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# **Nursing student attitudes to people labelled with ‘mental illness’ and consumer participation: a survey-based analysis of findings and psychometric properties**

## **Abstract**

*Background:* Understanding student attitudes toward people diagnosed with mental illness is central to realising evidence-based nursing education and policy at an international level. Redressing stigmatised views can assist in preparing nursing students to work in mental health settings and support the active involvement of consumers in all aspects of mental health service delivery (known as: consumer participation) at individual and systemic levels. Accurate research on nursing student attitudes is dependent on the availability of valid and reliable measures.

*Objectives:* Using data from an international study, this research sought to: (1) evaluate two measures of nurse student attitudes, and (2) explore whether attitudes to people labelled with a diagnosis of mental illness and who use mental health services is associated with more positive attitudes to consumer participation in mental health services.

*Design:* Self-report quantitative data gained via the Consumer Participation Questionnaire (CPQ) and Mental Health Nurse Education Survey (MHNES).

*Setting and participants:* University nursing students in Australia and Western Europe.

*Data:* Pooled CPQ and MHNES data from Australia, Ireland, Finland, Norway and the Netherlands.

*Methods:* The MHNES and CPQ were evaluated via exploratory factor analysis and Rasch modelling. Hierarchical regression was applied to see whether attitudes to mental illness and mental health practice relate to attitudes to consumer participation after addressing demographic differences.

*Results:* Refined MHNES scales demonstrated overall fit on Rasch models. Reliabilities for MHNES ranged from .82 to .73. Perceived value of mental health nursing to consumers and lower negative stereotypes were associated with positive attitudes to consumer participation independent of age, gender and country [ $F(9, 381) = 15.78, p < .001$ ]. Students who considered mental health nursing made a valuable contribution represented the strongest association with a positive attitude towards consumer participation.

*Conclusions:* Differences in openness to consumer participation are partly attributable to views about people diagnosed with mental illness and the perception that mental health practice makes a positive difference to these people within health service contexts.

*Keywords:* attitudes, mental health, consumer participation, mental health nursing, nursing education, COMMUNE, Rasch analysis

## 1. Introduction

National and international policy platforms have called for a move from the medically dominated clinical treatment of people diagnosed with mental illness to person-centred approaches grounded in recovery (Commonwealth of Australia, 2017; Health Service Executive, 2017; Rosen et al., 2010; World Health Organization, 2016). Delivering services in partnership with those receiving them enables the mental health sector to improve access to and quality of mental health care (Commonwealth of Australia, 2017; Health Service Executive, 2017; Ministry of Social Affairs and Health, 2013). Central to this change is the realisation of consumer participation in mental health services at all levels; such as shared decision-making with clinical practitioners, honouring the principle of equity in therapeutic alliances and consumer involvement in the planning and management of mental health services (Happell et al., 2017; Neech et al., 2018).

Consumers, also described as experts-by-experience (EBE; Horgan et al., 2018) report consumer participation to be empowering (Tambuyzer and Van Audenhove, 2015), potentially contributing to their recovery (Reid et al., 2018), and want to be further involved in shaping mental health services (Laitila et al., 2018, in press). Although there has been extensive developments of consumer participation in health services (Cleary et al., 2018) and education (Byrne et al., 2013; Ridley et al., 2017), the full capacity of this emerging workforce is yet to be realised.

The negative attitudes commonly held by the general public towards mental illness extend to health professionals, including nurses (Dabby et al., 2015; Ross and Goldner, 2009). Consumers and mental health professionals have argued that negative attitudes within mental health care systems are barriers to genuine consumer participation (Arbanas et al., 2018; Gee et al., 2016).

Tertiary education serves a crucial function in preparing future nurses to provide care that is person-centred, therapeutic and inclusive (Happell et al., 2017). Positive attitudes towards consumer participation in all aspects of mental health service delivery are therefore of paramount importance. Despite overtures of participative roles for consumers, research indicates that many mental health settings do not provide much opportunity for genuine consumer participation (Cutcliffe et al., 2013; Paul and Holt, 2017). As consumer involvement in mental health requires more development (Gee et al., 2016), much work is needed in advancing evidence-based nursing education in this area. There is a particular need for valid and reliable measures of student attitudes to people labelled with a diagnosis of mental illness and a closer examination of how attitudes relate to other domains, for example, consumer participation.

### *1.1 Availability of sound self-report measures*

Self-report is the main research approach to estimating attitudes of nurses (e.g. Chambers et al., 2010; Kortteisto et al., 2017); and it has been asserted that renewed efforts are needed to enhance the validity and reliability of these types of measures (Wei et al., 2015). Implementing more thorough questionnaire evaluations requires going beyond typical factor analytic approaches underpinned by classical test theory, by drawing on Rasch modelling (Pallant and Tennant, 2007). The Rasch approach, provides extended and new criteria for 'performance' of a measure by comparing what would be expected for response patterns driven by an underlying latent attribute against the observed responses, and relatedly, to verify if (sub)scales are quantitatively estimating a phenomenon that is unidimensional (Tennant and Conaghan, 2007).

### *1.2 Inter-relationships between nursing student attitudes*

An implicit assumption in this area of nursing education is that negative attitudes toward people with mental illness, and mental health nursing are linked to negative attitudes to consumer participation in mental health more broadly. For instance, those who perceive people with a diagnosis of mental illness as 'dangerous' may take a stance of exclusion, and so be less inclined to support consumer participation in health services. Students who have a positive, benevolent perception of mental health consumers would

presumably be more open to consumer involvement, such as participation in clinical decision-making.

Given the importance of evidence-based practice in formal education of undergraduate nurses (Mackey and Bassendowski, 2017), the aforementioned assumption needs to be critically evaluated through empirical research. While there is some literature reporting primary research on the inter-connections between mental health nurse student attitudes on people with mental illness and interest in mental health nursing as a career (Happell et al., 2014), no research was found on the relationship between attitudes towards mental illness in general and consumer participation.

### *1.3 The COMMUNE Project*

The Co-produced Mental Health Nursing Project (COMMUNE) represents an international partnership between nurse academics and experts by experience (EBE) educators situated at universities within Australia, Ireland, Finland, the Netherlands, Iceland and Norway (Horgan et al., 2018). Its purpose was to create, implement and explore the learning effects of EBE-led curricula (Horgan et al., 2018) in pre-registration nursing programs. As part of this purpose, a major objective is to better understand nursing students' attitudes to the enhanced curricula and explore the impact of EBE delivered education on attitudes. As such, the project is poised to contribute to the



literature base regarding comprehensive assessment of attitude measures and the inter-relationships between attitudes.

Utilising pooled questionnaire data from five of the participating countries, this paper reports the findings on the psychometric properties of attitude measures, and evaluates the assumption that endorsement of consumer participation is associated with other attitude domains. It was hypothesized that positive attitudes towards people labelled with mental illness (outside of a health service context) as well as positive attitudes on the perceived value of nursing in mental health and sense of preparedness for mental health practice, would be associated with more positive attitudes towards consumer participation in mental health care, after controlling for age, gender and country differences as measured by the Mental Health Nurse Education Survey and the Consumer Participation Questionnaire.

## **2. Objectives**

The aims of this paper are to: (1) evaluate two self-report attitudinal measures – the Mental Health Nurse Education Survey (Happell and Gough, 2009) and the Consumer Participation Survey (Happell et al., 2002), by utilising both factor analysis and Rasch modelling, and (2) test whether attitudes towards people labelled with a diagnosis of mental illness, and who use mental health services, were associated with more positive attitudes to consumer participation in mental health services.

### **3. Methods**

#### *3.1. Design*

The current study is part of a multinational research project based on a pre-post design to explore the impact of EBE-led education on nursing student attitudes towards people with mental illness and their subsequent interest in mental health nursing as a career. result. This analysis is based on the baseline (pre) data.

#### *3.2. Participants*

Research participants were students (n=424) completing undergraduate nursing education at the University of Canberra (in Australia), University College Cork and Dublin City University (Ireland), Inland Norway University of Applied Sciences (Norway), Turku University of Applied Sciences (Finland) and the Utrecht University of Applied Sciences (the Netherlands). Participants from Ireland were undertaking a program specialising in mental health nursing and leading to registration as a mental health nurse. Participants from Australia and the other European countries were completing a generic program, leading to registration as a nurse, without a specific specialisation. One or more mental health nursing subjects was a core component for these programs. Students' year of study ranged from Year 1 to Year 3.

### 3.3 Measures

The instruments aimed to estimate attitudes across several domains related to people diagnosed with mental illness, and mental health nursing. The Mental Health Nurse Education Survey (MHNES) (Happell and Gough, 2009) is designed to identify and determine the level of (non)endorsement of specific views about mental illness and future orientations to mental health nursing. Responding to the survey involves rating the 24 items on a seven-point scale ranging from 'Strongly Disagree' to 'Strongly Agree'. Seven domains have been represented in this survey: Preparedness for Mental Health Field, Knowledge of Mental Illness, Negative Stereotypes, Anxiety Surrounding Mental Illness, Future Career in Mental Health Nursing, Valuable Contributions, and Course Effectiveness (Happell and Gough, 2009). As well as good content validity, internal reliabilities (Cronbach  $\alpha$ ) across the scales have varied from .5 to .92, with Preparedness for the Mental Health Field demonstrating consistently good reliabilities (i.e. between .7 and .9) in several studies (Happell and Gough, 2009; Happell et al., 2014).

The Consumer Participation Questionnaire aims to measure attitudes towards the concept of consumers as autonomous and engaged in the organisation of mental health services (Happell et al., 2002). The opening of the survey defines 'mental health consumer' and 'consumer academic' and then asks participants to rate level of (dis)agreement with 24 statements on a seven-point scale, with 'Strongly Disagree' and 'Strongly Agree' as the end

points. Psychometric analyses have reported there are three scales to the survey and demonstrate good content validity: Consumer Capacity, Consumer Involvement and Consumer as Staff members (Happell et al., 2010). Each of the scales have demonstrated internal reliabilities above .7 (Byrne et al., 2015).

### *3.4 Data Collection*

Members of the research team based in each local institution undertook co-ordination of data collection and survey administration. Steps were taken to make the research procedure as similar as possible across the educational settings where data were collected. Students were informed about the research by their nursing education instructors and invited to participate.

### *3.5 Ethics*

Approval was granted by each of the universities to undertake the research by the respective local ethics committees – e.g. the Human Research Ethics Committee of Canberra University. Potential participants were informed of measures to protect confidentiality and that participation was voluntary.

### *3.6 Data analysis*

Conventional factor analysis and Rasch analysis were utilised to meet the first research objective of assessing the two self-report measures of nurse student attitudes for content validity, construct validity and internal reliability.

Hierarchical regression was used to meet the second objective; to identify whether certain attitudes to people labelled with a diagnosis of mental illness were associated with attitudes to consumer participation, after taking into account other independent variables (age, gender and country).

Exploratory factor analysis (Hair et al., 2006), and specifically, Principal Axis Factoring, was applied to map out the pattern of item responses and estimate dimensionality, reliability and validity. To guide decisions on the number of factors to extract, Eigenvalues over 1 (Hair et al., 2006), the Scree Plot (Cattell, 1966), and Parallel Test (Zwick and Velicer, 1982) were all considered. Eigenvalues and scree plots were conducted in SPSS25 (IBM, 2017) and the Parallel Test via separate computer software – Monte Carlo PCA for Parallel Analysis (Watkins, 2000). Several sources of information were taken into account for interpreting factor solutions in accordance with the literature (Hair et al., 2006): item communality levels, factor loadings, and cross-loading items. Given that the nature of constructs is psychological, a rotation method open to non-orthogonal relationships was needed and oblimin rotation was chosen. The pattern matrix was used to interpret the factor structure. For potential scales, reliability was based on Cronbach alpha coefficients (Cronbach, 1951) with .7 and above judged as a good level of internal consistency.

Rasch analysis is a valuable approach to scale assessment that can complement conventional factor analysis; providing information on respondent data that the former approach overlooks. Rasch assessment is strongly recommended in the research field of nursing (Hagquist et al., 2009). Rasch analysis examines actual responses to items relative to a mathematical model specifying what responses would be expected if an underlying attribute is assumed, including scale functioning (Rasch, 1980). For measures such as the MHNES, the variable from any item response is ordinal. Based on individual responses to a set of ordinal measures, the Rasch model provides feedback on whether scales are responded to properly if an underlying attribute, such as an attitude, is held. Provided adequacy of a Rasch model, based on fit indices, the grounds are met for converting the raw scores into a 'Rasch score'. The Rasch score is based on the overall information on items and persons, and is in interval form and thus appropriate for use in regression.

An overall evaluation of a Rasch model is based on the chi-square fit statistic, with non-significant values indicating fit. With .05 as a base alpha level, a Bonferroni correction was applied to each scale, based on the number of items (e.g. if a 5 item set, the alpha was adjusted to .01). For local fit, Item and Person residual standard deviations over 1.4 were indicators of misfit. For individual cases, residuals in excess of 2.5 were taken as significantly deviating. To assess 'threshold ordering', threshold maps were looked at, and recoding of responses determined on the basis of category probability curves

(Pallant and Tennant, 2007). After a recode, the threshold map was re-examined as well as the global fit statistics. Internal consistency in Rasch is determined by the Person Separation Index (PSI). A PSI of .7 or above is preferable (Pallant et al., 2016, p. 5). Dimensionality was also evaluated via t-tests of the residuals of the first principal component, as outlined by Smith (2002). If less than five per cent of the t-tests are not significant, this suggests that the set of items are unidimensional. Rasch analyses were undertaken in RUMM2030 (Andrich et al., 2003).

To meet the second research objective, a hierarchical regression model was utilised. The key demographic variables of age and gender were entered as the first step in the hierarchical regression, followed by country (via dummy variables), with Australia serving as a baseline reference point. The attitude domains of the MHNES were entered in the third step. Rasch scores were aimed for in order to have the attitude variables from both MNES and CPQ meeting the assumption of interval scale data (as well as unidimensionality for each), as required in linear regression. Diagnostics for deviation from normality in residuals and the hierarchical regression were all conducted in SPSS25 (IBM, 2017).

## 4 Results

### 4.1 Participants

Of the 424 participants, fourth fifths were in the age bracket 18 to 29 (80%, 18-29 years; 13.7%, 30-39 years; 2.1% 40-49 years; and 0.9% 50 years and above). Eighty per cent of participants were female (81.1%). Australia and Norway contributed the largest proportions of participations and almost equally so (Australia 27.6%, Norway 27.8%). The proportions for other countries were: Ireland 15.8%, Finland 16.3% and the Netherlands 12.5%.

### 4.2 Assessment of Mental Health Nurse Education Survey

Indicators of factorability suggested six factors be extracted (Eigenvalues over 1), three factors (scree plot) and three factors (parallel test). A three-factor solution based on principal axis factoring was chosen. Items with very low communalities and factor loadings were successively removed, and the pattern matrix re-examined at each step. Overall, nine items were removed. The factor model explained 53.96% of the variance, with the consecutive variance explained by each factor: 28.6%, 15.0% and 10.3%. Communalities for the final solution range from .22 to .57. Although some items had low communalities, they were retained for their importance conceptually, for further consideration in the Rasch assessment. Table 1 outlines the pattern matrix for the final set of items (with factor loadings of .3 or more in bold font)



and reliabilities. Inter-factor correlations were low, ranging from  $-.17$  to  $.42$ , suggesting independence between them.

– Table 1 here –

Table 2 present a summary of refinements to the items retained after the EFA and the estimates of the final Rasch models. For the items representing Preparedness for the Mental Health Field, disordered thresholds were found for item 12 and after rescoreing, overall fit for the model was achieved. Good reliability was demonstrated for Preparedness for the Mental Health Field and Negative Stereotypes.

– Table 2 here –

#### *4.3 Assessment of Consumer Participation Questionnaire*

To aid decision making on how many factors to extract, the Parallel test suggested 5 factors, Scree plot, 5 factors and the Eigenvalue-1 rule, 6 factors. Given the congruence in indicators, a five-factor solution was explored, with oblimin rotation applied. A simple structure was found immediately. Table 3 reports factor loadings for retained items of the CPQ (with loadings of  $.3$  or over in bold) as well as reliabilities. The highest inter-factor correlation was  $.39$  between factors 2 and 5.

– Table 3 here –

Table 4 provides an overview of results of the Rasch analysis for the remaining sets of items of the CPQ. Four of the five scales derived from EFA had disordered thresholds. Items showing problematic thresholds were rescored (see Table 4 for specific items). As outlined in Table 4, after rescoring, and in some cases, deletion of items with high residuals, there was overall fit to the Rasch model. While Consumer Involvement had a good reliability, based on the PSI, reliability for the other scales was low.

– Table 4 here –

#### *4.4 Antecedents to positive attitudes to consumer participation*

A regression model was conducted to evaluate the hypothesis that domains of the MHNES would anticipate attitudes towards consumer participation, while controlling for age, gender and country differences.

Given the highly skewed distribution for age, it was recoded to two categories: 18-29 and 30 and over. Of the attitude domains included in the hierarchical regression, the internal reliabilities were: consumer involvement ( $\alpha = .79$ ), negative stereotypes ( $\alpha = .73$ ), preparedness for mental health field ( $\alpha = .82$ ) and valuable contributions ( $\alpha = .73$ ). Rasch scores of attitudes were converted to a scale ranging from 0 to 100 to aid interpretability. For the

overall sample, valuable contribution was high ( $M = 85.88$ ,  $SD = 11.38$ ), negative stereotypes were moderate ( $M = 41.2$ ,  $SD = 12.17$ ), as were for sense of preparedness for mental health field ( $M = 49.8$ ,  $SD = 12.26$ ). Positive attitudes to consumer participation in mental health services were moderately high ( $M = 68.67$ ,  $SD = 14.23$ ).

– Table 5 here –

The overall regression significantly predicted endorsement of consumer participation in mental health services and their own care,  $F(9, 381) = 15.78$ ,  $p < .001$ , at step 3. The adjusted R square suggests that the model accounted for just over a quarter of the variance in view of consumer participation (25.4%). Table 5 lists the standardized estimates for the independent variables at each step in the modelling. At all steps, the dichotomised age variable predicted consumer participation, with participants aged 40 years and over showing a higher pro-rating of consumer participation compared to those between 18 and 39 years of age. In terms of country, the statistically meaningful differences were between Australia and Finland, Norway and the Netherlands, with Australian participants expressing higher endorsements of consumer participation in mental health services than participants from within each of these countries. As shown in Table 5, the leading predictor was Valuable Contributions, followed by Negative Stereotypes. Stronger agreement that mental health practice makes a positive contribution to

consumers was associated with more positive attitudes to consumer involvement.

## **5. Discussion**

As the terrain of nurse student attitudes in mental health nursing education has been under-researched (Poreddi et al., 2016), this international research has made a significant step forward in both evaluation of self-report tools and in clarifying the relationship between attitudes of nursing students and their receptivity to consumer participation, as such it makes an important contribution to nursing knowledge in terms of both educational and methodological advance.

### *5.1. Qualities of the self-report measures*

A strength of the analytic part of this study was to use two rigorous scale assessment approaches – Conventional Factor Analysis (Byrne, 2012) and Rasch analysis (Rasch, 1980), to evaluate the attitudinal measures. Rasch analysis emerged as important, as it revealed disordered thresholds, and hence, the need to re-score some item responses.

As earlier psychometric assessments have relied on principal components analysis or factor analysis (e.g. Byrne et al., 2015), the extension

of current analyses to include Rasch modelling add new evidence for the qualities of these measures. The findings suggest sound validity and reliability for several scales of the MHNES and CPQ. As some research appears to 'skip' psychometric analysis before scoring scales, such as the CPQ (e.g. Poreddi et al., 2016), we reiterate the need for nurse educational researchers to assess self-report measures before undertaking their main analyses.

Studies based on nurse student samples in Australia have suggested three factors to the CPQ (Byrne et al., 2015; Happell et al., 2010) and the current research pooling five countries suggested five. A factor not observed in these earlier Australian studies represents views on how the existing model of mental health services would be sufficient for impact (i.e. inclusion of consumers would not make a difference to care or be a burden on them). A follow up international study with larger samples would permit re-evaluating scales of the CPQ, including confirmatory factor analysis and nested models (Byrne, 2012) to establish the presence of sufficiency of services as a scale.

## *5.2 Associations between attitude domains*

This paper contributes new evidence that amongst nursing students from a variety of countries, even before any educational intervention, students with positive attitudes about the valuable contribution of mental health nursing tended to be pro-consumer involvement (e.g. actively involved in own treatment goals and planning of services). Negative stereotypes predict

slightly lower endorsement of consumer involvement. Although there is no research directly comparable to the current findings, the finding in relation to negative stereotypes does broadly align with the notion that the widespread stigma attached to mental illness (also referred to as 'sanism') has a wide-ranging influence on domain specific beliefs and everyday experiences across settings (Hamilton et al., 2016).

### *5.3 Limitations*

The research data was cross-sectional and so while some attitudes were specified as either independent or dependent, the analysis could not definitively demonstrate effects in one or the other direction. A further limitation is that there was some evidence of differential functioning of items, which is not surprising, given the high number of countries entered as a person factor.

## **6. Conclusion**

Self-report measures serve as important means for assessing how nursing student orient to policy-endorsed notions of mental health nursing.

Determining attitudinal readiness to practice is vital to realise contemporary policy goals of consumer involvement in mental health services. The innovative COMMUNE project is unprecedented in its international scope

and provides further evidence for the psychometric quality of two self-report measures (CPQ and MHNES) and the inter-relationships between attitudinal domains.

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