The physical and mental health of acute psychiatric ward staff, and its relationship to experience of physical violence

Original research

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Abstract

Aim: To evaluate and describe the physical and mental health of staff on acute psychiatric wards and examine whether violence exposure is linked with health status.

Method: We undertook a cross-sectional survey with 564 nursing staff and healthcare assistants from 31 psychiatric wards in 9 NHS Trusts using the SF-36, a reliable and valid measure of health status and compared summary scores with national normative data. Additional violence exposure data were collated simultaneously and also compared with health status.

Results: The physical health of staff was worse and their mental health was better than the general population. Physical health data were skewed and showed a small number of staff in relatively poor health while the majority were above average. Better physical health was associated with less time in the current post, a higher pay grade and less exposure to mild physical violence in the past year. Better mental health was associated with being older and from an ethnic minority background. Violence exposure influenced physical health but not mental health when possible confounders were considered.

Conclusion: Mental health was strongly influenced by ethnicity and further research might highlight the impact on own-group ethnic density on the quality of care. The impact of very poorly people at work needs to be considered as the quality of care may be compromised despite this being an example of inclusiveness, equal opportunities employment and positive staff motivation.

Introduction

The NHS is one of the largest employers in the world (McCarthy, 2015) and dominates provision of mental healthcare throughout the UK. Despite comparative underfunding and inadequate resourcing of mental health services, within the NHS this sector administers a

budget of £11.7 billion throughout England. A sizeable portion is likely spent on employing staff, the welfare of whom factors strongly in their ability to provide safe and high-quality care for their patients (Aiken et al., 2012). Stress, burnout and impaired psychological well-being can be a major problem for healthcare providers leading to high rates of absenteeism, low rates of staff retention and high turnover (Robertson and Cooper, 2010). Similarly, absenteeism is 46% greater in the NHS than for private sector employers (NHS Digital, 2017). Sickness rates amongst nurses are high (Health and Social Care Information Centre, 2015) and in the mental health sector turnover is higher than in any other healthcare sector (NHS Digital, 2017). This makes the health status of mental health nurses a costly public expense added to its inherent importance to direct care provision.

Background

Over a third of staff working in mental health services report that work stress has a negative impact on their health and wellbeing. A confluence of factors including organisational demands, environmental effects and personal resilience are likely at play in determining the individual wellbeing (Edwards and Burnard, 2003, Johnson et al., 2018). There are also enduring and persistent challenges threatening staff well-being that arise in mental health care, specifically increased rates of violence and aggression. Indeed, nurses working in mental health settings are at a high risk of being assaulted and the lifetime risk is approaching 100% (Bowers et al., 2011). Some have argued that mounting pressures in the NHS in recent times has added to these risks by increasing the incidence of harmful and adverse events, staff turnover and negatively impacting psychological wellbeing (Hall et al., 2016, Salyers et al., 2017, Hanrahan et al., 2010, Van Bogaert et al., 2013, Kapur et al., 2018).

Mental health nurses are exposed to violence and aggression more often than their counterparts in other disciplines (NHS England, 2018) and more frequently than nurses working in other specialities with the exception of perhaps nurses working in the emergency

department (Edward et al., 2014, Pekurinen et al., 2017). This exposure has the potential to cause a range of short-term and enduring physical injuries to staff (Renwick et al., 2016a, Gerberich et al., 2004, van Leeuwen and Harte, 2017). Negative psychological outcomes such as increased anxiety, fear, anger and sadness alongside symptoms of post-traumatic stress, generalised mental health symptoms and reduced job satisfaction are common consequences (Whittington and Wykes, 1994, Flannery and Walker, 2001, Flannery and Walker, 2008, van Leeuwen and Harte, 2017, Needham et al., 2005, Jalil et al., 2017). The link between being victim to physical violence and aggression and impaired wellbeing among registered nurses is well-established (Edward et al., 2014, Gerberich et al., 2004).

Surprisingly, this link has been less well explored among mental health nurses as a specialty despite the ubiquity of violence in these settings (Johnson et al., 2018). A recent, rigorously-conducted study comprising a representative sample of nurses in Finland demonstrates that nursing sub-specialities differ in their reports of wellbeing and psychological distress arising from work stress (Pekurinen et al., 2017). Pekurinen et al. (2017) found that mental health nurses who experienced violence and aggression were less likely to report psychological distress than their counterparts in emergency, surgical and medical nursing whilst being subject to significantly more violence and aggression. Plausibly, the authors explain that higher levels of mastery in reflection and adaptive mental health approaches among mental health staff may mitigate the negative effects of violence on staff. Similarly, Jalil et al. (2017) found nurses exposure to physical aggression was unrelated to their emotional responses. The author's proffer that nurses become emotionally desensitised once aggressive behaviour is perceived and categorised as challenging, somehow providing psychological protection. Unfortunately, best available evidence originates from psychiatric intensive care and low to medium secure units (Jalil et al., 2017, Reininghaus et al., 2007) limiting our understanding of the impact of physical violence in acute inpatient settings. Studies

comprehensively reviewed by Needham et al. (2005) comprise few examining the wellbeing of mental health nurses specifically and those that do comprise small sample sizes in non-acute settings outside the UK.

It is largely unknown whether mental health nurses wellbeing is impaired in specific settings comparatively (Richards et al., 2006) and there is a stark lack of evidence in England's acute inpatient units despite providing the bulk of inpatient care nationally. Anecdotal evidence from media reports of a sharp rise in assaults on mental health nurses (Campbell, 2017) coupled with new quality targets to enhance the wellbeing of staff (NHS England, 2017) make this an important issue facing service providers at all levels. In this study we propose to address this gap, describing the physical and mental health and well-being of staff on inpatient psychiatric units. We will compare health status of staff with normative data from the general population in a previous population study conducted to provide national data on health and wellbeing. Our primary concern is to explore whether exposure to physical violence by patients in the previous year is linked with physical and mental health status of staff working on inpatient units. Establishing whether health status differs from the general population will signal if a more comprehensive investigation of mental health nurses well-being is warranted.

Methods

Design

Cross-sectional survey of staff working on acute psychiatric care pathway wards.

Sample

The study comprised 31 psychiatric wards at 15 hospitals selected randomly from those within 100km of central London. Inclusion criteria were acute psychiatric wards for adults (admission, assessment, treatment, triage, intensive care) of any gender. Wards were excluded if they had a specialist function (forensic, long term care), had planned major changes, or where

two or more of the following criteria were met: no permanent ward manager in post, a locum consultant solely responsible for inpatient care, >30% nursing staff vacancy rate. Willing nurses and healthcare assistants working on the selected wards were included. NHS ethical approval was secured (11/LO/0798).

Instruments

We have adopted the broader concept of well-being rather than stress and burnout given that the determinants, symptoms and consequences of these conceptually distinct concepts are likely to differ (Hall et al., 2016) and utilising this broader concept allows us to contrast findings with population norms. The SF-36 is a 36 item scale designed to measure constructs of physical and mental health within both general and clinical populations (Ware et al., 2007). It assesses the status of eight concepts of health; 1) limitations in physical activities because of health problems; 2) limitations in social activities because of physical or emotional problems; 3) limitations in usual role activities because of physical health problems; 4) bodily pain; 5) general mental health (psychological distress and well-being); 6) limitations in usual role activities because of emotional problems; 7) vitality (energy and fatigue); and 8) general health perceptions. For the purposes of this study the SF-36 total scores for physical and for mental health were calculated and used in the analysis. The SF-36 has been translated for use in over 50 countries and has become the most extensively validated and used instrument for measuring generic health status. SF-36v2 scores were standardised using data from a large scale postal survey of 8,889 people in the UK representing a response rate of 64.4% (Jenkinson et al., 1999) obtained from General Practitioner registers in four counties (Berkshire, Buckinghamshire, Northamptonshire, and Oxfordshire). The observed sample, like these normative data, were working age adults and were slightly over-represented by females (see results).

Participants also completed a demographic data sheet. As well as the usual items on age, gender, marital status and ethnicity, this included questions on numbers of dependent children, pay grade, discipline, duration in current post, duration working in psychiatry, and whether they had ever attended a prevention and management of violence and aggression (PMVA, of any type) course of at least three days in duration. The demographic data sheet also included two key questions drawn from the Perceptions of Prevalence of Aggression Scale (Nijman et al., 2005), namely: "To what extent have you been confronted with mild physical violence (patients kicking, hitting, pushing, punching, scratching, pulling hair, biting, attacking you, etc..., however all with no real harm or injury as a result or only minor injuries as a result) during the last year in the course of your work?" and "To what extent have you been confronted with severe physical violence (patients attacking you with severe injuries as a result, for example broken bones, deep lacerations, internal injuries, loss of teeth, loss of consciousness, and therefore in need of medical treatment or hospitalisation) during the last year in the course of your work?", with a five point scale for answers ranging from never to frequently.

Procedure

Research staff met with ward managers to provide information about the study, and ask for their consent. Once consent was secured, the research team visited the wards regularly over a two week period to seek consent from ward staff. Data collection commenced once the majority (i.e. at least 50%) of staff, including the ward manager, provided signed consent. Data were collected during a six week period. Questionnaires were marked with a code unique to staff member, and were distributed to all nursing staff, with a blank envelope. Some staff of other disciplines also volunteered to participate (doctors, occupational therapists, psychologists). If staff had not yet been asked for consent, a consent form and information sheet was added to their questionnaire pack. Staff that had declined to participate were not

given a questionnaire pack. Questionnaires were either returned direct to the researchers, or via a sealed box on each ward, which was emptied at regular intervals by the research team.

Analysis

Physical and mental health summary scores for the SF-36 were obtained using procedures described by Ware et al. (1994). The factor structure was evaluated by principal component analysis using a two-factor orthogonal rotation to estimate the coefficients for each summary score. We multiplied each SF-36 scale z-score by its respective factor score coefficient for each summary score (mental and physical health) and summed the scores to obtain an overall score. The reference sample, Oxford Healthy Living Survey (OHLS-III), summary scores for each scale were computed in the same way) as internal consistency of these dimensions of the questionnaire were found to be high. Summary score calculation reduced the number of statistical comparisons conducted and allowed for comparison with the reference sample.

Descriptive statistics were calculated for the demographic variables and bivariate relationships and differences between demographic variables, health status and violence exposure were assessed. Age, sex, ethnicity, marital status, dependent children, registration status with NMC, violence exposure and course attendance for management of violence and aggression were all dichotomised and we tested differences in physical and mental health status using t-tests. We report parameters where equal variances are not assumed in cases where the assumption of homogeneity of variance has not been upheld using Levene's test. We dichotomised variables describing violence exposure as follows; mild violence experience occasionally vs frequent experience, severe violence experience vs never and tested differences between frequencies in exposure and demographic variables using chi-square tests. We used hierarchical multiple regression to examine the influence of variables significant during bivariate analysis on physical and mental health in the order of socio-demographic variables,

work tenure variables and violence exposure (if applicable) to understand the additional contribution of violence to models including known correlates of mental and physical health status. Prior to conducing these analyses, the relevant assumptions of this statistical test were examined. An examination of correlations revealed that no independent variables were highly correlated, with the exception of age, time in psychiatry and time in post. The collinearity statistics were within acceptable range (i.e. Tolerance and VIF) (Field, 2013). An examination of the Mahalanobis distance scores indicated no multivariate outliers. Residual indicated the assumptions of normality and homoscedasticity were met. All statistical analyses were conducted using SPSS version 22.0 for Windows (IBM Corporation, 2013).

Results

Description of the workforce and sample

A total of 384 staff provided questionnaires for analysis. Respondents were 59% female, the modal age group was 40-49 (34%), most were married or cohabiting (65%) and only 28% were white British, with staff from African backgrounds comprising 44% of the sample. The majority had been working in psychiatry longer than five years (76%) and most had been in their current post three years or more (59%). Most of the sample were qualified nurses (64%) and health care assistants (unqualified support workers, 32%), the remaining being a mixture of occupational therapists and other professions. The majority were working on generic acute wards (72%), with the remaining numbers of triage/assessment wards (19%) and psychiatric intensive care. Nearly half of the respondents worked on wards serving both genders, with 37% working on wards for men only and 14% on wards for women. Detailed sample characteristics are contained in Table 1.

Experience of violence in the past year

Most staff (90%) had experienced mild physical violence in the past year, but experience of severe physical violence was rarer (30%). On the Likert scale for these two items,

with 1 being never, and 5 being frequently, the mean score for mild violence was 2.71 (sd 0.058) and for severe violence 1.48 (sd 0.044). There were no differences in violence exposure, mild or severe, associated with the type of ward or the gender of patient served. Table 2 shows that experience of mild physical violence was associated with having attended a PMVA course. Experience of severe physical violence was associated with being male, from an ethnic minority background and being longer in the current post. Both mild and severe violence exposure were also associated with worse physical health, as has already been seen.

Physical health

The physical health of the staff was significantly worse than the reference sample (t = -2.41, df = 9247, p = 0.016). As the data were negatively skewed and more than half of the sample fell above the mean of the reference group, this is accounted for by a relatively small number of staff in very poor health. There were no differences in physical health associated with the type of ward or the gender of patient served. Table 2 details the differences between physical and mental health by socio-demographic and work tenure variables. In summary, better physical health was seen in those under 40 and those with shorter periods of time spent in their current post and in psychiatry. Qualified nurses also had better physical health when compared to healthcare assistants.

The regression model revealed that at step 1, age significantly predicted physical health status. Introducing work tenure variables improved the model significantly and explained an additional 3% of the variation and in step 3, introducing severe physical violence exposure explained a further 2%.

Mental health

The mental health of the staff was significantly better than the reference sample (t = 5.53, df = 9247, p < 0.001). There were no differences in mental health associated with the type of ward or the gender of patient served. Table 2 summarises the univariate statistical

relationships between mental health and other variables. In brief, mental health was worse for people who were younger, white British, married, greater than 5 years in post and for qualified nurses in comparison to other staff. Hierarchical regression was implemented as before. Ethnicity predicted 311% of the variation in mental health status and was retained as a significant predictor in each subsequent step with age significantly adding to the model in step 2. The adjusted r-squared value was more substantial in the case of staff mental health, with predictors accounting for 13% of the variance in the final model.

Discussion

For the NHS to provide safe and sustainable care, addressing the wellbeing of staff has become a service-level quality imperative. This study finds that the physical health of staff on acute inpatient units is worse than population norms but their mental health is better. Our finding regarding physical health may be somewhat misleading as the low mean was accounted for by a small distributional tail of staff in quite poor health. Overall, staff were in relatively good physical health with a sub-group whose physical health was particularly impaired. We also found that those in poor health had a longer tenure in psychiatry. On a practical level, performing and planning for physical tasks such as manual restraint on units with low staff numbers and some in poor physical health will become a logistical issue. Indeed, the quality of care may be compromised. Conversely, continuing to work while in poor physical health provides an encouraging example of inclusiveness, equal opportunities employment and positive staff motivation.

The connection between physical health and violence exposure is of great interest. In our data poor physical health is shown to be connected to severe physical violence exposure. The easiest interpretation is that this represents the impact of staff being assaulted by patients. However we know that such assaults are rare, and that the vast majority do not have lasting

physical effects (Foster et al., 2008). It has been estimated that there are only 700 incidents nationally every year in which a staff member is injured sufficiently to effect sick leave (Renwick et al. 2016). Very roughly that would be one nurse per ward per year, and therefore potentially insufficient to represent the statistical association found in our data. Perhaps instead this association means that nurses in poor physical health are more likely to be assaulted, perhaps because they are perceived by patients as weaker. However, if patients were selectively assaulting physically weaker staff, we would expect to see greater exposure to violence among female staff, and our data shows the reverse, with men reporting greater exposure. We therefore suggest that the connecting factor is the practice of manual restraint.

Male staff are more likely to be called upon to manually restrain aggressive patients (Harris and Rice, 1986, Martin and Daffern, 2006). As patients have often been aggressive prior to restraint, or struggle during that restraint, staff perceive that they have been exposed to severe physical violence whether hospitalisation of the injured party has ensued or not. Restraint is often reactive, being implemented as an emergency response which could heighten risk of injury due to lack of preparedness and insufficient resource to implement the activity. Therefore staff injuries during manual restraint do occur, particularly strains, sprains and bruising (Renwick et al., 2016a), thus creating a connection to poor physical health that can persist and recur thereafter (Health and Safety Executive, 2014).

It is also possible that the occurrence of sub-threshold events is more significant than is described in recent UK samples. For example, the Health and Safety Executive (HSE) requires a minimum three day sick leave to prompt mandatory reporting of incidents (>7 days after 2014) thus, more minor events that cause injury but have been classified as severe here due to treatment initiation, could be more pervasive than serious injury necessitating sick leave as stipulated by the HSE. Violence on inpatient units is pervasive (Renwick et al., 2016b) and many incidents do not fulfil HSE reporting criteria, no sick leave arises as a result and that the

severity of the incident is not linked with the outcome in about half of cases (van Leeuwen and Harte, 2017) yet, physical health could be impacted by these events.

Strikingly, staff mental health did not show a strong or robust correlation with exposure to violence. Whilst there are a number of reports of the psychological impact of violent incidents, reviewed by Needham (Needham et al., 2005), our data does not support any long term or more generalised impact. Previous research suggests that it is exposure to verbal aggression that may be more critical to staff mental health than actual physical violence which we have not examined here (Jalil et al., 2017, Bowers et al., 2009a). Several robust studies also report that fewer mental health nurses report psychological distress in response to violence (Jalil et al., 2017, Pekurinen et al., 2017). Attribution of the cause of violence within an illness framework may protect nurses against experiencing such distress from violence while verbal abuse and aggression can seem more offensive due to the personal nature (Nijman et al., 2005). Staff responses to violence may not be uniform as mental health symptoms such as anxiety and sleeplessness arise in approximately 20% of reported incidents (van Leeuwen and Harte, 2017) and more generalised emotions such as anger and humiliation in around 40% (Arnetz et al., 1998) indicating a varied range of psychological responses.

Regarding comparative mental health means, our sample reported improved mental health when compared to population norms. This stands in contrast to some previous surveys of mental health nurses reviewed by Nolan (2003), finding quite high rates of common mental disorders. Similarly, a recent inpatient staff survey also found stress to be highest on generic acute wards (Johnson et al., 2011). However, we have previously reported quite high rates of staff morale in inpatient units that may be consistent with our finding of better mental health (Bowers et al., 2009b). Our finding that the mental health of Black Minority Ethnicity (BME) workers is better than that of White British is largely responsible for this finding as a high percentage of the sample were from BME groups; almost half the sample identified as Black

African. Although BME staff were slightly older, this relationship does not appear to be a function of age as the variance in mental health was significantly influenced by ethnicity while controlling for age. Our finding is similar to a recent large-scale study of inpatient staff morale (Johnson et al., 2011) where Black African ethnic groups reported better mental health and is particularly striking as this population is highly concentrated in the London region (Bowers et al., 2008).

We have explored a number of potential explanations. One conceivable reason is that differing explanatory models of mental illness or disparate perceptions of mental distress between ethnic groups may explain better health among BME groups. There are distinct differences in causal attributions of mental distress between different cultures (Sheikh and Furnham, 2000) and in some Asian and African countries spirituality and religion shape beliefs about mental illness and attitudes towards treatment. Deep-level diversity can reflect divergent attitudinal views and underlying belief systems cannot be easily garnered from proxy variables such as place of education and upbringing (Winkelmann-Gleed, 2006). In our sample, there were no differences in the mental health status of those with longer tenure in psychiatry compared with relatively newer entrants which may have signalled differences in attitudes due to undergraduate learning. We cannot rule out attitudinal differences as an explanation for this finding and recommend further research on this relationship to understand whether divergent belief systems influence care delivered on acute inpatient units.

A related topic is differing propensities for reporting mental distress among BME groups and White British staff. Our finding could plausibly be explained by reporting bias due to the experience of stigma among BME groups. It is known that ethnic groups are under-served by mental health services and face challenges in accessing equitable care (Bonevski et al., 2014). Partially, it is understood that those in ethnic minority groups are less likely to access these services voluntarily (Gajwani et al., 2016, Singh et al., 2015) and may be less willing to

speak up about their mental distress when it does become a problem (Memon et al., 2016). The implications of this for the health of BME workers on inpatient units are vast and beyond the scope of this manuscript, however, given that the mental wellbeing of staff impacts on the quality of care delivered (Maben et al., 2012) greater focus on the wellbeing of specific ethnic groups may be warranted.

As BME groups reported better mental wellbeing, if this reflects an accurate representation, how this impacts care quality positively also warrants further exploration in the context of ethnic density. As before, ethnic minority status in the general population typically confers a greater risk of developing serious mental illnesses (Kirkbride et al., 2017, Morgan et al., 2010). Conversely, own-group ethnic density reduces this risk and it is believed that protective factors such as social support and reduced discrimination mediate this relationship (Das-Munshi et al., 2010). This is particularly relevant in this, and perhaps other London-centric studies, where BME groups comprise large numbers in the workforce. Demographic variation notwithstanding, Black Africans in this study comprise the majority ethnicity. This is consistent with the demand-support-control theory of staff morale in occupational settings where the availability of social support in own-group ethnicities buffers against the negative impact of high psychosocial demands in acute healthcare settings (Wood et al., 2011). Understanding whether better mental wellbeing attributed to non-modifiable staff factors influences patient care, if at all, may further inform theoretical models of organisational stress.

Limitations and Conclusions

In comparison to previously reported data on staff demographic composition in acute psychiatry in England (Bowers et al., 2009b), our sample was composed of a lower proportion of female staff, an older age group profile, had been longer in their current posts, had longer experience in psychiatry and a much higher proportion were from ethnic minority backgrounds.

This is likely to be because our sample was drawn from London and surrounding area, which is known to have a higher proportion of ethnic minority staff, and does mean that the generalisability of our findings to the rest of the UK is open to question. The proportion of the sample consisting of qualified nurses was similar.

Health status was assessed by questionnaire, rather than personal interview and physical tests. Assessments may have had less accuracy because of this, although the SF-36 has very well-established validity and reliability and has been used in many studies. It also remains possible that as knowledgeable health professionals those completing the SF-36 may have biased their answers, perhaps presenting themselves as healthier than the reality, out of a wish to appear better or in the case of mental health from complex reasons due to denial and stigma. Additionally, the measure of exposure to violence was particularly weak, being retrospective and based on memory, although this is a method which has been widely used in studies of aggression. Strengths of this study were the large number of participants and the random sampling of hospitals and wards.

The presence of a small number of staff in very poor physical health may be seen as an issue of concern, particularly if those staff are disabled in ways that prevent them from doing their job. Acute psychiatry can be a physically taxing job. Although the general work is not heavy, there are periods of severe crisis where patients have to be manually restrained by staff in numbers. If some proportion of the workforce is unable to do that effectively and efficiently, other staff and patients may be put at risk. Alternatively, the presence of people working despite poor health may serve as a challenging and helpful example to patients who also struggle with difficulties and disabilities.

We found no evidence for an impact of physical violence on staff mental health, however those exposed to violence did report worse physical health. Unfortunately, the cross sectional nature of the study does not allow any certainty about the direction of causality. Better

physical health was associated with higher grade and worse health with being longer in the current position. Once again cause and effect are probably intertwined. The worse mental health of White British staff was unexpected and deserving of further research.

Table 1: Sample Characteristics

Demographic Information	
	n (%)
Age (>=40)	241 (62.5)
Female	222 (57.8)
Ethnicity White British	106 (27.6)
African	165 (43.0)
Marital status single	82 (21.4)
Dependent children	215 (56.0)
	Mean (SD)
Time in current post	2.88 (1.16)
Time in psychiatry	3.61 (0.78)
	n (%)
Qualified nurse	239 (62.2)
Mild physical violence exposure (Y)	332 (86.3)
PMVA attendance (Y)	284 (74.0)

Table 2: Differences between health status, violence exposure and characteristics of the sample

	Physical health	Mental health	Mild violence exposure	Severe violence exposure
Parameter	t test(df), sig.	t test(df), sig.	X^2(df), sig.	X^2(df), sig.
Age	-2.501(341), p = .013*	-3.452 (341), p <.001***	0.015 (1), p = .903	1.607 (1), p = 0.205
Female vs male	1.015 (349), p = .311	1.782 (349), p = .076	1.820 (1), p = .177	9.296 (1), p = .002**
White British vs other ethnicity	-1.778 (339), p = .076	5.771 (339), p <.001***	0.220 (1), p =.639	7.153 (1), p =.007**
Marital status single vs other	-1.760 (342), p =.081	3.228 (342), p = .001***	0.050 (1), p = .823	0.904 (1), p = .342
Dependent children	-1.428 (342), p = .154	2.261 (342), p = .024	0.074 (1), p = .412	1.501 (1), p = .220
Time in current post (>5 years)	2.512 (345), p = .012*	-2.755 (345), p = .006	0.562 (1), p = .453	4.814 (1), p = .027*
Time in psychiatry (>5 years)	0.140 (348), p = .003**	-1.803 (348), p = .072	0.060 (1), p = .806	3.178 (1), p = .075
Qualified nurse vs other	2.208 (334), p = .028*	-2.028 (334), p .043*	0.104 (1), p = .747	1.009 (1), p = .315
Mild physical violence exposure	1.662 (346), p = .097	1.170 (346), p = .243		
Severe physical violence exposure	2.611 (346), p = .010**	1.104 (284), p = .270		
PMVA attendance vs none	0.737 (284), p = .462	1.104 (284), p = .210	13.112 (1), p < .001***	0.064 (1), p = .247

Table 3: Hierarchical regression models exploring predictors of health status and violence exposure

		Variable	Beta	t	sig	R	ΔR^2	R^2 Change
Physical Health	**Step 1**	Age	-0.194	-2.242	.026	.122	.012	.015
	Step 2	Age	0.285	-0.789	.430	.209	.032	.029
		Time in current post	-0.077	-0.892	.373			
		Time in psychiatry	-0.085	-1.517	.130			
		Nurse vs other staff	0.206	2.395	.017			
	Step 3	Age	-0.070	-0.720	.472	.248	.047	.018
		Time in current post	-0.063	-0.664	.507			
		Time in psychiatry	-0.176	-1.512	.132			
		Nurse vs other staff	0.223	2.603	.010			
		Severe physical violence exposure	-0.221	-2.502	.013			
Mental Health	**Step 1**	White vs other ethnicity	-0.716	-6.165	<.001	.330	.106	.109
	Step 2	White vs other ethnicity	-0.648	-5.473	<.001	.355	.120	.017
		Age	0.283	2.487	.013			
	Step 3	White vs other ethnicity	-0.661	-5.539	<.001	.373	.128	.013
		Age	0.220	1.808	.072			
		Time in current post	0.132	1.138	.256			
		Nurse vs other staff	-0.201	-1.786	.075			

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