



# City Research Online

## City, University of London Institutional Repository

---

**Citation:** Renwick, L., Lavelle, M. ORCID: 0000-0002-3951-0011, James, K., Stewart, D., Richardson, M. and Bowers, L. (2019). The physical and mental health of acute psychiatric ward staff, and its relationship to experience of physical violence. *International Journal Of Mental Health Nursing*, 28(1), pp. 268-277. doi: 10.1111/inm.12530

This is the accepted version of the paper.

This version of the publication may differ from the final published version.

---

**Permanent repository link:** <https://openaccess.city.ac.uk/id/eprint/22730/>

**Link to published version:** <http://dx.doi.org/10.1111/inm.12530>

**Copyright and reuse:** City Research Online aims to make research outputs of City, University of London available to a wider audience. Copyright and Moral Rights remain with the author(s) and/or copyright holders. URLs from City Research Online may be freely distributed and linked to.

---

City Research Online:

<http://openaccess.city.ac.uk/>

[publications@city.ac.uk](mailto:publications@city.ac.uk)

---

This is the peer reviewed version of the following article: Renwick, Laoise, Lavelle, Mary, James, Karen, Stewart, Duncan, Richardson, Michelle and Bowers, Len (2019) The physical and mental health of acute psychiatric ward staff, and its relationship to experience of physical violence. *International Journal Of Mental Health Nursing*, 28(1), pp. 268-277. , which has been published in final form at <https://doi.org/10.1111/inm.12530>. This article may be used for non-commercial purposes in accordance with Wiley Terms and Conditions for Use of Self-Archived Versions.

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

Laoise Renwick<sup>1\*</sup>, Lecturer, RMN, BNS, FHEA, PhD

Mary Lavelle<sup>2</sup>, Post-doctoral Researcher, BSc (Hons), MSc, PhD

Karen James<sup>3</sup>, Post-doctoral Researcher, BSc, MSc, PhD

Duncan Stewart<sup>4</sup>, Senior Lecturer, BA (Hons), PhD

Michelle Richardson<sup>5</sup>, Post-doctoral Researcher, BA, MRes, DPhil

Len Bowers<sup>6</sup>, Emeritus Professor of Mental Health Nursing, RMN, PhD

<sup>1</sup> Division of Nursing, Midwifery and Social Work, Faculty of Medicine, Biology and Health, University of Manchester

<sup>2</sup> The Florence Nightingale Faculty of Nursing and Midwifery, King's College London

<sup>3</sup> Joint Faculty of Health, Social Care and Education, Kingston University and St George's University of London

<sup>4</sup> Department of Health Sciences, University of York

<sup>5</sup> Social Science Research Unit, Institute of Education, University College London

<sup>6</sup> Section of Mental Health Nursing, Health Service and Population Research, Institute of Psychiatry, Psychology and Neuroscience, Kings College London

\* *Corresponding author*

Abstract (WC = 228)

*Keywords: staff sickness, absenteeism, staff health, violence and aggression*

**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.

**Conclusion:** Violence exposure influenced physical health but not mental health when possible confounders were considered. Mental health was largely influenced by socio-demographic factors with a trend towards longer psychiatry experience and better mental health.

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.

## **Relevance**

This manuscript describes an evaluation of mental health nurses and healthcare assistant's physical and mental health and examines the relationship between health status and the experience of violence and aggression. It has been anecdotally suggested health status is poorer among mental health staff which questions staff attitudes and beliefs about healthy living and their ability to support service-users in managing their health better. The findings reported here will be of value to staff, managers and decision-makers as positive staff well-being is linked with improved patient safety, patient experience of care and reduced costs to the NHS.

## **Accessible Summary**

### **What is known on the topic?**

- The health status of staff on acute psychiatric wards has not been compared with normative data so little is known on this topic
- Experiencing violence and aggression at work endangers the physical and mental well-being of staff on acute psychiatric wards

### **What this paper adds**

- Physical health among staff was low although this was due to a small number of staff in very poor health
- Mental health was better than the mental health of people measured in a large sample of the population prior to this study

### **What are the implications for practice?**

- In general, mental health nurses do not role model poor physical healthcare to patients putting them in a key position to promote better health among patients

## **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 turnover is higher in the mental health sector than other healthcare sectors (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.

Stress, depression, anxiety and musculoskeletal problems are the most commonly cited reasons for absenteeism in the mental health sector (NHS England, 2017) and over a third of staff working in this sector report an impact on their health from the stress they experience at work. Mounting financial constraints within the NHS, difficult working conditions, accountability for increasing work and caseloads in different settings and poor leadership with fewer opportunities for career development and skill acquisition all have the potential to contribute to reducing morale and rising burnout among staff (Edwards and Burnard, 2003, Johnson et al., 2018). A more salient point is that patient safety, environment quality and increasing numbers of harmful and adverse events are consistently linked with high levels of

burnout, low levels of psychological wellbeing and high turnover among healthcare staff (Hall et al., 2016, Salyers et al., 2017, Hanrahan et al., 2010, Van Bogaert et al., 2013, Kapur et al., 2018).

Among mental health nurses, the daily workplace challenges present role-specific threats to wellbeing that can induce additional emotional burden. Mental health nurses more frequently deal with adverse risk events like suicide and self-harm than other nurses or healthcare professionals and are responsible for implementing unpalatable restrictive interventions such as physical restraint and enforced medication. Additionally, violence and aggression, both highly prevalent on mental health units (Renwick et al., 2016b), have 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, symptoms of post-traumatic stress, generalised mental health symptoms and reduced job satisfaction are also common consequences among staff that fall victim to violence in the workplace (Whittington and Wykes 1994; Flannery and Walker 2001; Flannery and Walker 2008. Van Leeuwen and Harte, 2017).

Despite this, a recent review highlighted few studies that examined or linked staff well-being specifically with the unique challenges of caring for patients with mental health problems (Johnson et al., 2018). Similarly, it is unclear whether mental health nurses wellbeing is impaired in specific settings comparatively (Richards et al., 2006) or in contrast with general populations norms which would elucidate the magnitude of the problem for NHS staff, decision-makers and key stakeholders given that existing studies are low quality and small in number. Staff wellbeing is a growing concern as the introduction of national goals for staff in reducing work-related stress and physical injury signals the seriousness and immediacy of this issue.

For the first time, achieving national quality targets to improve staff wellbeing are linked with commissioning for services meaning action to improve staff wellbeing is virtually an obligatory goal throughout all NHS settings (NHS England, 2017).

In this study we describe the physical and mental health and well-being of staff on inpatient psychiatric units and compare them to normative data obtained 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. 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 2016) and utilising this broader concept allows us to contrast findings with population norms.

## **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**

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 conducting 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**

The NHS performs poorly on measures of staff wellbeing revealing high rates of sickness, absenteeism and staff turnover. For the system to provide safe and sustainable care addressing the wellbeing of staff has become a service-level quality imperative. One of the key findings of this study is that physical health of staff on acute mental health units was worse than population norms, however, their mental health was better. Specifically for physical health, the low mean was accounted for by a small distributional tail of staff in quite poor health. It must therefore be concluded that most staff are in quite good health relative to the general population, but a small number of staff are at work although currently rather unfit.

On a practical level, this must create problems for the conduct of some more burdensome physical nursing duties. Whilst there are not many of these in mental

health nursing, the manual restraint of patients is the most notable example. As this requires significant numbers of staff who are fit and trained, small units with low staffing levels are likely to occasionally find it challenging to field the numbers of fit staff required especially given we found an association between poorer physical health and longer tenure in psychiatry. This could have arisen in a number of different ways, however.

Staff in generally poor health may be left in their current positions (not rotated to other wards, for example) on compassionate grounds. Alternatively, this may represent the impact of shift working and rotating to nights, a work pattern that must make a healthy diet and regular exercise more difficult to achieve. A third possible explanation is that staff with poor physical health find it harder to progress in their career and therefore stay longer in their current position. This interpretation is further supported by the association between better physical health and higher pay grades, although this is also likely to arise through well-known social class differences in health (Galobardes et al., 2004) especially as we found poorer health in lower pay grades but no difference in rates of violence exposure.

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, helpfully reviewed by Needham (Needham et al., 2005), our data does not support any long term or more generalised impact. Previous work using the Maslach Burnout Inventory 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 (Bowers et al., 2009, Sprigg et al., 2007). It is also likely that staff responses are not 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.

In general, the mental health of our sample was better than the UK reference group. This stands in contrast to some previous surveys of mental health nurses reviewed by Nolan (Nolan, 2003), finding quite high rates of common mental disorders. A recent inpatient staff survey also found stress to be highest on generic acute wards (Johnson et al., 2011). Our sample was only composed of staff working in inpatient care on acute wards, and is supported by our previous work showing morale in inpatient care to be good (Bowers et al., 2009). Overall the findings on this topic are therefore mixed and contradictory.

There was a trend for worse mental health amongst female staff, mirroring population survey data showing raised rates of common mental disorders amongst women (McManus et al., 2009). However, this association was not as strong as in population data and did not persist in the multivariate analysis. The same population data does show common mental disorders decreasing in those over 54 years of age, lending some support to the better mental health found amongst older staff in our

sample, although the correlation we found was particularly strong and may represent some form of beneficial impact of psychiatric nursing work. The association we found of worse mental health with being single has been reported before (Gibb et al., 2011) and appears to be due to the protective effects of longer term relationships for both men and women, contrary to the widely cited but now dated hypothesis that marriage is beneficial to men and the opposite for women (Gove, 1972).

Our finding that the mental health of White British staff was worse than all ethnic minority staff is without parallel. Population data suggests a small increase in common mental disorder amongst South Asian women (McManus et al., 2009). It is commonly reported that in many non-Western cultures common mental disorders are expressed in the form of physical symptoms. The phenomenon is known as somatisation (Kleinman, 1980) and may account for the better mental health scores of minority staff in our sample. However, if this was the case we would expect counterbalancing worse scores for physical health for minority staff, and this inverse correlation did occur, although it did not persist in the multivariate analysis. Alternatively, greater stigma in some of the minority cultures may have biased scores on mental health items on the SF-36 upwards. However if this was the case, population surveys would have encountered similar results, and they have not (McManus et al., 2009). Although in our sample there were significantly more males amongst ethnic minority staff, this did not explain the relationship with mental health either. If the difference is real, it may represent some form of differential selective recruitment to mental health nursing, or some form of differential assortment via different career pathways for majority and minority staff with different mental health profiles and is worth exploring in further research on resilience in working in mental health care.

## **Limitations and Conclusions**

In comparison to previously reported data on staff demographic composition in acute psychiatry in England (Bowers et al., 2008), 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.

In general, mental health nurses do not set a poor example of personal healthcare to patients. 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.

This paper presents independent research funded by the National Institute for Health Research (NIHR) under its Programme Grants for Applied Research programme (RP-PG-0707-10081). Additional support was provided by the National Institute for Health Research (NIHR) Biomedical Research Centre for Mental Health at South London and Maudsley NHS Foundation Trust and the Institute of Psychiatry, King's College London. The views expressed are those of the authors and not necessarily those of the NHS, the NIHR or the Department of Health.

- AIKEN, L. H., SERMEUS, W., VAN DEN HEEDE, K., SLOANE, D. M., BUSSE, R., MCKEE, M., BRUYNEEL, L., RAFFERTY, A. M., GRIFFITHS, P., MORENO-CASBAS, M. T., TISHELMAN, C., SCOTT, A., BRZOSTEK, T., KINNUNEN, J., SCHWENDIMANN, R., HEINEN, M., ZIKOS, D., SJETNE, I. S., SMITH, H. L. & KUTNEY-LEE, A. 2012. Patient safety, satisfaction, and quality of hospital care: cross sectional surveys of nurses and patients in 12 countries in Europe and the United States. *BMJ*, 344.
- ARNETZ, J. E., ARNETZ, B. B. & SODERMAN, E. 1998. Violence toward health care workers. Prevalence and incidence at a large, regional hospital in Sweden. *AAOHN J*, 46, 107-14.
- BOWERS, L., ALLAN, T., SIMPSON, A., JONES, J. & WHITTINGTON, R. 2009. Morale is high in acute in-patient psychiatry. *Social Psychiatry and Psychiatric Epidemiology*, 44, 39-46.
- BOWERS, L., JONES, J. & SIMPSON, A. 2008. The demography of nurses and patients on acute psychiatric wards in England. *Journal of Clinical Nursing*, 18, 884-892.
- EDWARDS, D. & BURNARD, P. 2003. A systematic review of stress and stress management interventions for mental health nurses. *Journal of Advanced Nursing*, 42, 169-200.
- FIELD, A. 2013. *Discovering Statistics using IBM SPSS Statistics*, Sage Publications Ltd.
- FOSTER, C., BOWERS, L. & NIJMAN, H. 2008. Aggressive behaviour on acute psychiatric wards: prevalence, severity and management. *Journal of Advanced Nursing*, 58, 140-149.
- GALOBARDES, B., LYNCH, J. W. & DAVEY SMITH, G. 2004. Childhood Socioeconomic Circumstances and Cause-specific Mortality in Adulthood: Systematic Review and Interpretation. *Epidemiologic Reviews*, 26, 7-21.
- GERBERICH, S. G., CHURCH, T. R., MCGOVERN, P. M., HANSEN, H. E., NACHREINER, N. M., GEISSER, M. S., RYAN, A. D., MONGIN, S. J. & WATT, G. D. 2004. An epidemiological study of the magnitude and consequences of work related violence: the Minnesota Nurses' Study. *Occup Environ Med*, 61, 495-503.
- GIBB, S. J., FERGUSSON, D. M. & HORWOOD, L. J. 2011. Relationship duration and mental health outcomes: findings from a 30-year longitudinal study. *The British journal of psychiatry : the journal of mental science*, 198, 24-30.
- GOVE, W. R. 1972. The Relationship between Sex Roles, Marital Status, and Mental Illness. *Social Forces*, 51, 34-44.
- HALL, L. H., JOHNSON, J., WATT, I., TSIPA, A. & O'CONNOR, D. B. 2016. Healthcare Staff Wellbeing, Burnout, and Patient Safety: A Systematic Review. *PLOS ONE*, 11, e0159015.
- HANRAHAN, N. P., AIKEN, L. H., MCCLAIN, L. & HANLON, A. L. 2010. Relationship between Psychiatric Nurse Work Environments and Nurse Burnout in Acute Care General Hospitals. *Issues in Mental Health Nursing*, 31, 198-207.
- HARRIS, G. & RICE, M. E. 1986. Staff injuries sustained during altercations with psychiatric patients. *Journal of Interpersonal Violence*, 1(2) : 193 - 211.
- HEALTH AND SAFETY EXECUTIVE 2014. *Musculoskeletal disorders in Great Britain 2013*, London, Health and Safety Executive.

- IBM CORPORATION 2013. IBM SPSS Statistics for Windows, Version 22.0. Armonk, New York: IBM Corporation.
- JENKINSON, C., STEWART-BROWN, S., PETERSEN, S. & PAICE, C. 1999. Assessment of the SF-36 version 2 in the United Kingdom. *Journal of Epidemiology and Community Health*, 53, 46-50.
- JOHNSON, J., HALL, L. H., BERZINS, K., BAKER, J., MELLING, K. & THOMPSON, C. 2018. Mental healthcare staff well-being and burnout: A narrative review of trends, causes, implications, and recommendations for future interventions. *Int J Ment Health Nurs*, 27, 20-32.
- JOHNSON, S., WOOD, S., PAUL, M., OSBORN, D., WEARN, E., LLOYD-EVANS, B., TOTMAN, J., ARAYA, R., BURTON, E., SHEEHAN, B., HUNDT, G., WELLMAN, N., NOLAN, F. & KILLASPY, H. 2011. Inpatient Mental Health Staff Morale: a National Investigation. London.
- KAPUR, N., IBRAHIM, S., WHILE, D., BAIRD, A., RODWAY, C., HUNT, I. M., WINDFUHR, K., MORETON, A., SHAW, J. & APPLEBY, L. 2018. Mental health service changes, organisational factors, and patient suicide in England in 1997&#x2013;2012: a before-and-after study. *The Lancet Psychiatry*, 3, 526-534.
- KLEINMAN, A. 1980. *Patients and Healers in the Context of Culture*, Berkeley: University of California Press.
- MARTIN, T. & DAFFERN, M. 2006. Clinician perceptions of personal safety and confidence to manage inpatient aggression in a forensic psychiatric setting. *Journal of Psychiatric and Mental Health Nursing*, 13, 90-99.
- MCCARTHY, N. 2015. The world's biggest employers. *Forbes*. New Jersey, US: Forbes Media.
- MCMANUS, S., MELTZER, H., BRUGHA, T., BEBBINGTON, P. & JENKINS, R. 2009. *Adult psychiatric morbidity in England, 2007. Results of a household survey*, London, The Health & Social Care Information Centre, Social Care Statistics.
- NHS DIGITAL 2017. NHS Workforce Statistics. London.
- NHS ENGLAND 2017. NHS staff health and well-being: CQUIN 2017-19 Indicator 1 Implementation Support. Leeds: NHS England.
- NIJMAN, H., BOWERS, L., OUD, N. & JANSEN, G. 2005. Psychiatric nurses' experience with inpatient aggression. *Aggressive Behavior*, 31, 217-227.
- NOLAN, P. 2003. The mental health of nurses in the UK. *Advances in Psychiatric Treatment*, 9, 374-379.
- RENWICK, L., LAVELLE, M., BRENNAN, G., STEWART, D., JAMES, K., RICHARDSON, M., WILLIAMS, H., PRICE, O. & BOWERS, L. 2016a. Physical injury and workplace assault in UK mental health trusts: An analysis of formal reports. *International journal of mental health nursing*, 25, 355-366.
- RENWICK, L., STEWART, D., RICHARDSON, M., LAVELLE, M., JAMES, K., HARDY, C., PRICE, O. & BOWERS, L. 2016b. Aggression on inpatient units: Clinical characteristics and consequences. *International journal of mental health nursing*, 25, 308-318.
- RICHARDS, D. A., BEE, P., BARKHAM, M., GILBODY, S. M., CAHILL, J. & GLANVILLE, J. 2006. The prevalence of nursing staff stress on adult acute psychiatric in-patient wards. A systematic review. *Soc Psychiatry Psychiatr Epidemiol*, 41, 34-43.

- ROBERTSON, I. & COOPER, C. 2010. The Boorman Report on the Health and Well-Being of NHS Staff: Practical advice for implementing its recommendations. Manchester, UK.: Robertson Cooper.
- SALYERS, M. P., BONFILS, K. A., LUTHER, L., FIRMIN, R. L., WHITE, D. A., ADAMS, E. L. & ROLLINS, A. L. 2017. The Relationship Between Professional Burnout and Quality and Safety in Healthcare: A Meta-Analysis. *Journal of General Internal Medicine*, 32, 475-482.
- VAN BOGAERT, P., CLARKE, S., WILLEMS, R. & MONDELAERS, M. 2013. Nurse practice environment, workload, burnout, job outcomes, and quality of care in psychiatric hospitals: a structural equation model approach. *Journal of Advanced Nursing*, 69, 1515-1524.
- VAN LEEUWEN, M. E. & HARTE, J. M. 2017. Violence against mental health care professionals: prevalence, nature and consequences. *The Journal of Forensic Psychiatry & Psychology*, 28, 581-598.
- WARE, J. E., KOSINSKI, M., BJORNER, J. B., TURNER-BOWKER, D. M., GANDEK, B. & MARUISH, M. E. 2007. *User's Manual for the SF-36v2TM Health Survey (2nd Ed)*, Lincoln, RI, QualityMetric Incorporated.
- WARE, J. E., KOSINSKI, M. & KELLER, S. D. 1994. *SF-36 Physical and Mental Health Summary Scales: A User's Manual*, Boston, Massachusetts, The Health Institute.