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## Psychometric properties concerning four instruments measuring job satisfaction, strain, and stress of conscience in a residential care context

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### ABSTRACT

There are many instruments assessing the wellbeing of staff, but far from all have been psychometrically investigated. When evaluating supportive interventions directed toward nurse assistants in residential care, valid and reliable instruments are needed in order to detect possible changes. The aim of the study was to investigate validity in terms of data quality, construct validity, convergent and divergent validity and reliability in terms of the internal consistency and stability of the Job Satisfaction Questionnaire, the Psychosocial Aspects of Job Satisfaction, the Strain in Dementia Care Scale (SDCS), and the Stress of Conscience Questionnaire (SCQ) in a residential care context. The psychometric properties of the instruments were investigated in terms of data quality, construct validity, convergent and divergent validity and reliability, including test–retest reliability, in a residential care context with a sample consisting of nurse assistants ( $n = 114$ ). The four instruments responded with different psychometric-related problems such as internal missing data, floor and ceiling effects, problems with construct validity and low test–retest reliability, especially when assessed on the item level. These problems were however reduced or disappeared completely when assessed for total and factor scores. From a psychometric perspective, the SDCS seemed to stand out as the best instrument. However, it should be modified in order to reduce floor effects on item level and thereby gain sensitivity. The Job Satisfaction Questionnaire seemed to have problems both with the construct validity and test–retest reliability. The final choice of instrument must, however, be made dependent on what one intends to measure.

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### 1. Introduction

The strenuous work situations among the staff in various care contexts have been under scrutiny for several decades in nursing research, either with a focus on aspects related to job satisfaction (e.g. Lu, While, & Barriball, 2005) or on those related to job strain (e.g. Clegg, 2001; McVicar, 2003). Furthermore, one of the most important causes of strain among staff is when they cannot provide the care they believe the residents need (Edberg et al., 2008), which in turn is related to the recently developed concept of stress of conscience (Glasberg et al., 2006). In order to make valid

assessments of the staff's work situations psychometric evaluations must be performed for the instruments. Evaluating psychometric properties of both positive aspects i.e. job satisfaction and, negative aspects i.e. job strain and stress of conscience emphasizes the complexity of NAs' work situation and in turn the need for a comprehensive approach toward investigation of the wellbeing of NAs working in residential care. Furthermore, studies by Orrung Wallin, Jakobsson, and Edberg (2012a, b) indicate that job satisfaction, and strain and stress of conscience, only to a certain degree have a conceptual overlap and they can thus not be seen as two ends of a continuum. Far from all the instruments used in studies concerning the wellbeing of staff have been properly investigated for validity and reliability (van Saane, Sluiter, Verbeek, & Frings-Dresen, 2003) and many studies include several workgroups and different care contexts (e.g. Brodaty, Draper, & Low, 2003; Edvardsson, Fetherstonhaugh, McAuliffe, Nay, & Chenco, 2011). Thus, there is a need for psychometric evaluations of

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instruments concerning the wellbeing of staff and explicitly for investigating NAs working situation in a residential care context.

### 1.1. Job satisfaction

The most frequently used definition of job satisfaction involves both the thoughts and feelings of the staff and reads as follows: ‘...a pleasurable or positive emotional state resulting from the appraisal of one’s job or job experiences’ (Locke, 1976, p. 1304). Even though job satisfaction as a concept is based on a comprehensive theory-driven juxtaposition, the evidence for these models is still ambiguous (Judge, Parker, Colbert, Heller, & Ilies, 2001). Some of the major theories, for instance the Two-Factor Theory developed by Herzberg, Mausner, & Snyderman (1959), argues that some aspects of work such as responsibilities, the work itself and achievements improve job satisfaction (intrinsic factors) while other aspects such as company policies, working conditions and pay could only reduce job dissatisfaction (extrinsic factors) (Herzberg et al., 1959). The Job Characteristics Model introduced by Hackman and Oldham (1976) emphasizes that certain motivating characteristics such as task identity, task significance and variety, and autonomy and feedback were important factors of job satisfaction especially concerning the strivings of the staff for personal development at work (Hackman & Oldham, 1976). Thus, there are several layers and aspects of what it is that constitutes job satisfaction. A general measurement of job satisfaction previously used in various Swedish work settings (e.g. Ekvall, 2001; Sellgren, Ekvall, & Tomson, 2008) is the Job Satisfaction Questionnaire (Ekvall, 2001), which was developed partly from another wellknown theory, namely Maslow’s behavioral psychology of the hierarchy from basic physical needs to the highest level of self-actualization, and partly from empirical stress research, in which it is postulated that persons strive toward the self-fulfilling of needs and to the avoidance of situations in which they lack control. The construct validity has been examined by Ekvall (2001) and was based on one sample from the industrial sector and one sample from the social services sector. Separate factor analyses of these samples arrived at the same five-factor solution: Autonomy, Competence, Emotion, Initiative and Relation. However, no data were presented for these factor analyses. The reliability has previously been tested using Cronbach’s alpha ( $\alpha$ ) in a sample of the staff in public service and was only presented for factor scores ranging between  $\alpha = 0.79$ – $0.89$  (Ekvall, 2001). However, this instrument does need further investigation concerning the validity and reliability in a residential care context.

Furthermore, instruments designed to fit specific contexts such as the Psychosocial Aspects of Job Satisfaction Questionnaire (Engström, Ljunggren, Lindqvist, & Carlsson, 2006), have been used to investigate job satisfaction in residential care (Engström, Skytt, & Nilsson, 2011; Orrung Wallin et al., 2012b). The construct validity has previously been investigated with a principal component analysis (PCA) with Varimax rotation that came out with an eight-factor solution. The factor analysis explained 52.2% of the variance, where factor loadings ranged from 0.31 to 0.77 and factorability was deemed as satisfactory through a significant Bartlett’s test of sphericity and the Kaiser–Meyer–Olkin’s measure of sampling adequacy (0.86). Known-group validity was investigated by means of significant differences between staff with intention to leave or not and job satisfaction. The reliability was established with Cronbach’s alpha and was 0.92 for the total score and between 0.71 and 0.86 for five of the factors: Personal development, Workload, Criticism, Expectations and demands, and Cooperation. For the remaining three factors: Internal motivation ( $\alpha = 0.69$ ), External motivation ( $\alpha = 0.59$ ) and Position in the group ( $\alpha = 0.52$ ) the alpha were below acceptable values (Engström et al., 2006), which indicates that there might be a problem with the

homogeneity of these factors. The psychometric properties were, however, investigated in a heterogeneous sample with various categories of staff working in aged care and thus the instrument needs further investigation concerning the validity for nurse assistants (NAs) only, as they are the main group working in residential care. Furthermore, test–retest reliability has not previously been investigated and thus the stability and ability to capture changes over time has not yet been proven.

### 1.2. Job stress, strain, and stress of conscience

In contradiction to the concept of job satisfaction, occupational stress, including job strain and stress, has no sound theoretical framework (Hart & Cooper, 2001). Strain has been defined as the effects of stress ‘the wear and tear itself’ (Knapp, 1988, p. 181) and stress refers to the work-related situations, events or characteristics that increase the stress ‘the cause of wear and tear’ (Knapp, 1988, p. 181). However, other process-oriented theories (e.g. Lazarus & Folkman, 1984) have a more reciprocal approach to the causality of the relationship between stress and strain and emphasize the inter-relationships of a complex system of variables associated with stress (Hart & Cooper, 2001). A newly developed instrument with an empirical starting point is that of the Strain in Dementia Care Scale (SDCS) (Bird, Edberg, Anderson & Orrung Wallin, 2012). This instrument was developed through analyses of focus group interviews with nurses in Sweden, Australia, England and Wales about what they perceived as strenuous in their fundamental work situation (Edberg et al., 2008), which also adds to the content validity of the instrument. Construct validity was obtained through a process with an exploratory factor analysis ( $n = 927$ ), and confirmatory factor analysis ( $n = 344$ ), on two different samples including various categories of staff working in dementia care. This process resulted in a five-factor solution, explaining 52.3% of the variation in the exploratory phase. These factors were: Frustrated empathy; Difficulties understanding and interpreting; Balancing competing needs; Balancing emotional involvement, and Lack of recognition. The confirmatory factor analysis of this factor solution came out with estimates of goodness of fit (i.e. Root Mean Square Error of Approximation = 0.60 and Comparative Fit Index = 0.90) within acceptable range as well as acceptable factor loadings which varied from 0.60 to 0.80. However, the  $\chi^2$  came out significant which possibly was due to a larger sample size. The internal consistency for the total instrument was  $\alpha = 0.94$ , and varied for the five factors; from  $\alpha = 0.75$  to  $\alpha = 0.89$  (Bird et al., 2012). Even if an emerging validation of the instrument is in progress, the homogeneity and functionality of the instruments needs further investigation, for example for a context-specific sample as it is the case of nurse assistants in residential care. Furthermore, the stability of the instrument still remains to be investigated in order to establish its feasibility as an outcome measure when investigating supportive means toward NAs working in residential care.

Another concept linked to occupational stress that has recently been developed is that of stress of conscience (SCQ). In previous research, staff have stated that not being able to do as much as they would like to do for the patients is strenuous (Edberg et al., 2008; Lutzen, Cronqvist, Magnusson, & Andersson, 2003), which results in a troubled conscience and, consequently, stress. The development of SCQ was based on theoretical and empirical evidence and has been investigated for construct validity in Sweden (Glasberg et al., 2006) and in Finland (Saarnio, Sarvimäki, Laukkala, & Isola, 2012), with somewhat different constructs. The factor analysis (PCA, Varimax orthogonal rotation) in the Swedish study ( $n = 444$  health care staff) resulted in a two-factor solution explaining 54% of the variance. Factor loadings ranged from 0.53 to 0.79. The homogeneity and functionality were within an acceptable range

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