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Further validation of the perceptions of empowerment in midwifery scale

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ABSTRACT

Objective: to assess the psychometric properties of the Perceptions of Empowerment in Midwifery Scale (PEMS) on a sample of New Zealand midwives.
Design: cross sectional study. Midwives completed an online survey containing the 22 item PEMS, and a number of demographic and work-related questions.
Participants: active practising members listed on the New Zealand College of Midwives database were invited to participate. A sample of midwives who were currently employed by an organisation was extracted ($n=600$).
Findings: exploratory factor analysis on the PEMS identified four subscales (Autonomy/Empowerment, Manager Support, Professional Support, Skills and Resources). This structure differed from that reported by the original scale developers. Each subscale showed adequate internal consistency reliability and was able to distinguish midwives who had considered leaving the profession in the past six months ($p=.001$).
Key conclusions: the psychometric properties of the revised 19-item four-subscale structure of PEMS were supported.
Implications for practice: The PEMS-Revised provides a psychometrically sound tool for further quantitative research to supplement the growing number of qualitative investigations of midwives perceptions and experiences of their workplace.

Introduction

The availability of an adequately trained and resourced workforce is essential for the provision of appropriate health care worldwide. According to the World Health Report (2006) however there is a global shortage of workers in health care, including doctors, nurses and midwives. Shortages in the number of midwives have important implications for the delivery of maternity services, and the care of women during pregnancy and childbirth. There is growing awareness in the scientific literature of the challenges facing midwifery worldwide and the need to better understand the factors impacting on the chronic difficulties with retention in the profession. In a recent commentary on the topic Brodie (2013) emphasised that it was essential for effective workforce planning and the development of the midwifery profession that we identify why midwives leave, and determine what is needed for them to stay. There has however been relatively little research to date that has identified factors associated with job satisfaction among midwives and reasons for leaving the profession.

A study conducted in the UK by Kirkham and colleagues (Kirkham and Morgan, 2006; Kirkham et al., 2006), and later replicated in Australia (Sullivan et al., 2011) investigated the factors that influenced midwives' decisions to either stay or leave the midwifery profession. Factors associated with their retention included feeling supported by managers, availability of adequate resources, the development of relationships with pregnant women, and experiencing a sense of empowerment and control in their work.

The conditions that are important to facilitating the empowerment of midwives was the focus of a study by Matthews et al. (2006) conducted in Ireland. This study identified 24 aspects of the workplace rated as important to empowerment, representing four main themes (control, support, recognition and skills). Although the initial study was conducted on a relatively small sample this research was later expanded, resulting in the development and validation of the Perceptions of Empowerment in Midwifery Scale (PEMS: Matthews et

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al., 2009) in a sample of midwives practising in Ireland. It was designed to provide a tool to measure midwives' perceptions of their own levels of empowerment and to facilitate further research on the workplace factors believed to be important to the empowerment of midwives. After initial refinement of a pool of items the final 22-item scale was administered to a sample of 244 practising midwives and a variety of psychometric analyses undertaken. The results of factor analysis of the scale suggested the presence of three subscales: *Autonomous Practice, Effective Management,* and *Women-Centred Practice*, each containing six items. Although the results of this study provided initial support for the psychometric properties of the PEMS, the authors of the initial article recommended testing the PEMS on larger, more varied, samples to test the international generalisability of the scale (Matthews et al., 2009).

The aim of the current study therefore was to assess the psychometric properties of the PEMS on a large sample of New Zealand midwives. This provides the opportunity to explore the underlying structure of the scale in a sample of midwives from a different cultural setting, and employed in a different health system to that used in the initial validation study.

Method

Procedure and materials

Active practising members listed on the database of the New Zealand College of Midwives were invited to participate in this study. An email invitation, which included a link to an online questionnaire, was sent to members with an up to date email address. The study was approved by the ethics committee of Auckland University of Technology (13/211 on 19 August 2013).

Measures

As part of a larger cross cultural study on the emotional well-being of midwives respondents completed an online survey containing the PEMS, and a number of demographic and work related questions.

The PEMS (Matthews et al., 2009) consists of 22 items with respondents asked to indicate their level of agreement to a series of statements (e g. '*I am valued by my manager*') using a 5 point scale (strongly disagree to strongly agree). In the original study items were scored so that the higher the score, the lower the level of perceived empowerment. We considered this reverse scoring was potentially confusing and in this study it was decided to score items so that high scores indicated high levels of empowerment.

In addition to a number of demographic questions (gender, age, years of experience as a midwife), respondents were also asked to indicate if, in the last six months, they had considered leaving the midwifery profession (Yes/No).

Statistical analyses

Using SPSS Version 21 Principal Components Analysis (PCA) with oblimin rotation was undertaken to explore the underlying structure of the 22 PEMS items. The suitability of the dataset was first assessed using the Kaiser–Meyer–Olkin test of sampling adequacy (Kaiser, 1970) (values above .6), and Bartlett's Test of Sphericity ($p < .001$) (Bartlett, 1954). The number of factors to be extracted was guided by three decision rules: Eigenvalues above 1, Catell's scree test (Catell, 1966), and Parallel analysis (Horn, 1965). Parallel analysis involves comparing the eigenvalues from PCA with those obtained from a randomly generated datafile of the same size. Only factors with eigenvalues exceeding that obtained from the corresponding eigenvalue of the random dataset were retained. Parallel analysis was conducted using the software developed by Watkins (2000). Items were considered for removal from the scale if they failed to load above .4 on any factor, or if they showed substantial cross loadings on two or more factors. To ensure that the solution was robust across extraction techniques the final solution was checked using Principal Axis Factoring, as recommended by Pett et al. (2003).

Total scores were calculated for each of the subscales by adding each of the items loading on the respective component and dividing by the number of items in the subscale. This converts scores on each subscale to a consistent range from 1 to 5, with high scores representing high levels of the characteristic. This is the reverse of the scoring adopted in the original article where high scores represented low levels of the characteristic. The change in the direction of the scoring was undertaken to prevent confusion amongst potential uses of the scale and to aid in the interpretability of later analyses conducted using the scale. Descriptive statistics and subscale intercorrelations were generated for each of the subscales identified from the exploratory factor analysis.

The internal consistency reliability of the subscales was assessed using both the Cronbach Alpha coefficient and the mean inter-item correlation value. While values of .7 are generally considered the minimum accepted Cronbach Alpha value (Nunnally, 1978), this is influenced by the number of items in the scale, making it difficult for short scales to achieve acceptable values. Briggs and Cheek (1986) recommend that scale developers also check the inter-item correlation, with the optimal range being .2–.4.

Using a series of independent *t*-tests scores on each of the PEMS subscales were compared for midwives who indicated that they had considered, versus had not considered, leaving the midwifery profession in the last six months.

Findings

Sample characteristics

Characteristics of the respondents are presented in Table 1. The sample consisted of 600 midwives, ranging in age from 21 to 70 ($M = 46.3$, SD = 11.2). All except one respondent was female. All of the midwives in the sample were employed by an organisation, with a quarter ($n = 148$, 25%) also working in a self employed capacity. Years of experience as a midwife ranged from 0 to 42 years with an average of 15 (SD = 11.2).

Factor analysis

Preliminary analyses were conducted to ensure the suitability of the data for factor analysis. This was supported by the KMO

Table 1
Characteristics of survey respondents.

Characteristic	Details
Sex (n %)	
Female	594 (99.8%)
Male	1 (.2%)
Age	
Mean (SD)	46.3 (11.2) years
Range	21–70 years
Employment status (n %)	
Employed by an organisation only	452 (75%)
Employed by an organisation and self employed	148 (25%)
Type of organisation	
Primary	135 (26%)
Secondary	202 (38%)
Tertiary	192 (36%)
Years of experience as midwife	
Mean (SD)	15.0 (11.2) years
Range	0 to 42 years

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