



## Development of the Student Evidence-based Practice Questionnaire (S-EBPQ)



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### SUMMARY

**Background:** The assessment of learning and teaching of Evidence-based Practice (EBP) in nursing is an important issue, yet few tools have been developed specifically for use with student nurses. Therefore, the Evidence-based Practice Questionnaire (EBPQ), which has been successfully used to measure EBP in nurses and nurse educators, was revised to develop a Student version (S-EBPQ).

**Objective:** The purpose of the study was to develop a student version of the Evidence-based Practice Questionnaire (EBPQ) and test its psychometric properties with a UK undergraduate student population.

**Design:** Instrument development study.

**Participants and Method:** Two hundred and forty-four undergraduate nursing students from an English University were recruited over a three year period to complete the EBPQ. This data was submitted to reliability analysis based on Item Response Theory and Exploratory Factor Analysis to explore construct validity.

**Results:** Principal Component Analysis demonstrated evidence for the S-EBPQ's construct validity, and analyses comparing the subscale scores of students in their first and second years of studies identified evidence for the tool's convergent validity. Descriptive statistics, correlation coefficients and reliability estimates demonstrated evidence for the S-EBPQ's internal reliability, and item facility and discrimination.

**Conclusion:** The S-EBPQ appears to be a psychometrically robust measure of EBP use, attitudes, and knowledge and skills (regarding the retrieval and evaluation of evidence, and the application and sharing of EBP). It may therefore provide an effective means of evaluating learning of EBP with undergraduate nursing students.

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### Introduction

Evidence-based Practice is an important feature of the nursing profession (Emanuel et al., 2012). Nursing curricula is changing as a consequence of the Sicily Statement and Bologna Process with greater emphasis now being placed on the development of competency in Evidence-based Practice (EBP) in undergraduate nursing education (McEvoy et al., 2010; Ruzafa-Martinez et al., 2013). However, the evaluation of the effectiveness of teaching EBP at undergraduate level is hampered by a shortage of rigorously psychometrically tested and practical assessment tools (McEvoy et al., 2010; Ruzafa-Martinez et al., 2013).

One tool that has been used extensively within health and social care professions to measure the acceptance and implementation of EBP is the Evidence-based Practice Questionnaire (EBPQ; Upton and Upton, 2006; Upton et al., 2014). This tool was initially developed with registered nurses to assess three aspects of EBP: frequency of use ('practice'

subscale), attitude towards ('attitude' subscale) and knowledge and skills in EBP ('knowledge' subscale). Evidence for its reliability and validity has been consistently demonstrated across a range of continents, contexts and professional groups (Upton et al., 2014). The authors of the instrument are also aware that it has been used with student populations (Upton et al., 2014) as a developmental or evaluative tool. However, its performance with student nurses has yet to be fully assessed. The aim of the current study, therefore, was to develop a version of the EBPQ appropriate for use with student nurses.

#### Background

##### Theory Underlying the S-EBPQ

The original EBPQ was based on Sackett et al. (1996) definition of EBP as "the conscientious, explicit and judicious use of current best evidence in making decisions about the care of the individual patient. It means integrating individual clinical expertise with the best available external clinical evidence from systematic research" (p. 71). A number of the items on the questionnaire are based on Sackett et al. (1997) five steps of EBP. It is crucial that nursing education provides the foundation for nurses to be able to review and incorporate existing evidence

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into their clinical practice (Emanuel et al., 2012). Furthermore, according to Ruzafa-Martinez et al. (2013) recommendations from the Bologna Process mean that the nursing curriculum should provide the acquisition and development of knowledge, attitudes and skills in EBP. The S-EBPQ would therefore be theoretically relevant to the evaluation of student learning of EBP.

#### *Tools Measuring EBP in Student Populations*

Very few tools have been developed to measure EBP in student populations and even fewer have been developed specifically for undergraduate nursing education (Ruzafa-Martinez et al., 2013). According to McEvoy et al. (2010), many of the instruments measuring EBP are limited in relation to the constructs they assess, specificity of the populations they are intended for and the rigour with which they were developed. For example, a small number of tools are available which seek to assess the development of EBP, such as Gerrish et al.'s (2007) 'Developing Evidence-based Practice Questionnaire' and Thiel and Ghosh's (2008) 'Nurses' Readiness for EBP Survey'. However, both these tools were designed for use with registered nurse populations and therefore are not necessarily relevant to student nurse populations. One tool, the EBP-COQ (Ruzafa-Martinez et al., 2013), was developed specifically for undergraduate nursing students. The tool was designed specifically for use in a Spanish context and has demonstrated evidence of reliability and validity. The key difference between this measure and the S-EBPQ relates to the domains the two questionnaires measure: the EBP-COQ measures attitude, knowledge and skills, whereas the S-EBPQ measures frequency of use in addition to attitudes, knowledge and skills. The two questionnaires therefore measure similar but distinct operationalisations of EBP. An additional benefit of the S-EBPQ is the potential for meaningful comparisons between the understanding and application of EBP at all levels of practice from student through newly qualified practitioner to established specialist nurse practitioner. We therefore feel the development of the S-EBPQ is crucial and timely.

## **The Study**

### *Aim*

The purpose of the study was to develop a student version of the Evidence-based Practice Questionnaire (EBPQ) and test its psychometric properties with undergraduate nursing students.

### *Methodology*

The data for this study was collected as part of a larger scale project designed to explore EBP practice, attitudes and knowledge/skills during undergraduate nursing education. For the purposes of this study only unique cases were used to test the psychometric properties of the questionnaire (i.e., each person appeared only once in the dataset).

All data was collected prior to analyses, using hard copies of the questionnaire that were administered during the beginning of students' lectures, early in each semester.

Analysis of the data to test the questionnaire's psychometric properties was undertaken in two stages, stage 1 involved examining the construct validity of the questionnaire using Principal Component Analysis (PCA). Furthermore, convergent validity was examined by analysing differences in subscale scores for students in their first, second and third years of their degree when completing the questionnaire. The second stage of analysis involved examining the internal reliability of the questionnaire using item-response theory and Cronbach's alpha. For this reason the results of the study are presented for each stage separately.

### *Participants*

Participants were opportunistically recruited undergraduate nursing students attending an English university.

To reach the required sample size participants were recruited from cohorts of students commencing between 2011 and 2014. Care was taken to control for confounding variables, such as time of questionnaire administration during the academic year.

Sample size requirements were calculated separately for each stage of the analysis. For stage 1, the total sample size of 244 participants was identified as sufficient for conducting PCA, based on Nunnally's (1978) recommendation of a ratio of 10 cases per variable. Furthermore, this sample size was deemed sufficient for conducting a one-way between groups MANOVA (comparing questionnaire subscale scores across students in each year of study) based on recommendations by Pallant (2013).

For stage 2 the sample size was identified as exceeding that recommended by a sample size based on Bonett's (2002) formulae ( $N = 15$ ) for calculating internal reliability estimates and by Rust and Golombok's (2008) recommendations for psychometric analysis when piloting questionnaires (minimum of one more participant than the number of items).

### *Sample Characteristics*

Participants were 222 (91%) female and 22 (9%) male nursing students in their 1st (44.3%), 2nd (34.8%) or 3rd (20.9%) year of their undergraduate nursing degree at a UK University. The University has a long tradition of nurse education and is based in a Faculty of Health with both undergraduate and post-graduate studies in nursing along with midwifery, allied health and psychology programmes. The course followed the typical 50% placement/50% classroom-teaching model used for NHS funded pre-registration courses in the UK. The majority of participants were aged between 18 and 29 years (182, 74.6%) and their highest level of qualification prior to their degree was in further education, such as A-levels (84.5% of  $N = 194$ ). The majority of student nurses were studying the adult nursing specialism (73.0%), followed by mental health nursing (21.3%) and child nursing (5.7%). The characteristics were similar (within 6%) for the population under discussion.

### *Instrument*

The EBPQ was developed to measure factors influencing EBP uptake and implementation, initially within nursing practice (Upton and Upton, 2006). It is a 24-item self-report measure, comprising three subscales: frequency of practice (practice), attitude (attitude towards EBP), and knowledge (knowledge and skill in EBP). The practice subscale is measured on a 7-point Likert scale (6 items, from 'never' to 'frequently'), the attitude subscale is measured on a 7-point semantic differential scale (4 items, from negative to positive) and the knowledge/skill subscale is measured on a 7-point Likert scale (14 items, from 'poor' to 'best'). An average score can be calculated for each subscale.

The EBPQ has been found to be quick and easy to administer, and to have good internal reliability as measured by Cronbach's alpha; the alpha for the overall questionnaire is .87 and the three subscales have alphas of .85 (practice), .79 (attitude), and .91 (knowledge; Upton and Upton, 2006).

The EBPQ has since been used with different professional groups and has been translated into a number of different languages (see Upton et al. (2014) for a review of these new versions' psychometric properties).

### *Ethical Considerations*

The study received ethical approval from the University Human Ethics Committee.

All participants were informed that: the study was completely voluntary; taking part in one administration of the questionnaire did not obligate them to take part in other administrations; they had the right to withdraw at any time (at which point their data would be destroyed); and their participation or non-participation in the study would have no impact on their degree and that their data would be treated confidentially.

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