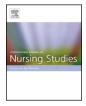Contents lists available at ScienceDirect

International Journal of Nursing Studies

journal homepage: www.elsevier.com/ijns

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Work organization in hospital wards and nurses' emotional exhaustion: A multi-method study of observation-based assessment and nurses' self-reports

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ABSTRACT

Background: Ward organization is a major determinant for nurses' well-being on the job. The majority of previous research on this relationship is based on single source methods, which have been criticized as skewed estimations mainly due to subjectivity of the ratings and due to common source bias.
Objectives: To investigate the association of ward organization characteristics and nurses' exhaustion by combining observation-based assessments with nurses' self-reports.
Design and participants: Cross-sectional study on 25 wards of four hospitals and 245 nurses.
Setting: Our multi-method approach to evaluate hospital ward organization consisted of on-site observations with a standardized assessment tool and of questionnaires to evaluate nurses' self-reports and exhaustion.
Methods: After establishing the reliability of our measures, we applied multi-level regression analyses to determine associations between determinant and outcome variables.
Results: We found substantial convergence in ward organization between the observation-based assessments and nurses' self-reports, which supports the validity of our external assessments. Furthermore, two observation-based characteristics, namely participation and patient-focused care, were significantly associated with lower emotional exhaustion among the nurses.
Conclusions: Our results suggest that observation-based assessments are a valid and feasible way to assess ward organization in hospitals. Nurses' self-reported as well as observation-based ratings on ward organization were associated with nurses' emotional exhaustion. This is of interest mainly for identifying alternative measures in evaluating nurses' work environments, to inform health promotion activities and to evaluate job redesign intervention.

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What is already known about the topic?

- Sub-optimal ward organization can be a critical stress factor for nurses' well-being, as well as a source of inferior care quality.
- Observation-based assessments of ward organization are suggested as a viable alternative to overcome subjectivity bias.

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What this paper adds

- Observation-based assessments are a reliable and feasible way to identify key characteristics of effective ward organization.
- Hospital nurses on wards with better observation-based assessments of ward organization report less emotional exhaustion.
- Our tool enables trained nurse practitioners, researchers as well as experts in occupational health and safety to reliably evaluate specific characteristics of in-patient ward organization in hospitals.
- This approach can be efficiently applied to assessments, as well as audits, to evaluate intra-ward organization in the course of job re-design or organizational change intervention.

1. Introduction

Organization of patient care is critical for a safe and efficient care, as well as for health care professionals' work life (Aiken et al., 2002; Tummers et al., 2006). Moreover, hospital nurses' work life determines their well-being and how they function on the job. Various studies report on organizational factors in the hospital that determine nurses' job (dis)satisfaction, complaints, role ambiguity and conflict, mental disorders, intention to leave, and turnover (Demerouti et al., 2000; Nei et al., 2015; Takase et al., 2008). Although this relationship has received much attention among nursing scientists and practitioners two major issues have not been addressed sufficiently yet: first, the problem of self-reports vs. observation-based assessment of work characteristics. This is often referred to a common methods bias in the assessment of causes of mental stress and outcome relationships, which increases the risks of spurious results. And second, the specific role of intra-ward organization in nurses' stress at work.

Drawing on a cross-sectional study in 25 hospital wards we aimed to address these gaps in the current evidence base on ward organization and mental stress of hospital nurses. In the following we discuss these shortcomings, provide rationale for our study and elaborate on our study's objectives.

1.1. Self-reported versus observation-based assessments of job characteristics in nursing

Organizations aim to employ persons who can best handle the demands of the job. On the other side, employees want to work in environments which meet their needs. This implies that the characteristics of employees and the organization need to fit one another, i.e., person–environment fit, PE fit (Kristof-Brown and Guay, 2011). A high PE fit contributes to improved personal outcomes like health and well-being and can be achieved through different adjustment strategies (Caplan, 1987). These include the selection of employees to bring the desired abilities into the organization, training to adjust employees' capabilities or redesigning the job or organizational environment. In either case it is essential to develop systematic and reliable knowledge about complementary employee and organizational characteristics along commensurate characteristics (Caplan, 1987).

Various studies revealed close associations between nurses' reported job characteristics and their self-reported personal outcomes (Estryn-Behar et al., 2010; Hasselhorn et al., 2006; Kutney-Lee et al., 2013). Moreover, the self-evaluation tools applied for job analyses seem to be primarily intended for the prediction of nurses' individual outcomes (e.g., job satisfaction, intention to leave) and less for informing organizational change or job redesign. Their Likert-scale format does not offer specific and reliable information for job redesign. In contrast, 'anchored' scales offer descriptive content for each level of the scale (Voskuijl and van Sliedregt, 2002). For example, rest breaks on wards are an important job feature related to nurses' strain and recovery (Wendsche et al., 2014). Thus, a typical question would be: 'Is an optimal system of rest breaks reliably established?' A Likert-scaled answer would range from 'not at all', 'partially' to 'completely', whereas an anchored scale may range from 'no rest break system at all', 'occasional, unplanned and unauthorized breaks', up to 'authorized, planned and periodical rest breaks'. Such anchored scales offer for each degree a qualitative descriptor of the focal job characteristics to be evaluated. Moreover, their highest level may be anchored in standards on well-designed jobs (ISO EN 6385) or other consensus-based ergonomic standards. Well-described and ordinal arranged levels of anchored scales may thus become a distinctive objective of a stepwise improvement in job redesign.

We therefore developed and applied an observation-based assessment of work organization on hospital wards with anchored scale measurements. On-site assessments conducted by trained experts who are familiar with work-study techniques, e.g., occupational psychologists, are a feasible and valid approach to obtain valid information about organizational and job characteristics (Rau et al., 2010; Waldenstrom and Harenstam, 2008). Trained observers may observe task demands (e.g., interruptions) and work processes (e.g., organization of information flow) as well as inspect and evaluate relevant documentations or archival data (e.g., shift schedules) (Weigl et al., 2012; Wendsche et al., 2014).

In order to validate the observation-based assessments we aimed to establish correlations between observation-based assessments of ward-organization and nurses' individual outcomes. So far, there is evidence for the relationship of nurses' self-reported job characteristics and their self-reported personal job outcomes (Kutney-Lee et al., 2013; Schmalenberg and Kramer, 2008). The estimation of relationships between self-reported job characteristics and personal outcomes has been discussed in various respects. On the one hand, this approach implies risks for spurious results meaning that nurses who report high exhaustion may also provide negative evaluations of their work due to tending to give negative reports, i.e., common method bias (Podsakoff et al., 2003). Moreover, reverse causality may influence these reports such that high exhaustion leads to negative perceptions of the work environment. On the other hand, the characteristics of work organization need to be mentally perceived and