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# Exposure to Workplace Violence and Quality of Life among Drivers and Conductors in Maputo City, Mozambique

MARIA TEREZA COUTO, STEPHEN LAWOKO, LEIF SVANSTRÖM

This cross-sectional study examined exposure to workplace violence and its consequences on quality of life (QOL) among workers in the road passenger transport sector in Maputo city, Mozambique. A random sample of 504 drivers and conductors were interviewed using structured questionnaires. Many participants reported experiencing psychological or physical violence at work. Sequelae of violence included sick leave following abuse (20%), physical injuries (32%), financial loss (28%), and various emotional reactions (28–56%). Exposure to workplace violence was a significant predictor of QOL even after adjusting for confounding. Mechanisms to detect and deal with both immediate and long term consequences of work-related violence on QOL are recommended. *Key words:* Workplace violence; drivers; conductors; quality of life; Africa

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Over the past few decades, exposure to violence at work has received significant attention. Published research has reported yearly prevalence ranges of physical and/or psychological abuse of 8–73% in the healthcare sector,<sup>1–5</sup> 5–68% in the education sector,<sup>6,7</sup> 3–69% in public services,<sup>6,8</sup> and 60–74% in the transport sector.<sup>9–11</sup>

Some research has been undertaken to understand consequences of workplace violence at both the individual and organizational levels.<sup>12–16</sup> At the organizational level, workplace violence may lead to increased absenteeism, financial loss, and increased costs (e.g. counseling costs) for both employer and employee.<sup>17–20</sup> Employees are likely to experience emotional reactions such as anger, fear, helplessness, sadness, and frustration as a result of workplace violence, eventually resulting in poor performance and diminished job satisfaction.<sup>12,21–23</sup> In addition to organizational factors, work-related violence may disrupt family bonding as abused workers may find it difficult to distance themselves from the abuse even while at home.<sup>23</sup>

Workplace violence has significant health consequences, including physical injuries, disabilities, psychosomatic complaints, emotional exhaustion, sleeplessness, anxiety, stress, depression, post-traumatic stress syndrome, and mortality.<sup>15,16,24–30</sup>

Workplace violence can have grave consequences for workers' quality of life (QOL). As we use it, QOL is a broad concept encompassing individuals' physical health, psychological state, level of independence, social relationships, and relationships to features of their environment.<sup>31</sup> Though there has been substantial research on the effects of workplace violence on some aspects of workers' QOL, to the best of our knowledge, no study of the effects of workplace violence incorporating a broad definition of QOL has been undertaken in sub-Saharan Africa. Moreover, few studies in Africa have been undertaken on the prevalence of workplace violence. In Mozambique, the only survey on workplace violence, which was conducted in the health sector in Maputo city, indicated a prevalence of verbal or physical abuse of 40%.<sup>32</sup> Workplace violence in other sectors of the Mozambique economy and its consequences on QOL remain unexplored.

The current study focuses on the relationship between exposure to workplace violence and QOL of workers in the road passenger transport sector. More specifically, we asked the following research questions: a) What are the extent and immediate consequences (e.g. injury, sick-leave, emotional reactions) of workplace violence in the passenger transport sector in Maputo city, Mozambique? b) How does QOL differ between workers who have experienced workplace violence and their peers who have not? c) Does workplace violence impact significantly as a predictor of QOL when possible confounding from other predictors (e.g. sociodemographic variables) is adjusted for?

## METHODS

### *Settings and Participants*

The capital city of Mozambique, Maputo, has a population of 1,099,102 in an area of 300 km<sup>2</sup>.<sup>33</sup> The main mode of transport of citizens and goods is by road. Passenger transport is provided by buses, minibuses, and taxis. Owned mainly by government and private transport associations, this sector caters mostly to the poor

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and middle class strata of the population, although a few members of upper class members do use taxis. Each bus and minibus employes a driver and a conductor, while each taxi employs a driver only. All drivers and conductors are registered at the National Traffic Institute (NTI), a government institution responsible for traffic control and regulation. Registered drivers and conductors are predominantly male. The total population of registered drivers and conductors at the NTI in Maputo 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. Participants were sampled from this registry.

A pilot study with 50 participants showed a prevalence of workplace violence of 74%. Based on the pilot, a sample of 504 was found adequate for this study.

Five hundred and four participants were randomly selected from the NTI database. We sampled from each stratum of employment category to assure a representative sample, with the following distribution: 144 minibus drivers, 144 minibus conductors, 72 bus drivers, 72 bus conductors, and 72 taxi drivers. All drivers and conductors were interviewed (response rate 100%).

### *Design and Procedure*

The study design was cross-sectional and participants were interviewed using structured questionnaires. The questionnaires in English were translated to Portuguese, the official language in the country, using back translation. Questionnaires covered socio-demographics characteristics, media access, literacy level, occupational experience, organizational changes (e.g., downsizing, schedule changes, closures, staff reassignment), work environment, work conditions, health conditions, QOL, lifestyle factors, consequences of workplace violence, and burnout. For the current paper, questions concerning workplace violence, its immediate consequences, QOL, sociodemographic characteristics, and media access were of primary interest.

Data was collected during eight consecutive weeks by three trained interviewers. The interviewer training package included education on the study aims, questionnaire content, and ethical issues in data collection.

Participants' addresses and telephone numbers were obtained from records of each transportation company, including government-owned and private enterprises. Participants were contacted at work or at home. In some cases, appointments were made by phone. Most interviews were conducted at Maputo city's main bus/minibus stop, although a few took place at locations most convenient for the participant (e.g. other bus or taxi stop). When contacted, participants were offered an incentive package promising referral to a government hospital should they present with psychological and/or physical symptoms resulting from violence or any other cause.

### *Ethics*

The National Committee of Bioethics for Health in Mozambique approved the study methods and procedures. Informed consent was obtained from all participants, voluntary participation emphasized, and privacy respected while performing the interviews. Participants were assured confidentiality and anonymity, and were informed that results would be reported in group format so that no individual data could be identified. They were also informed that once data had been recorded, the questionnaires would be stored in secure lockers and ultimately destroyed.

### *Measures*

*Outcome Variables.* QOL was assessed using a short version of The Gothenburg QOL Scale.<sup>34</sup> The scale contains 15 items aggregated in 3 sub-scales: *Social QOL*, assessed using 4 questions probing satisfaction with work, economy, home and family, and housing situation; *Physical QOL* assessed with 6 questions probing level of fitness, hearing, vision, health (well being), sleep, and energy; and *Psychological QOL* assessed using 5 questions probing level of self confidence, memory, mood, appetite, and patience. The items were scored on a scale of 1–7 (from “very bad” through “excellent, could not be better”). Total scores were calculated for the whole scale (i.e. *total QOL* with a range of 15–105) and for each sub-scale (i.e. *social QOL* with a range of 4–28; *physical QOL* with a range of 6–42; and *psychological QOL* with a range of 5–35). High scores correspond to high QOL on both total and subscales.

The immediate consequences of workplace violence studied included: physical injury, financial loss, sick leave, anger, fear, disappointment, increased caution, and impaired job satisfaction. Participants were asked to indicate whether or not they had faced such consequences as a result of exposure to violence; response alternatives were “yes” or “no.” These questions have been previously validated in the developed countries.<sup>35</sup>

*Independent Variables.* Workplace violence was assessed by questions probing whether participants had ever or during the past 12 months experienced a verbal threat/aggression, been bitten, slapped, hit, pushed, spat at, scratched, pinched, punched, kicked, or faced any unpleasant experience at work (as perceived by the respondent). The responses alternatives were “yes” or “no.” An affirmative response to at least one of these experiences was operationalized as being exposed to violence. These questions have previously been validated in the developed countries.<sup>21</sup>

Socio-demographic characteristics were in this study used to adjust for confounding effects. These variables included age, marital status, highest educational level, occupation, literacy level, and media access. As demo-

**TABLE 1** Characteristics of Participants

|   | Number within Category | (%)  |
|---|------------------------|------|
| <i>Age</i>                                      |                        |      |
| < 20 yrs  | 97                     | 19.2 |
| 20-29 yrs                                       | 191                    | 37.9 |
| 30-39 yrs                                       | 121                    | 24.0 |
| 40-49 yrs                                       | 51                     | 10.1 |
| 50-59 yrs                                       | 33                     | 6.5  |
| > 60 yrs  | 11                     | 2.2  |
| <i>Marital Status</i>                           |                        |      |
| Single  | 147                    | 29.2 |
| Married/cohabitant                              | 292                    | 57.9 |
| Divorced/separated                              | 44                     | 8.7  |
| Widower   | 21                     | 4.2  |
| <i>Education</i>                                |                        |      |
| Less than primary school                        | 116                    | 23.0 |
| Primary school/similar                          | 236                    | 46.8 |
| Upper secondary school/<br>university           | 152                    | 30.2 |
| <i>Occupation</i>                               |                        |      |
| Bus driver                                      | 72                     | 14.3 |
| Bus conductor                                   | 72                     | 14.3 |
| Minibus driver                                  | 144                    | 28.6 |
| Minibus conductor                               | 144                    | 28.6 |
| Taxi driver                                     | 72                     | 14.3 |
| <i>Literacy Level</i>                           |                        |      |
| Can read  | 378                    | 75.0 |
| Cannot read                                     | 126                    | 25.0 |
| <i>Access to media</i>                          |                        |      |
| Have TV   |                        |      |
| Yes   | 374                    | 74.2 |
| No  | 130                    | 25.8 |
| Have Radio                                      |                        |      |
| Yes   | 456                    | 90.5 |
| No  | 48                     | 9.5  |
| <i>Type of violence experienced<sup>a</sup></i> |                        |      |
| Verbal threat/aggression                        | 237                    | 47.0 |
| Unpleasant experience                           | 105                    | 20.8 |
| Pushed  | 103                    | 20.4 |
| Slapped/hit                                     | 77                     | 15.3 |
| Scratched/pinched                               | 41                     | 8.1  |
| Kicked  | 32                     | 6.3  |
| Punched   | 31                     | 6.2  |
| Bitten  | 26                     | 5.2  |
| Spat at   | 15                     | 3.0  |
| Restrained                                      | 11                     | 2.2  |
| Others  | 28                     | 5.6  |

<sup>a</sup>As participants may have experienced several forms of violence, proportions need not add up to 100%.

graphic variables are associated with both the outcome of interest (i.e. QOL)<sup>36,37</sup> and with the predictor of interest (i.e. exposure to violence),<sup>38</sup> they may to some degree confound the relationship between exposure to violence and QOL, warranting an adjustment for confounding.

### Statistical Analysis

The SPSS for Windows version 16.0 software package was used for all analysis. The chi-square test was used to

**TABLE 2** Immediate Consequences of Workplace Violence in Exposed Participants (Past 12 months) (N=234)

| Consequences               | N (%)       |
|----------------------------|-------------|
| Physical injury            |             |
| Mild                       | 74 (22.8%)  |
| Severe                     | 29 (9.0%)   |
| Financial loss             | 90 (27.8%)  |
| Sick leave                 | 65 (20.1%)  |
| Anger                      | 178 (54.9%) |
| Fear                       | 89 (27.5%)  |
| Sadness                    | 93 (28.7%)  |
| Disappointment             | 116 (35.8%) |
| Increased caution          | 180 (55.6%) |
| Decreased job satisfaction | 30 (9.3%)   |

assess associations between categorical variables (i.e. study associations between categorical demographic variables and exposure to violence as well as immediate consequences of workplace violence). T-tests were used to assess associations between a dichotomous variable (i.e. exposure to violence) and the continuous outcomes (i.e. QOL measures). Multiple linear regression was used to examine the independent association between exposure to workplace violence and QOL, while controlling for demographic and occupational characteristics. Statistical significance was set at  $p < 0.05$ .

## RESULTS

### Characteristics of Participants

As shown in Table 1, the greatest proportions of participants were aged 20–29 years (37.9%), married/ cohabitant (57.9%), with a primary school or equivalent education (46.8%), and literate (75%). Minibus drivers/ conductors comprised 28.6% of the sample. A significant percentage had experienced abuse in various forms, with the majority having been verbally abused.

### Immediate Consequences of Workplace Violence in Exposed Participants in the Past 12 Months

As shown in the Table 2, significant proportions among participants exposed to violence reported increased cautiousness and emotional reactions such as anger, disappointment, fear, and sadness. Other significant consequences included sick leave, financial loss, mild and severe physical injuries, and impaired job satisfaction.

### Association between Exposure to Workplace Violence and QOL in General

A significant association was found between exposure to workplace violence and QOL (Table 3). Participants exposed to workplace violence during their life time reported on average a lower overall wellbeing index

**TABLE 3 Association between Exposure to Workplace Violence and QOL**

|  | Mean score ( $\pm$ SD) | Significance <sup>a</sup> |
|--|------------------------|---------------------------|
| <b>Exposure to violence, life time</b>     |                        |                           |
| Total QOL (score 15–105)                   |                        |                           |
| Exposed                                    | 77.764 ( $\pm$ 8.589)  | p < 0.01                  |
| Non exposed                                | 80.587 ( $\pm$ 7.551)  |                           |
| Social wellbeing (score 4–28)              |                        |                           |
| Exposed                                    | 17.905 ( $\pm$ 3.168)  | p < 0.01                  |
| Non-exposed                                | 18.833 ( $\pm$ 2.657)  |                           |
| Physical wellbeing (score 6–42)            |                        |                           |
| Exposed                                    | 32.043 ( $\pm$ 4.028)  | p < 0.05                  |
| Non-exposed                                | 33.043 ( $\pm$ 3.848)  |                           |
| Psychological wellbeing (score 5–35)       |                        |                           |
| Exposed                                    | 27.815 ( $\pm$ 3.686)  | p < 0.05                  |
| Non-exposed                                | 28.710 ( $\pm$ 3.076)  |                           |
| <b>Exposure to violence past 12 months</b> |                        |                           |
| Total QOL (score 15–28)                    |                        |                           |
| Exposed                                    | 77.438 ( $\pm$ 8.651)  | p < 0.01                  |
| Non-exposed                                | 80.138 ( $\pm$ 7.778)  |                           |
| Social wellbeing (score 4–28)              |                        |                           |
| Exposed                                    | 17.941 ( $\pm$ 3.163)  | p < 0.01                  |
| Non-exposed                                | 18.427 ( $\pm$ 2.914)  |                           |
| Physical wellbeing (score 6–42)            |                        |                           |
| Exposed                                    | 32.043 ( $\pm$ 4.028)  | p < 0.01                  |
| Non exposed                                | 33.043 ( $\pm$ 3.849)  |                           |
| Psychological wellbeing (score 5–35)       |                        |                           |
| Exposed                                    | 27.815 ( $\pm$ 3.686)  | p < 0.01                  |
| Non exposed                                | 28.710 ( $\pm$ 3.076)  |                           |

<sup>a</sup>Determined by T-test.

manifested in total QOL and on sub-scales of social wellbeing, physical wellbeing and psychological wellbeing than peers not exposed to violence. A similar trend was observed regarding exposure to violence in the past 12 month for total QOL, physical wellbeing, and psychological wellbeing (Table 3).

*Exposure to Violence as Predictor of QOL: Controlling for Demographics, Occupational Characteristics and Literacy Level*

As shown Table 4, exposure to violence during the past 12 months was significantly associated with all QOL dimensions, i.e. participants exposed to workplace violence exhibited a lower QOL (total and subscales) than non-exposed peers even when demographic variables were adjusted for in a linear regression model. Other variables significantly predicting QOL dimensions in the models included age, education, and occupation. As age increased, total, physical, and psychological QOL diminished. Increasing educational attainment was associated with increased total, social, and physical wellbeing. Bus drivers exhibited higher social wellbeing, but lower physical and psychological wellbeing when contrasted with conductors and minibuses drivers together. Bus conductors, on the other hand, exhibited higher social wellbeing but lower total QOL and lower

physical and psychological wellbeing than the other employment categories when viewed together. A similar trend was observed among minibuses drivers/conductors. Literacy level did not predict QOL after adjustment for other possible predictors.

## DISCUSSION

The results indicated that workplace violence in the passenger transport sector in Mozambique is common, with figures comparable to those observed in the transport sector in developed countries where prevalence ranging between (60–74%) has been reported.<sup>9–11</sup> These findings are an indication that workplace violence in this sector is an occupational hazard likely to lead to grave public health consequences.

Workplace violence impacted significantly on victim's general wellbeing as manifested in QOL. The measure of QOL in this study incorporated constructs of physical, psychological and social wellbeing. Victims of violence were more likely to score low on these constructs than their non-victimized peers even after possible confounding from sociodemographic measures were controlled for in the analysis, suggesting that violence at work may affect individuals' QOL independent of other factors contributing to QOL such as age, education, and literacy. The physical, psychological and

**TABLE 4 Exposure to Violence as Predictor of QOL, Controlling for Demographics, Occupational Characteristics and Literacy Level**

| Independent Variables              | Standardized Coefficients Beta |                     |                     |                         |
|------------------------------------|--------------------------------|---------------------|---------------------|-------------------------|
|                                    | Total QOL                      | Social Wellbeing    | Physical Wellbeing  | Psychological Wellbeing |
| Age                                | -0.283 <sup>a</sup>            | -0.020              | -0.383 <sup>a</sup> | -0.223 <sup>a</sup>     |
| Education                          | 0.144 <sup>b</sup>             | 0.114 <sup>b</sup>  | 0.131 <sup>b</sup>  | 0.119                   |
| Bus driver                         | 0.097                          | 0.608 <sup>a</sup>  | -0.146 <sup>b</sup> | -0.130 <sup>b</sup>     |
| Bus conductor                      | -0.318 <sup>a</sup>            | 0.344 <sup>a</sup>  | -0.525 <sup>a</sup> | -0.459 <sup>a</sup>     |
| Minibus driver                     | -0.032                         | 0.418 <sup>a</sup>  | -0.346 <sup>a</sup> | -0.278 <sup>a</sup>     |
| Minibus conductor                  | -0.022                         | 0.684 <sup>a</sup>  | -0.280 <sup>c</sup> | -0.219 <sup>b</sup>     |
| Literacy level                     | -0.039                         | -0.068              | -0.017              | -0.015                  |
| Exposure to violence past 12 month | -0.116 <sup>b</sup>            | -0.110 <sup>b</sup> | -0.043 <sup>b</sup> | -0.088 <sup>b</sup>     |

Note: Standardized betas provide a description of the direction and strength of association between the dependent variable and respective independent variables, when other variables in the model have been controlled for. For example, the standardized beta for the association between age and total QOL (-0.283) suggest a negative correlation even after controlling for education, etc.

<sup>a</sup>p < 0.001

<sup>b</sup>p < 0.05

<sup>c</sup>p < 0.01

social trauma that victims face, relative to non-victims, may be a reflection of the long term consequences of abuse and suggest that violence at work is likely to affect victims' wellbeing far and beyond the work place. This view is in line with the notion of intergenerational repercussions of workplace violence transcending to affect other areas of life, e.g. family life.<sup>23</sup>

As one of a very small number of studies in the field in Africa, this study provides initial data from the transport sector supporting the hypothesis that independently, workplace violence is likely to affect the QOL of individuals within and beyond their work environment.

Our response rate of 100%, though ideal, is unusual and warrants discussion. A number of factors acting together may have accounted for this total response. First, it is plausible that participants may have found the topic highly relevant. The high prevalence of violence in this study as well as its consequences on individual health seems to support this view. Another explanation for the total response could stem from the project organization. Information dissemination regarding the study and its objectives, training of data collection personnel, emphasis on ethical considerations such as privacy and confidentiality 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). Moreover, in populations where access to healthcare is limited, as in Maputo, such an incentive package may have functioned as coercive, prompting the 100% participation. The possibility of participants being other-wise coerced to participate in the study cannot be entirely ruled out. It is plausible that their employers may have signaled participation as an obligation when informing participants of the study.

On the other hand, large household surveys such as the Demographic and Health Surveys (DHS) carried out in many countries in the Sub-Saharan Africa, have had high response rates. The Mozambique 2003 DHS, for example, achieved a response rate of about 95%.<sup>40</sup> Similarly high response rates (97–99%) have been reported in Zambia and Tanzania.<sup>41,42</sup> Our 100% response rate could therefore simply reflect a cultural characteristic.

Another problem in relation to offering a referral incentive is the possibility of a bias towards over-reporting of psychological and physical problems as resulting from abuse. Such health problems could stem from other sources (e.g. poverty) rather than the experience of violence. Another word of caution concerns the broad definition of violence adopted in this study. Undergoing an "unpleasant experience" is a subjective phenomenon that may not be a reflection of violence per se, though its impact on quality of life may be profound. How participants understood this question therefore should be subject to deeper qualitative research in the future. Finally, the cross-sectional design of this study does not allow for causal interpretation of our findings.

## CONCLUSIONS AND IMPLICATIONS

Workplace violence in the road passenger transport sector is common and its consequences on health both in the short and long term are an indication that employment in the sector may constitute an occupational and health hazard. These findings have important implications for secondary prevention. Policy makers and employers must develop mechanisms to detect and address both immediate and long term consequences of QOL. Employees should be encouraged to report incidents as they occur and should promptly be referred for counseling and other relevant treatment if the consequences of work place violence are to be managed at an early stage.

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