



ORIGINAL ARTICLE

Acts of offensive behaviour and risk of disability pension in Danish female eldercare workers: prospective cohort with 11-year register follow-up

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Abstract

Objectives: To investigate whether acts of offensive behaviour (threats, violence, workplace bullying and sexual harassment) in the workplace and type of perpetrator (internal or external to the workplace) of the offensive behaviours predicted risk of disability pension in Danish eldercare workers. **Methods:** We merged survey responses from 8731 female eldercare workers with a national register on social transfer payments (Danish Register for Evaluation of Marginalisation (DREAM)), including all types of disability benefits. Using Cox proportional hazards models, we investigated the prospective association between self-reported exposures at baseline and the risk of receiving disability pension (any type of disability benefit payment) during 11 years of follow-up, while adjusting for potential confounders. **Results:** Self-reported exposure to threats (hazard ratio (HR) 1.14; 95% confidence interval (CI) 1.00–1.32), violence (HR 1.16; 95% CI 1.00–1.35) and bullying (HR 1.44; 95% CI 1.22–1.71) predicted increased risk of disability pension during follow-up, when adjusted for age and educational attainment. When further adjusted for psychosocial working conditions only bullying remained a statistically significant (HR 1.39; 95% CI 1.16–1.67) predictor of disability pension. The results indicated no elevated risk for participants reporting sexual harassment. Moreover, we observed stronger associations between self-reported exposure to threats, violence and workplace bullying and risk of disability pension when the perpetrator was internal to the workplace (i.e. colleagues, managers and/or subordinates), than when the perpetrator was reported to be external to the workplace (i.e. service users, and/or relatives of service users). **Conclusions: Results indicate that prevention of work-related exposure to threats, violence and workplace bullying may contribute to reduce involuntary early retirement in female eldercare workers.**

Keywords: Violence, threats, bullying, sexual harassment, aggression, healthcare, work environment, working conditions

Introduction

Healthcare workers are inherently engaged in the provision of human services and, accordingly, it is relevant to assess the consequences of acts of offensive behaviour (e.g. workplace bullying, threats, violence, or sexual harassment) that healthcare workers may encounter while undertaking their work tasks. A

recent meta-analysis indicates that exposure to so-called workplace violence (i.e. threats, violence, or sexual harassment) is widespread among workers in the healthcare sector [1], yet limited knowledge exists about the potential negative long-term consequences for the affected workers.

Acts of offensive behaviour may have potentially harmful effects on the psychological wellbeing of

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healthcare workers, as these acts can be considered as offenses to the ‘selves’ of the affected employees [2]. These offenses to the ‘self’ may result in a devaluation of both the relational and personal self, which can cause negative psychological reactions [3], which again may increase the risk of early involuntary exit from the labour market [4].

Previous studies have found that acts of offensive behaviours are associated with a series of adverse outcomes. Accordingly, extensive research provides evidence that self-reported exposure to workplace bullying is prospectively associated with increased risk of reduced mental health [5, 6], sickness absence [7, 8], disability pension [9, 10] and suicidal behaviour [11]. Other studies indicate that self-reported exposure to threats and/or violence in the workplace are associated with reduced mental health [12], sickness absence [7, 8] and disability pension [13]. Finally, self-reported exposure to sexual harassment is associated with increased risk of depression [14] and long-term sickness absence in one study that was based on a mixed study population [15] but not in another, that was based on eldercare workers [7]. Previous studies among eldercare workers indicate that workplace bullying is a stronger predictor of adverse outcomes than threats, violence and sexual harassment [7, 16].

One reason for this may be that the perpetrators of workplace bullying primarily are internal to the workplace (i.e. a colleague, a superior or a subordinate) while the perpetrators of threats, violence and sexual harassment primarily are external to the workplace (i.e. service users, and/or relatives of service users) [7]. Previous studies indicate that the consequences are more severe if perpetrators are internal rather than external to the workplace [17, 18].

The challenges associated with ageing populations in many western countries [19] and a projected shortage of nursing staff in the Organisation for Economic Co-operation and Development (OECD) countries [20, 21] underscore the relevance of investigating whether self-reported exposure to threats, violence, workplace bullying and/or sexual harassment is associated with increased risk of disability pension. The study is relevant for public health, as it contributes to our understanding of these prevalent but modifiable exposures as potential risk factors for long-term detrimental effects on healthcare workers. This knowledge may contribute to developing long-term prevention strategies to enhance retention of healthcare workers.

The main aim of the present study is, therefore, to investigate whether self-reported exposure to workplace bullying, threats, violence and/or sexual harassment is associated with an increased risk of disability pension among female eldercare workers in Denmark in a prospective analysis using a register-based

measure of disability benefits as the endpoint. In the analysis, we also investigate whether the observed associations differ regarding the type of perpetrator (internal vs. external to the workplace) in the reported cases of offensive behaviours.

Methods

This study is based on questionnaire data that were merged with register data on payments of disability benefits from the Danish Register for Evaluation of Marginalisation (DREAM) [22]. Questionnaire data were collected between late 2004 and spring of 2005. We sent questionnaires to 12,744 eldercare workers and obtained 9949 responses (78%). We were unable to link two participants to the DREAM register and, accordingly, we had 9947 participants who were eligible for the present study. To ensure a more homogeneous study population, we excluded male respondents ($n=429$) and workers not directly engaged in care services ($n=787$), of which some were also included in the excluded population of men from the analyses. This resulted in a final sample of 8731 eldercare workers, comprising social and healthcare assistants, social and healthcare helpers, other care staff with no or short-term education, registered nurses and therapists.

Outcome

We measured payments of disability benefits in the DREAM register [22]. Residents with permanent loss of workability are eligible for disability benefits, which are granted after a process involving authorities at the municipal level of government. We defined ‘disability pension’ as receipt of disability benefits, requiring permanent full or partial loss of workability. Disability benefits comprises 13 categories of disability benefits payment in the DREAM register, including so-called ‘flex jobs’, sheltered employment and full disability pension.

Predictors

In the study questionnaire, we asked participants if they had been exposed to any of the following acts of offensive behaviour during the past 12 months: threats, violence, workplace bullying and/or sexual harassment. Response options were: (1) Yes, daily; (2) Yes, weekly; (3) Yes, monthly; (4) Yes, now and then; and (5) No, never. For the statistical analyses these response options were collapsed into two categories: (1) exposed (daily, weekly, monthly and now and then); and (2) not exposed (never).

Participants reporting exposure to any of the four types of offensive behaviours were asked a follow-up

Table I. Descriptive statistics for main study variables.

	Granted disability benefits during follow-up		
	Yes	No	P value
Granted disability benefits during follow-up (% (n))	11.9 (1035)	88.1 (7696)	n.a.
Self-reported exposure to threats (% (n))	36.8 (370)	34.5 (2635)	0.1601
Self-reported exposure to violence (% (n))	23.6 (235)	21.2 (1597)	0.0842
Self-reported exposure to workplace bullying (% (n))	16.1 (163)	11.4 (866)	<0.0001
Self-reported exposure to sexual harassment (% (n))	10.2 (765)	8.4 (84)	0.0849
Age (mean (SD))	47.1 (7.8)	45.1 (10.2)	<0.0001
Emotional demands (mean (SD)) ^a	46.3 (19.9)	45.9 (18.3)	0.4009
Role conflicts (mean (SD)) ^a	41.2 (16.8)	41.6 (15.5)	0.3819
Influence at work (mean (SD)) ^a	45.7 (22.1)	44.9 (20.4)	0.2999
Quality of leadership (mean (SD)) ^a	56.4 (22.4)	57.0 (21.7)	0.4121

SD: standard deviation.

^aScales measuring emotional demands, role conflicts, influence at work and quality of leadership are scored from 0 to 100, with a score of 100 indicating the highest level of the measured dimension.

question if the perpetrators had been: (1) colleagues; (2) managers; (3) subordinates; (4) patients/service users, or relatives of patients. For the statistical analyses, these categories were collapsed into the following categories: (1) internal perpetrators (colleagues, managers and/or subordinates); and (2) external perpetrators (service-users or relatives of service-users).

Confounders

Potential confounders included age (continuous variable), education (categories of specific health-care education, e.g. social and healthcare assistant, social and healthcare helper, nurse, nurse aide, therapist, none) and psychosocial working conditions.

We measured psychosocial working conditions using the following scales from the Copenhagen Psychosocial Questionnaire (COPSOQII) [23]: Emotional demands (Four items. Sample item: Is your work emotionally demanding? Cronbach's alpha: 0.81). Role conflicts (Four items. Sample item: Are contradictory demands placed on you at work? Cronbach's alpha: 0.66). Influence at work (Four items. Sample item: Do you have a large degree of influence concerning your work? Cronbach's alpha: 0.75). Quality of leadership (Four items. Sample item: To what extent would you say that your immediate superior gives high priority to job satisfaction? Cronbach's alpha: 0.89).

Statistical analysis

We used Cox proportional hazards regression analysis to estimate hazard ratios (HRs) and 95% confidence intervals (CIs) of risk of disability pension during follow-up. Participants were followed in the DREAM register for 11 years (until the end of June 2016). We censored participants from the analysis in the case of

voluntary early retirement pension, state pension, emigration, or death. Individuals who registered payments of disability benefits in any given week during the follow-up period, were referred to as 'events' of disability pension. The estimation method was maximum likelihood and we used the PHREG procedure in SAS 9.4 (SAS Institute, Cary, NC, USA). We found that the proportional hazard assumption was satisfied through visual inspection.

Variables describing the four types of acts of offensive behaviour and the two types of perpetrators were posed as predictors in the analysis. In the analysis of each of the four types of offensive behaviours, we used participants not reporting exposure to the investigated type of offensive behaviours as the reference group. The analyses were adjusted in three steps. In model 1, we adjusted associations for age and educational attainment. In model 2, we supplied model 1 with four variables describing psychosocial working conditions. We deployed the same procedure in the analysis of internal versus external perpetrators for the four types of offensive behaviours.

Results

Table I shows descriptive statistics for the main study variables. During 11 years of follow-up, we recorded 1035 (11.9%) cases of disability pension in the study population. Table I shows that self-reported exposure to threats, violence, workplace bullying and sexual harassment was more prevalent among participants who were granted disability pension during follow-up, but this difference was only statistically significant for workplace bullying.

Model 1 in Table II shows that self-reported exposure to threats and violence is associated with increased risk of disability pension, when adjusted for age and educational attainment. This association was

Table II. Hazard ratios (HRs) and 95% confidence intervals (CIs) for risk of disability pension during 11 years of follow-up for four types of acts of offensive behaviour.

		At risk	Cases <i>n</i> / <i>%</i>	Model 1		Model 2	
				HR	95% CI	HR	95% CI
Threats	Yes	3005	370/12.3	1.14	1.00–1.32	1.13	0.99–1.30
	No	5631	636/11.3	1	–	1	–
Violence	Yes	1832	235/12.8	1.16	1.00–1.35	1.14	0.98–1.34
	No	6696	761/11.4	1	–	1	–
Workplace bullying	Yes	1029	163/15.8	1.44	1.22–1.71	1.39	1.16–1.67
	No	7603	849/11.2	1	–	1	–
Sexual harassment	Yes	849	84/9.9	0.89	0.71–1.12	0.86	0.68–1.09
	No	7683	914/11.9	1	–	1	–

Model 1: hazard ratios are adjusted for age and educational attainment.

Model 2: model 1 plus psychosocial working conditions.

Table III. Hazard ratios (HRs) and 95% confidence intervals (CIs) for risk of disability pension during 11 years of follow-up for acts of offensive behaviour: stratified by internal and external perpetrators of acts of offensive behaviour.

Type of offensive behaviour	Type of perpetrator	At risk	Cases/ <i>%</i>	Model 1		Model 2		
				HR	95% CI	HR	95% CI	
Threats or violence ^a	Internal	Yes	235	34/14.5	1.31	0.93–1.84	1.26	0.88–1.78
		No	8278	957/11.6	1	–	1	–
	External	Yes	3171	374/11.8	1.09	0.95–1.24	1.07	0.93–1.23
		No	5342	617/11.5	1	–	1	–
Workplace bullying	Internal	Yes	928	147/15.8	1.44	1.21–1.71	1.39	1.15–1.68
		No	7704	865/11.2	1	–	1	–
	External	Yes	139	21/15.1	1.26	0.82–1.95	1.17	0.75–1.83
		No	8493	991/11.7	1	–	1	–
Sexual harassment	Internal	Yes	18	^b	^b	^b	^b	^b
		No	8514	^b	1	–	1	–
	External	Yes	833	83/10.0	0.90	0.71–1.12	0.87	0.69–1.09
		No	7699	915/11.9	1	–	1	–

Model 1: hazard ratios are adjusted for age and educational attainment.

Model 2: model 1 plus psychosocial working conditions.

^aFor data protection purposes, we analyse a combined measure of threats and violence, due to a low number of cases (<5) in the analysis of violence from internal perpetrators.

^bResults for groups smaller than five persons cannot be reported due to data protection regulations.

statistically significant. In model 2, we observe increased but statistically non-significant HRs, when further adjusted for psychosocial working conditions.

Table II also shows that self-reported exposure to workplace bullying predicts significantly increased risk of disability pension in both models, and that the association between self-reported exposure to sexual harassment and risk of disability pension is not statistically significant in either model.

Table III shows results from analyses in which the association between offensive behaviours and risk of disability pension is stratified by type of perpetrator (internal vs. external). Due to too few cases of disability pension, it was not possible to report results for sexual harassment from internal perpetrators, and for the same reason we decided to construct a combined measure of threats and violence for this analysis.

The results show that threats/violence and sexual harassment were most frequently reported to be perpetrated by external perpetrators, whereas persons internal to the work organisation were the most frequent perpetrators of workplace bullying. Table III shows that eldercare workers who report being exposed to workplace bullying from internal perpetrators (i.e. colleagues, managers and/or subordinates) had a significantly higher risk of disability pension, when compared with non-exposed participants. We also found elevated but statistically non-significant HRs for disability pension for participants reporting exposure to threats/violence from internal perpetrators and for participants reporting exposure to workplace bullying from external perpetrators. Finally, the results show higher HRs for self-reported exposure to threats/violence and workplace bullying from internal perpetrators than from external perpetrators.

Discussion

This prospective cohort study among female eldercare workers showed that self-reported exposure to threats, violence and workplace bullying predicted an increased risk of disability pension. When stratified by the type of perpetrator, we observed the strongest association between self-reported exposure to threats/violence and workplace bullying and risk of disability pension when the perpetrator was internal to the workplace (i.e. colleagues, managers and/or subordinates).

Comparison with previous studies

Only a few studies have investigated the association between acts of offensive behaviour and registered disability pension [9, 10, 13]. Our results suggest that both threats and violence increase the risk of disability pension and this finding is partially supported by earlier studies. For instance, Friis et al. [13] found that employees across occupations, who reported exposure to physical workplace violence, had a higher risk of disability pension 3 to 10 years after the violent incident. However, the risk estimates were only statistically significant in the 8th year [13].

The results of this study are also in line with previous studies indicating that the consequences of offensive behaviours are more severe if the perpetrator is internal rather than external to the workplace [17, 18].

In the present study, we found no increased risk of disability pension for eldercare workers reporting exposure to sexual harassment. In our review of the literature, we identified no studies that investigated associations between sexual harassment and disability pension. However, several studies identified associations between sexual harassment and depressive symptoms [14, 24], which is a predictor for disability pension [4].

Theoretical considerations

According to the 'Stress-as-offence-to-self' perspective [2], acts of offensive behaviour should be expected to have a negative impact on the self-esteem and self-worth of targets, which implies that exposure to acts of offensive behaviour over extended periods may increase the risk of adverse outcomes, such as disability pension. The findings from this study support this hypothesis by showing that self-reported experiences of threats, violence, and, in particular, workplace bullying predict increased risk of disability pension among female eldercare workers.

Moreover, the findings of this and previous studies on workers in eldercare show that self-reported exposure to workplace bullying is a stronger predictor of

adverse labour market outcomes, such as the risk of long-term sickness absence [7] and turnover [16], than self-reported exposure to violence, threats and/or sexual harassment. These findings indicate that workplace bullying constitutes a special form of offensive behaviour that should be understood as being different from threats, physical violence and sexual harassment. Also, the results suggest that workplace bullying may have more severe long-term effects than violence, threats and/or sexual harassment. One explanation for this finding may be that, in eldercare, the perpetrators of workplace bullying most often are internal to the workplace (e.g. colleagues, managers and/or subordinates), whereas the most frequently reported perpetrators of the other types of offensive behaviours are external to the workplace (e.g. service users, and/or relatives of service users) (see Table III). Bullying from colleagues, managers and/or subordinates may therefore reduce the available sources of social support in the workplace. Workplace bullying might therefore not only be harmful as an exposure in itself, but could also affect the experience of strain from other factors at work, including other acts of offensive behaviour, because it reduces the protective element of social support [25].

Indeed, the study demonstrated that acts of offensive behaviour perpetrated by colleagues, managers and/or subordinates (i.e. internal perpetrators) predicted a higher risk of disability pension than acts perpetrated by persons external to the workplace. Aside from the mechanisms hypothesised above, one main reason for this difference could be due to the victims' experience of the perpetrators' 'intent to hurt'. Studies have shown that the interpretation of the intent to hurt is central to the toxicity of the offensive acts [26]. Acts of offensive behaviour from clients in eldercare may often be attributed to the cognitive impairments of the client rather than the clients' actual intent to harm the caretaker [27], and, accordingly, it may be perceived as being less personal and hurtful. However, acts of offensive behaviour from colleagues, managers and/or subordinates are more likely to be interpreted with an intent to hurt and devalue the victim, while the effects of offensive behaviours from this group of perpetrators are perceived as more harmful and leading to more detrimental long-term effects.

The finding that self-reported exposure to workplace bullying increases the risk of disability pension is in agreement with previous studies [9, 10]. These studies also demonstrate that self-reported exposure to workplace bullying predicts an increased risk of disability pension and report similar risk estimates for disability pension as reported in the present study. The study from Clausen and colleagues [9] also showed

that the association was moderated by leadership support. For bullied workers with high levels of leadership support, the study found no significant increase in risk of disability pension, whereas the risk of disability pension was significantly increased for bullied workers reporting low leadership support. In a study on the association between workplace violence and sleep disturbances, Gluschkoff and colleagues [28] found that individuals reporting high levels of organisational justice reported lower levels of sleep disturbances than participants reporting low levels of organisational justice. These findings imply that the availability of job resources (e.g. leadership support or the perception of organisational justice) is important for the possibilities of the exposed workers to cope with offensive behaviours.

Strengths and limitations

This study has both strengths and limitations. First, the study is based on a large, homogenous group of female eldercare workers, which reduces the potential bias from socioeconomic confounding. Second, the register-based measure of disability pensioning eliminates potential loss to follow-up and possible common methods biases [29]. The study also counts several limitations. First, it may be a limitation that we excluded male participants from the analysis. However, there were few men in the study population, and thus we do not have statistical power to test whether differences between men and women exist. Second, the small number of men make it difficult to generalise the results to male eldercare workers. Accordingly, the study is powered to make general conclusions about female eldercare workers and is not generalisable to other occupational groups. However, the seriousness of the results urges for research in the general working population. Second, the entire work-life history of the participants cannot be captured in a single questionnaire, and, accordingly, other unreported exposures may also influence the risk of disability pension. Third, this study operates with an 11-year follow-up, which may imply a risk of misclassification. Fourth, the predictors in the study are based on self-reported measures related to offensive behaviours. This implies a risk of reporting bias and this potential source of bias must be taken into account in the interpretation of the results. Fifth, although it is a strength of the study that we were able to distinguish between internal and external perpetrators for threats, violence and workplace bullying, some of these analyses may be underpowered, which implies that the study yields false-negative findings in the cases of threats and/or violence from both types of perpetrators and workplace bullying

from external perpetrators. Moreover, we collapsed the categories ‘threats’ and ‘violence’ to ensure sufficient statistical power in the analysis comparing external versus internal perpetrators. This choice appears meaningful because exposure to violence and threats often co-occur, and classic definitions of workplace violence include both threats and violence (e.g. Schat and Kelloway [30]). In addition, due to low statistical power, it was not possible to stratify the analysis of the association between sexual harassment and disability pension by internal/external perpetrator. Finally, it may be considered a limitation of the study that we used dichotomised measures of offensive behaviours. Previous studies have indicated a dose-response relationship between acts of offensive behaviour and work-related outcomes [7, 16]. However, to ensure a robust estimation of the risk of disability pension that is associated with acts of offensive behaviour, we decided to operationalise the independent variables as binary measures.

Conclusions

This study showed that self-reported exposure to threats, violence and workplace bullying predicted an increased risk of disability pension among female eldercare workers. The results also show that acts of threats/violence and workplace bullying from internal perpetrators had stronger associations with disability pension than from external perpetrators. The results suggest that efforts to prevent acts of offensive behaviour may reduce cases of disability pension, thereby also taking measures against the projected shortages of healthcare workers over the coming decades.

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