



Sense of coherence, self-regulated learning and academic performance in first year nursing students: A cluster analysis approach



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ABSTRACT

This paper examines the relationship between nursing students' sense of coherence, self-regulated learning and academic performance in bioscience. While there is increasing recognition of a need to foster students' self-regulated learning, little is known about the relationship of psychological strengths, particularly sense of coherence and academic performance. Using a prospective, correlational design, 563 first year nursing students completed the three dimensions of sense of coherence scale – comprehensibility, manageability and meaningfulness, and five components of self-regulated learning strategy – elaboration, organisation, rehearsal, self-efficacy and task value. Cluster analysis was used to group respondents into three clusters, based on their sense of coherence subscale scores. Although there were no sociodemographic differences in sense of coherence subscale scores, those with higher sense of coherence were more likely to adopt self-regulated learning strategies. Furthermore, academic grades collected at the end of semester revealed that higher sense of coherence was consistently related to achieving higher academic grades across all four units of study. Students with higher sense of coherence were more self-regulated in their learning approach. More importantly, the study suggests that sense of coherence may be an explanatory factor for students' successful adaptation and transition in higher education, as indicated by the positive relationship of sense of coherence to academic performance.

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Introduction

Nurses of the future need to be well-prepared to meet the challenges of an increasingly complex and constantly changing healthcare environment (Victorian Government Department of Human Services, 2006). For this to occur, it is crucial that undergraduate nursing education programs provide a solid foundation of

education and training to ensure that all graduates are able to deliver quality nursing care.

Within this context of changing workforce needs, higher education has experienced a radical shift in the past two decades, from learning institutions that cater for elite groups to providing for the masses, with a drive towards social inclusion (Osborne, 2003). University admission now extends far beyond that of traditional students to include non-traditional students from diverse backgrounds and entry levels (Hinton-Smith, 2012). Often, this latter group of students have family and financial commitments, which contribute to the challenges they may experience in meeting the academic demands of their studies (McCarey et al., 2007; Trotter and Roberts, 2006). This often leads to academic under-performance, which has been identified as a key factor for involuntary attrition from undergraduate nursing programs (Jeffreys, 2007; Salamonson et al., 2011).

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Academic performance among nursing students is influenced by a myriad of factors (Salamonson et al., 2011). Although the levels of English usage (Salamonson et al., 2013), and the amount of time spent in paid work during semester time (Reyes et al., 2012; Salamonson et al., 2012) have been shown to influence the academic performance of nursing students in English-speaking countries, studies undertaken in non-English countries reported academic performance was affected positively by academic and social integration among college students (Rienties et al., 2012; Wang and Hannes, 2014). While a number of studies have examined sociodemographic factors associated with academic attainment (Jeffreys, 2007; Korvick et al., 2008; McCarey et al., 2007), few studies have focused on psychological strengths as determinants of academic performance among students in higher education (Cuellar and Zaiantz, 2012; Van Westhuizen et al., 2011).

Sense of coherence

One of these psychological strengths is the sense of coherence, a person's life orientation which is reflected by their ability to cope with stressful or difficult situations (Eriksson, 2011; Super et al., 2014). The sense of coherence construct was formulated by a medical sociologist, Aaron Antonovsky (1987), who anglicised the Latin word (*salus* = health) and added the Greek word (*genesis* = origin), and coined a new word 'salutogenesis', as a contrast to the pathogenesis model of medicine. Three components of this construct as outlined by Antonovsky (1987) are: a) comprehensibility (stimuli from one's internal and external environments as being structured and predictable); b) manageability (sufficient resources to meet the demands); and c) meaningfulness (challenges and demands are worthy of engagement and investment).

A strong sense of coherence predicts good health and protects against anxiety, depression and burnout (Eriksson, 2011; Foureur et al., 2013; Kikuchi et al., 2014). In a prospective 3-year follow-up study of over 12,000 adults, a weak sense of coherence was associated with higher mortality (Super et al., 2014). However, in relation to workforce and educational research, the evidence between sense of coherence and coping behaviour, including academic outcome, is inconsistent (Cohen et al., 2008; Collins, 2015; Grayson, 2007).

Self-regulated learning strategies

Another psychological strength examined in the study is the use of self-regulated learning strategies. Self-regulated learning describes how learners control their thoughts, and behaviours in order to achieve academically (Zimmerman and Schunk, 2011). Students who employ self-regulated learning strategies have higher levels of self-efficacy and perceive the learning task as having value, enabling higher levels of academic performance to be achieved (Pintrich and de Groot, 1990; Salamonson et al., 2009).

Aim of study

The purpose of this study was to examine the relationship between sense of coherence, self-regulated learning and academic performance.

Methods

A prospective correlational study design was used to examine the relationships between sense of coherence, components of self-regulated learning and academic performance of first year nursing students.

Study setting and sample

The study recruited nursing students from a large university in the western region of Sydney, Australia who were undertaking the standard 3-year undergraduate nursing degree. The survey was administered to first year students in Semester 2 at the end of 2009.

Measures

Two standardised measures were used: the 13-item Sense of Coherence scale; and the Elaboration, Organization, Rehearsal, Self-efficacy, and Task value scales of the Motivation Strategies for Learning Questionnaire (MSLQ).

Sense of Coherence

Antonovsky's 13-item scale was used to assess the three dimensions of sense of coherence: comprehensibility, manageability and meaningfulness. This 7-point Likert scale ranges from 1 to 7. Total sense of coherence scores are obtained by summing respondents' scores, which can range from 13 (lowest) to 91 (highest). Previous reports of the internal consistency of this scale ranged from 0.74 to 0.95 (Wolff and Ratner, 1999). In the current study, Principal Components Analysis yielded a one-component solution which explained 30.46% of the variance. The internal consistency of this 13-item scale as assessed by Cronbach's alpha was 0.80.

Learning strategies scales

Five learning strategies scales of the MSLQ were used to measure the cognitive (Elaboration, Organization and Rehearsal) and motivational (Self-efficacy and Task value) constructs of learning strategies (Duncan and McKeachie, 2005). For example, content assessed in the Elaboration construct included paraphrasing and summarising; and content assessed in the Organisation construct included strategies such as outlining and creating tables. The response format ranged from 1 (not at all true of me) to 7 (very true of me). The results were consistent with previous studies (Duncan and McKeachie, 2005; Salamonson et al., 2009), showing that these scales have good internal consistency. Results of Cronbach's alpha of the 5 scales were: a) Elaboration – 0.85; b) Organization – 0.77; c) Rehearsal – 0.78; d) Self-efficacy – 0.93; and e) Task value – 0.76.

In addition to these standardised measures, single-item measures were used to collect sociodemographic information from study participants. For participants who provided consent for linkage of their completed survey to their assessment marks at the end of the semester, results were retrieved from the institutional administrative database.

Procedure and ethical consideration

Prior to undertaking the study, we sought approval from the university human research ethics committee. Before distributing the surveys to first year students at the end of a bioscience tutorial session during the early weeks of Semester 2, they were informed that involvement in the study was voluntary, information collected was confidential, and only aggregated data would be used in the dissemination of study findings. The students were also briefed and a study information sheet was distributed. Consent was sought from survey respondents to link their completed surveys to their academic grades; students were informed about their rights of non-participation or withdrawal from the study, without affecting their relationship with the researchers then, or in the future.

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