisational changes; work environment; work conditions; health conditions; quality of life; life style; workplace violence reactions; consequences; and burnout. For the current article, questions concerning workplace violence; occupational experience; organisational changes; work conditions; work environment; socio-demographic characteristics; literacy level; and access to information were of primary interest.

Data was collected during eight consecutive weeks by three trained interviewers. The interviewers' training package included understanding the study aims, the questionnaire content and administration; understanding ethical issues, such as respect for privacy while performing the interviews; as well confidentiality and emphasis on voluntary participation. Participants were contacted at their workplaces or homes, and in some cases, appointments were made telephonically. Addresses/telephone numbers were obtained from government administrators, bus companies, bus/taxi transport associations and the National Traffic Institute. The participants had already been informed of the pending study by their respective associations. The National Committee of Bioethics for Health in Mozambique approved the study.

MEASURES

Workplace violence, occupational experience, organisational changes, and work conditions were assessed using a previously validated questionnaire widely used in developed countries (Arnetz, 1998; Arnetz & Arnetz, 2000). Following the pilot study, the questionnaire was adapted to reflect the road passenger transport sector.

DEPENDENT VARIABLE

Workplace violence was assessed using questions probing whether participants had ever, or during the past 12 months, experienced verbal threat/aggression; been bitten, slapped, hit,

pushed, spat at, scratched, pinched, punched or kicked; or faced any unpleasant experience at work. "Unpleasant experience" essentially reflects the victim's individual perception of the incident, rather than describing the nature of the violent behaviour (Arnetz, 1998). The response alternatives were "No", "Yes, once or twice", or "Yes, several times".

Other questions probed the perpetrator (e.g. passenger, co-worker, owner of vehicle); place of occurrence (e.g. at bus/taxi stop, while driving, inside of vehicle); time of occurrence; and whether an object (e.g. knife, gun) was used.

INDEPENDENT VARIABLE

Occupational experience was accessed using questions regarding participants' number of years working in the road passenger transport sector; number of years working at their present workplace; and whether participants held a supervisory position.

Organisational change was assessed by inquiring whether there had been any recent organisational changes at the workplace. Possible responses were "Yes", "No", or "Don't know".

Work conditions and *Work environment* were assessed using the Swedish Demand-Control-Support Questionnaire (DCQ) (Johnson & Hall, 1988; Johnson, Hall, & Theorell; 1989; Karasek, 1979; Karasek & Theorell, 1990), which assesses work-related demands, control and support.

Demand was assessed with five questions probing intensity and speed of work; efforts devoted to work; availability of time to accomplish work; and conflicting demands. The Cronbach's alpha test for reliability for this scale was 0.45.

- *C*ontrol was assessed with six questions probing whether work offered the possibility for further learning; demanded high skill; offered the possibility for initiative taking; varied in nature; and offered the possibility for choices. The Cronbach's alpha test for reliability for this scale was 0.54. The items for demand and control were scored on a 1–4-point scale (often = 4, sometimes = 3, seldom = 2, never/almost never = 1).
- *Support* was assessed by asking participants to take a position on six statements regarding, among other things, whether the environment was calm, pleasant and enjoyable, as well as support and understanding from colleagues. The responses were scored on a 1–4-point scale (strongly agree = 4, mildly agree = 3, mildly disagree = 2, strongly disagree = 1). The Cronbach's alpha test for reliability for this scale was 0.84.

Individual scores on the three subscales (i.e. demand, control and support) are calculated by summing respective items in each subscale. The resulting sum is a continuous scale.

The higher the score, the higher the work demand, control and support respectively.

Socio-demographic characteristics were assessed using indicators, such as age, marital status, highest educational achievement and occupation. As this sector rarely attracts female workers in Mozambique, all participants were male.

Access to information was assessed by probing whether participants had access to radio/TV or newspapers. Possible responses were "Yes" or "No".

Literacy level was assessed by asking participants whether they could read or not.

These variables were treated as the independent variables in the analyses.

STATISTICAL ANALYSIS

SPSS for windows version 15.0 software package was used for all analyses. Chi-square tests were used to assess associations between the dependent variable (exposure to violence) and categorical independent variables. A *t*-test was used to study the association between the dependent variable and continuous independent variables. Logistic regression was used to assess the independent role of demographic indicators; access to information; literacy level; occupational factors; and work environmental factors in explaining exposure to violence. Statistical significance was assumed at a *p*-value < 0.05.

RESULTS

PREVALENCE AND NATURE OF WORKPLACE VIOLENCE IN THE ROAD PASSENGER TRANSPORT SECTOR

As shown in Table 1 below, a significant proportion of participants (77.4%) reported having experienced workplace violence in their life time, and (64.3%) during the past 12 months. Verbal abuse/Aggression (47.0%), unpleasant experiences (20.8%) and pushing (20.0%) were the most frequent types of violence. About 17% of participants had been physically assaulted with objects, including guns, stones, bottles and sticks. Passengers (51.6%), co-worker conductor (18.1%) and owner of vehicle (11.3%) were the most common perpetrators. Violence occurred most frequently at a bus stop (45.6%); while the vehicle was in motion (22.4%); and most often in the morning (43.1%).

Table 1. Workplace violence: Prevalence, type of violence, use of object, perpetrator, place and time of occurrence

Variable	Total Number	Proportion (%)
Prevalence in life time		
No, never	114	22.6
Yes, once or twice	247	49.0

Yes, several times	143	28.4
Prevalence during the past 12 months		
No, never	180	35.7
Yes, once or twice	180	35.7
Yes, several times	144	28.6
Type of violence [a]		
Verbal threat/Aggression	237	47.0
Unpleasant experience	105	20.8
Pushing	103	20.4
Slapping/Hitting	77	15.3
Scratching/Pinching	41	8.1
Kicking	32	6.3
Punching	31	6.2
Biting	26	5.2
Spitting	15	3.0
Restraining	11	2.2
Other	28	5.6
Use of object	54	16.7
Perpetrator		
Passenger	260	51.6
Co-worker (Conductor)	91	18.1
Owner of vehicle/Company	57	11.3
Co-worker (Driver)	44	8.7
Stranger	23	4.6
Police	13	2.6
Place of occurrence		
Bus stop	230	45.6
While in motion	113	22.4
Inside of vehicle	23	4.6
Company office	22	4.4
In the street	19	3.8
Vehicle park	15	3.0
Taxi stop	14	2.8
Company garage	12	2.4
Time of occurrence		
Morning	217	43.1
Evening	194	38.5
Afternoon	168	33.3
Dawn	11	2.2

[a] As participants may have experienced several forms of violence, proportions need not add up to 100%

PROPORTION OF PARTICIPANTS EXPOSED TO WORKPLACE VIOLENCE DURING THE PAST 12 MONTHS BY SOCIO-DEMOGRAPHIC CHARACTERISTICS AND EMPOWERMENT INDICATORS

As shown in Table 2 below, occupational category and literacy level were associated with exposure to violence during the past 12 months. Exposure to violence was highest among bus drivers/conductors (70–75%) even though taxi drivers (48.6%) reported significant abuse. In addition, illiterate participants reported higher exposure (73.8%) than their literate peers (61.1%). The association between workplace violence in the road passenger transport sector and level of literacy and occupation reached statistical significance ($p < 0.05$) using a chi-square test. There was no statistically significant association between exposure to workplace violence and other studied socio-demographic variables.

Table 2. Proportion of participants exposed to workplace violence during the past 12 months by socio-demographic characteristics, access to information and literacy level

Variable	Total Number	Number Exposed	Proportion %
Age			
< 20 yrs	97	63	64.9
20–29 yrs	191	125	64.4
30–39 yrs	121	80	66.1
40–49 yrs	51	26	51.0
50–59 yrs	33	24	72.7
> 60 yrs	11	6	54.5
Marital status			
Single	147	93	63.3
Married/Cohabiting	292	184	63.0
Divorced/Separated	44	32	72.7
Widowed	21	15	71.1
Education			
< Primary School	116	83	71.6
Primary School/Similar	236	156	66.1
Upper Secondary School/University	152	85	55.9
*Occupation**			
Bus driver	72	51	70.8
Bus conductor	72	54	75.0
Minibus driver	144	89	61.8
Minibus conductor	144	95	66.0
Taxi driver	72	35	48.6
Access to information			
Have radio			
No	48	27	56.3
Yes	456	297	65.1

Have TV			
No	130	90	62.2
Yes	374	234	62.6
Literacy level			
Cannot read	126	93	73.8
Can read	378	231	61.1

*$p < 0.05$

PROPORTION OF PARTICIPANTS EXPOSED TO WORKPLACE VIOLENCE DURING THE PAST 12 MONTHS BY OCCUPATIONAL EXPERIENCE AND ORGANISATIONAL CHANGES

As shown in Table 3 below, a significant association was observed between workplace violence exposure in the road passenger transport sector and holding a supervisory position. A higher proportion of participants with a supervisory position had experienced abuse than colleagues without such a position (75.7% vs. 62.3%). There was no statistically significant association between exposure to workplace violence on the one hand and occupational experience and organisational changes on the other hand.

Table 3. Proportion of participants exposed to workplace violence during the past 12 months by occupational experience and organisational changes

Variable	Total Number	Number Exposed	Proportion %
Occupational experience			
No. years working in road passenger transport sector			
0–5 yrs	179	108	60.3
6–10 yrs	206	136	66.0
11–15 yrs	86	55	64.0
> 15 yrs	33	25	75.8
No. years working at present workplace			
0–5 yrs	371	241	65.0
6–10 yrs	115	71	61.7
11–15 yrs	15	10	66.7
> 15 yrs	3	3	66.7
*Hold any supervisory position**			
No	430	268	62.3
Yes	74	18	75.7
Organisational changes			
No	254	189	74.4
Yes	217	173	79.7
Don't know	33	28	84.8

*$p < 0.05$

ASSOCIATION BETWEEN EXPOSURE TO WORKPLACE VIOLENCE DURING THE PAST 12 MONTHS AND WORK ENVIRONMENT

A significant association between exposure to workplace violence in the road passenger transport sector and work demand was found (see Table 4 below). Participants exposed to violence had a higher mean in work demand than their non-exposed peers [t (502) = –4.169, $p < 0.001$]. As high scores indicate high demands, this is an indication of higher work demands among the exposed group. There was no statistically significant association between exposure to workplace violence on the one hand and control and support at work on the other hand.

Table 4. Association between exposure to workplace violence during the past 12 months and work environment

Variable	Number	Mean	Std Deviation
*Demand (scale 5–20)**			
Never exposed	180	10.48	2.223
Exposed	324	11.40	2.478
Control (scale 6–24)			
Never exposed	180	14.48	2.888
Exposed	324	14.31	2.686
Support (scale 6–24)			
Never exposed	180	19.83	3.551
Exposed	324	19.16	4.017

*$p < 0.001$

SOCIO-DEMOGRAPHIC CHARACTERISTICS, ACCESS TO INFORMATION, LITERACY LEVEL, OCCUPATIONAL EXPERIENCE AND WORK ENVIRONMENT AS RISK FACTORS OF EXPOSURE TO WORKPLACE VIOLENCE

In the logistic regression model (adjusted odds ratios (OR) bus conductors (OR = 3.542, $p < 0.05$) and bus drivers (OR = 3.536, $p < 0.05$) exhibited a higher risk of workplace violence than taxi drivers (see Table 5 below). Literate participants (OR = 0.440, $p < 0.05$) exhibited a lower likelihood of exposure to violence than their illiterate peers. Similarly, participants with 0–5 yrs of work in the transport sector (OR = 0.295, $p < 0.05$) were at lower risk of exposure to workplace violence than their peers with over 15 years' experience. Participants in supervisory positions (OR = 4.044, $p < 0.001$) stood at higher risk of exposure to workplace violence than their peers without supervisory rolls. Finally, participants with higher work demand reported a higher likelihood of exposure than those with lower demands (OR = 1.230, $p < 0.001$).

Table 5. Logistic regression analysis of exposure to workplace violence during the past 12 months: Odds ratios assessing the independent role of socio-demographic characteristics, access to information, literacy level, occupational experience and work environment

Variable	Odds ratio (OR)	95.0% CI of OR	p-Value
Age			
< 20 yrs	0.932	0.257–5.195	0.935
20–29 yrs	1.059	0.355–5.329	0.949
30–39 yrs	1.296	0.431–6.139	0.722
40–49 yrs	0.618	0.251–3.926	0.518
50–59 yrs	2.370	0.598–11.308	0.271
> 60 yrs	1.000		
Marital status			
Single	0.706	0.215–2.334	0.571
Married/Cohabiting	0.695	0.231–2.089	0.517
Divorced/Separated	1.323	0.366–4.784	0.670
Widowed	1.000		
Education			
< Primary School	0.822	0.340–1.985	0.663
Primary School/Similar	1.216	0.375–2.013	0.447
Upper Secondary School/University	1.000		
*Occupation**			
Bus driver	3.536	1.512–8.271	0.004
Bus conductor	3.542	1.246–10.068	0.018
Minibus driver	1.992	0.879–4.516	0.099
Minibus conductor	1.814	0.645–5.102	0.259
Taxi driver	1.000		
Access to information			
Have radio			
No	1.000		
Yes	1.463	0.745–2.871	0.269
Have TV			
No	1.000		
Yes	1.225	0.703–2.135	0.473
Literacy level			
Cannot read fully/Cannot read	1.000		
Can read fully	0.440	0.207–0.934	*0.032*
Occupational experience			
No. years working in road passenger transport sector			

0–5 yrs	0.295	0.093–0.931	0.037
6–10 yrs	0.417	0.141–1.232	0.113
11–15 yrs	0.488	0.170–1.403	0.183
> 15 yrs	1.000		
No. years working at present workplace			
0–5 yrs	1.189	0.076–18.635	0.902
6–10 yrs	0.701	0.045–11.003	0.800
11–15 yrs	0.950	0.051–17.752	0.972
> 15 yrs	1.000		
Hold any supervisory position			
No	1.000		
Yes	4.044	2.028–8.066	0.000
*Work environment**			
Demand	1.230	1.118–1.354	0.000
Control	0.970	0.892–1.054	0.469
Support	0.950	0.898–1.006	0.078

DISCUSSION

The aims of this cross-sectional survey were to analyse the extent and nature of workplace violence against drivers and conductors and to identify the individual and work-related factors related to being abused as a worker in the road passenger transport sector in Maputo. The findings indicated that victimisation (both verbal and physical) at work was common, occurring virtually everywhere including on the road while the vehicle was in motion; inside the vehicle or company office; in the street, vehicle park or company garage; and at the bus/taxi stop. The life time prevalence was 77%. Though comparable data from the transport sector with regard to lifetime prevalence is lacking, the current figures seem comparable with studies among healthcare employees where a prevalence ranging between 71–85% has been reported (Lawoko et al., 2004; Soares et al., 2000). Two out of three respondents had been abused during the past 12 months. These figures are comparable with previous work from other countries where a prevalence of between 60–74% has been reported (Boyd, 2002; Chappell & Di Martino, 2006; Elzinga, 1996; Mayhew, 2000). The high prevalence of violence in the road passenger transport sector in the current and previous studies is an indication that employment in this sector is associated with high vulnerability for abuse. Identification of groups most at risk is, therefore, paramount in the prevention of violence in the sector. In this study, individual and work-related factors were investigated to identify possible risk groups in this regard.

Individual characteristic, such as age, education and marital status, did not impact significantly on the likelihood of exposure to workplace violence. These findings are rather difficult to reconcile considering that a young age has previously been implicated as a

potential risk factor in the health sector (Arnetz et al., 1996; Duncan et al., 2001; Fazzone et al., 2000; Lawoko et al., 2004; Lee et al., 1999; Menckel & Viitasara, 2002; Soares et al., 2000). Moreover, the ecological model of violence (Krug, Dahlberg, Mercy, Zwi, & Lozano, 2002), has indicated that factors at the individual level, such as less schooling and young age, may be associated with increased vulnerability to abuse. On the other hand, illiteracy was associated with increased vulnerability as postulated in the ecological model framework. These inconsistencies warrant further research. As studies in this sector are scarce in general and lacking in the African context, replication of these findings in similar settings is warranted before any firm conclusions can be drawn in this regard.

Some work-related factors impacted significantly on the likelihood of exposure to workplace violence in the expected manner while others did not. Short occupational experience (0–5 years) reduced the likelihood of abuse when contrasted with over 15 years' experience. This finding is contradictory to other studies which have suggested increased exposure among inexperienced personnel (Arnetz & Arnetz, 2000; Arnetz et al., 1996; Fazzone et al., 2000; Lawoko et al., 2004; Soares et al., 2000). The differences in findings could be contextual (e.g. differences in sectors investigated). It would have been expected that experienced personnel would be more able to predict and diffuse situations in which violence is expected to occur than their inexperienced peers. On the other hand, conductors and drivers tend to meet a very heterogeneous clientele. The likelihood of being able to predict and diffuse a potentially violent situation thus may be small and, therefore, independent of experience. Another plausible explanation could be that more experienced personnel hold a supervisory role, by virtue of their experience, while those with a supervisory role are more vulnerable to assaults. Supervisors are often at the forefront of service in this branch. They may be called upon to resolve difficult conflicts between other employees and passengers. This may prompt assertive action from either party in the conflict, increasing the likelihood of aggression, whether planned or spontaneous, by colleagues or passengers. This finding is in line with those reported among healthcare employees (Arnetz et al., 1996; Menckel & Viitasara, 2002). Furthermore, supervisors' other duties, such as checking that all vehicles have a valid licence; inspecting that vehicles have undergone the yearly service; and ensuring that vehicles follow the order of arrival at the stations (e.g. taxi stop and bus/mini buses terminals) may increase the likelihood of internally induced aggression against employees not meeting such demands. All in all, the findings with regard to higher vulnerability to abuse among experienced personnel and those with a supervisory role warrant further investigation and research.

Work characteristics, such as work demand (high demand), occupation and a supervisory position, were significantly associated with exposure to abuse. Exposure was highest among bus drivers and bus conductors, though taxi drivers also suffered significant abuse. The latter finding is in line with previous reports (Castillo & Jenkins, 1994; Elzinga, l996;

Essenberg, 2003; Jenkins, 1996; Mayhew, 2000; Richardson & Windau, 2003). Comparative data with regard to drivers and conductors' exposure to violence is lacking. That taxi drivers experienced less abuse than bus drivers and conductors in the Mozambican context could be explained by differences in environmental characteristics. Buses tend to be overcrowded and this is likely to increase stress stimuli, thus increasing the risk of an aggressive encounter. Taxi transport tends to be more organised. Another plausible explanation could be found in the differences in clientele. Taxi users tend to be of middle class status, more educated and in general hold a higher status in society than their peers using bus transport. Theories of violence (ecological theory) have suggested that perpetrators of violence are more likely to belong to the lower socio-economic strata (Krug et al., 2002). The risk of violence may thus be higher among bus passengers who tend to belong to the lower socio-economic strata. Further analysis of socio-economic differences in passengers' choices of transport mode is warranted to support this argument.

High work demand was associated with increased vulnerability to abuse. These findings are consistent with studies in the health sector (Estryn-Behar et al., 2008; Menckel & Viitasara, 2002), and could be explained based on theories which have purported that high demands with low control may affect quality delivery (Karasek & Theorell, 1990). Drivers and conductors with these characteristics may, therefore, fail to meet passenger expectations, thus increasing the risk of aggression. Indeed, a recent study in the transport sector apparently supported this notion (Boyd, 2002). Though passengers were the most common perpetrators, violence perpetrated by a work colleague appeared rather common (over 20%). These findings corroborate others in the field which have suggested that significant workplace violence is internally triggered (Chappell & Di Martino, 2006; Essenberg, 2003; ILO, 2004). Working under conditions of high demand is likely to elicit stress stimuli, thus increasing the risk of confrontation even among co-workers. Indeed, the results suggested high work demand in general. Improvement of the working conditions in this sector is, therefore, paramount in the prevention of workplace violence.

The strength of this study lies in its careful methodology. The sample size was determined using a power analysis and all participants responded to the questionnaire. The results can, therefore, be generalised to employees working in this sector in Maputo. That all eligible participants responded (100%), though ideal, is unusual. A number of factors acting together may have accounted for this total response. For example, it is plausible that participants may have found the topic highly relevant. Another explanation for the total response could stem from the project organisation. Information dissemination regarding the study and its objectives, training of data collection personnel, emphasis on ethical considerations such as privacy and confidentiality guarantee may have contributed to the total response rate. The incentive package offered to participants is another factor that may constitute a major contributor to the total response rate (i.e. all participants needing psychological support

or medical care due to hearing, vision and sleep problems were referred to government hospitals, where treatment is free of charge). These factors notwithstanding, the possibility of participants being coerced to participate in the study cannot be ruled out entirely. It is plausible that their employers may have signalled participation as an obligation when informing participants of the study.

The weaknesses of the study, however, stemmed from the design. The study design was cross-sectional making it difficult to draw causal conclusions. For example, while it is likely that a high workload may increase exposure to violence, reporting a high workload could as well be a result of victimisation, i.e. victims of violence may find their work demanding as a result of victimisation at work. Studies with a longitudinal design are necessary in order to establish firm causal links. The study did not investigate the context of the situation that might have led to the act of aggression. This would have been useful in identifying contextual factors (e.g. overcrowding, lateness of driver, evading payments of fares) that trigger acts of aggression, important in prevention of workplace violence. Future work needs to address this limitation.

Finally, the study has some implications for intervention to prevent and combat workplace violence in the road passenger transport sector. Firstly, a strategy for identifying the occurrence of workplace violence should consider that workplace violence is highly prevalent and occurs everywhere in this sector including while on the road. Employees should, therefore, be supported through a guarantee of their security at all times during their work. This could be accomplished by regular check points by security personnel hired by the unions or the improvement of communications with such personnel while on duty. Secondly, the improvement of work conditions is paramount. Among other things, development of a guide for employers and employees on how to detect and control workplace violence is needed. Moreover, research concerning workplace violence risk factors particularly from the perpetrator's perspective will be complementary in understanding the holistic view of the mechanism of work place violence in the road passenger transport sector.

CONCLUSIONS

Workplace violence in the road passenger transport sector is common and occurs wherever personnel are on duty, with bus drivers and conductors being at increased risk when compared with taxi drivers. Work-related factors including high demands and holding an authoritative position increase the likelihood of being victimised in this sector. Work-related factors thus have important implications for interventions to reduce workplace violence in this sector. The role of individual related factors in exposure to workplace violence is inconsistently demonstrated suggesting that further research is warranted. This study should set the pace for further work in the area in other sub-Saharan African contexts. Finally, longitudinal studies are recommended to confirm causal links.

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