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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

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ABSTRACT

Background: Understanding student attitudes towards 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 and 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 0.82 to 0.73. 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

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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.

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., 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 towards 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 Hayman-White, 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 Hayman-White, 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 Hayman-White, 2009). As well as good content validity, internal reliabilities (Cronbach α) across the scales have varied from 0.5 to 0.92, with Preparedness for the Mental Health Field demonstrating consistently good reliabilities (i.e. between 0.7 and 0.9) in several studies (Happell and Hayman-White, 2009; Happell et al., 2014).

The Consumer Participation Questionnaire aims to measure attitudes towards the concept of consumers as autonomous and engaged in the organization 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 0.7 (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 0.7 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 0.05 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 0.01). 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 0.7 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 Jr. (2002). If less than 5% 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 uni-dimensionality 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 percent 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 0.22 to 0.57. 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 0.3 or more in bold font) and reliabilities. Inter-factor correlations were low, ranging from −0.17 to 0.42, suggesting independence between them.

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 rescoring, overall fit for the model was achieved. Good reliability was demonstrated for Preparedness for the Mental Health Field and Negative Stereotypes.

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 0.3 or over in bold) as well as reliabilities. The highest inter-factor correlation was 0.39 between factors 2 and 5.

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.

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 ($\alpha = 0.79$), negative stereotypes ($\alpha = 0.73$), preparedness for mental health field ($\alpha = 0.82$) and valuable contributions ($\alpha = 0.73$). 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).

The overall regression significantly predicted endorsement of consumer participation in mental health services and their own care, F (9,

Table 1
Factor loadings for final set of items on the Nurse Education Survey.

	Factor		
	1	2	3
1. I feel well prepared for my psychiatric placement	**0.782**	0.061	−0.042
7. I feel confident in my ability to care for people experiencing a mental problem	**0.719**	−0.006	0.027
20. I am familiar with the needs of people with mental illness	**0.689**	0.053	0.069
4. I have a good understanding of the role of a psychiatric/mental health nurse	**0.626**	0.053	0.186
5. I am uncertain how to act towards someone with a mental illness	**−0.506**	0.224	0.157
12. The theoretical component of psychiatric/mental health nursing has prepared me well for my clinical Placement	**0.479**	0.038	0.215
13. People with mental illness are more likely to be violent	−0.031	**0.682**	−0.136
9. People with mental illness are unpredictable	0.099	**0.650**	0.097
28 People with mental illness are more likely to commit offences or crimes	0.027	**0.627**	−0.161
11. I am concerned I may be harmed by a person with mental illness	−0.090	**0.596**	0.086
25 People with mental illness can't handle too much responsibility	−0.027	**0.489**	−0.101
8: Psychiatric/mental health nursing can assist people with a mental illness in their recovery	0.103	0.032	**0.705**
2. Psychiatric/mental health nursing makes a positive contribution to people experiencing a mental health problem	0.060	−0.038	**0.691**
23. Mental health services provide valuable assistance to people experiencing a mental health problem	−0.032	−0.017	**0.588**
14. This clinical placement in psychiatric/mental health nursing will provide valuable experience for my nursing practice	0.038	−0.110	**0.423**

Note: factors labelled as follows: (1) Preparedness for Mental Health Field, (2) Negative Stereotypes, and (3) Positive Contributions.

Table 2
Summary of scale refinements and final Rasch model parameters for the Nurse Education Survey.

Subscale	Changes and final items	Overall Model fit	Item fit residual (SD)	Person fit residual (SD)	Person Separation Index	*t*-test[a]
Preparation	Rescoring: 12 Removed: 5 Final items: 1, 4, 7, 12, 20	$\chi^2(30) = 23.55$, $p = .79$	0.98	1.27	0.82	NS. 4.5%
Negative Stereotype	Removed: 25 Final items: 9, 11, 13, 28	$\chi^2(24) = 25.06$, $p = .40$	1.13	1.23	0.73	3.13%
Valuable contribution	Rescoring: 14, 23 Removed: 14 Final items: 2, 8, 23	$\chi^2(15) = 15.65$, $p = .41$	1.00	1.19	0.57	Could not test

[a] *t*-test for unidimensionality; SD: Standard Deviation; NS: Not significant.

Table 3
Factor loadings for final set of items for the Consumer Participation Questionnaire.

	Factor[a]				
	1	2	3	4	5
c2. Consumers should be actively involved in identifying the goals for their treatment	**0.786**	0.037	0.073	0.052	−0.001
c3. Consumer input should be central in the planning of mental health services	**0.747**	0.030	−0.008	0.041	−0.047
c1. Mental health consumer involvement and participation should be fully supported by all mental health services	**0.619**	−0.034	−0.063	0.085	0.064
c6. Consumers should have the opportunity for genuine input into the planning of their own treatment	**0.550**	0.010	−0.068	−0.143	−0.140
c4. Consumers should always be involved in the evaluation and diagnosis of their presenting problems	**0.518**	0.013	0.039	−0.280	0.091
c20. Medications should be explained in detail to consumers in ways that they can understand so they are fully informed and can make choices	**0.486**	−0.160	−0.187	−0.006	0.011
c21. Mental health services would be likely to improve if consumers were involved in the planning and delivery of those services	**0.330**	−0.218	−0.288	−0.279	−0.031
c24. Consumers do not have enough self-confidence to become involved in the planning and delivery of mental health services	0.033	**0.808**	−0.016	−0.019	−0.125
c23. Consumers do not understand the language and complexities of mental health services, which makes it difficult for them to have meaningful input	0.028	**0.726**	0.033	−0.041	−0.029
c14. People with mental illness can't handle too much responsibility	−0.233	**0.390**	−0.173	0.134	0.127
c22. Increased consumer involvement in mental health services would probably increase the stress levels for service providers	−0.117	**0.356**	−0.092	0.022	0.134
c18. Consumers use mental health services because they need help and therefore shouldn't be burdened with how these services are being provided	0.000	**0.316**	0.032	−0.037	0.174
c11. A consumer academic should be a member of staff in all psychiatric nursing courses	−0.058	0.026	**−0.667**	−0.129	−0.057
c15. All mental health service committees should have at least one consumer member	0.120	−0.024	**−0.646**	0.081	−0.145
c13. I need to be taught by a consumer academic to more fully understand how a consumer might experience the mental health system	0.023	0.020	**−0.572**	−0.073	0.038
c12. An experienced mental health/psychiatric nursing academic can present a good understanding of the consumer perspective	0.099	0.086	**−0.325**	−0.030	0.235
c10. Consumers should be involved in the planning and delivery of all staff education and professional development sessions	−0.009	−0.063	−0.160	**−0.710**	0.077
c5. Consumers should be involved in the process for the hiring of all new staff of mental health services	−0.005	−0.056	0.060	**−0.677**	0.042
c7. Consumers should be encouraged to contribute to the writing of their own notes and records	0.000	0.157	−0.058	**−0.619**	−0.093
c8. Consumers are already given sufficient opportunity to participate in the care they receive	0.090	0.118	0.138	−0.001	**0.564**
c16. Mental health services work as well as they can and we shouldn't use valuable resources trying to change them	−0.091	0.191	0.147	−0.172	**0.511**
c19. Mental health services would not change significantly if consumers were employed by the services	−0.063	0.195	0.208	0.061	**0.400**
c9. The medications used in mental health are very complex and consumers should only have limited input into deciding the most appropriate medications to be used	−0.029	−0.079	−0.080	0.007	**0.390**

[a] Note: Factors labelled as follows: (1) Consumer Involvement, (2) Consumer Capacity, (3) Consumer Academic, (4) Consumer as Staff, and (5) Sufficiency of Services.

Table 4
Outline of changes to scales and Rasch model parameters for the Consumer Participation Questionnaire.

Subscale	Changes and final set	Overall Model fit	Item fit residual (SD)	Person fit residual (SD)	Person Separation Index	*t*-test[a]
Consumer Involvement	Rescoring: 20, 21 Removed: 2 Final: 1, 3, 4, 6, 20, 21	$\chi^2(36) = 53.25$, $p = .03$	1.08	1.04	0.73	NS. 1.19%
Lack of Capacity	Rescored: 14, 18, 24 Removed: 18 Final: 14, 22, 23, 24	$\chi^2(24) = 27.11$, $p = .30$	1.23	1.29	0.67	3.13%
Consumer Academic	Rescored: 11, 12, 13 Removed: 12 Final: 11, 13, 15	$\chi^2(18) = 20.17$, $p = .32$	1.03	1.34	0.59	NT
Consumer as Staff	No changes Final: 5, 7, 10	$\chi^2(18) = 20.04$, $p = .33$	0.36	1.11	0.68	NT
Sufficiency of Services	Rescore: 8, 19 Removed: 9 Final: 8, 16, 19	$\chi^2(18) = 20.57$, p = .30	0.94	0.89	0.62	NT

[a] *t*-test for unidimensionality; SD: Standard Deviation; NS: Not significant; NT: Not tested due to small number of items.

Table 5
Parameters for stepwise regression in accounting for differences in attitude to consumer participation.

Block	Independent variables	Step 1	Step 2	Step 3
1	Age	0.17***	0.10*	0.09*
	Gender	0.02	0.03	0.03
2	Australia compared to Ireland		−0.04	−0.10
	Australia compared to the Netherlands		−0.22***	−0.16**
	Australia compared to Finland		−0.30***	−0.29***
	Australia compared to Norway		−0.26***	−0.16**
3	Preparedness Mental Health Field			0.05
	Negative Stereotypes			−0.18***
	Valuable Contribution Mental Health Nursing			0.30***

* $p < .05$.
** $p < .01$.
*** $p < .001$.

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 interrelationships between attitudinal domains.

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References

Andrich, D., Lyne, A., Sheridan, B., Luo, G., 2003. RUMM2020, Perth.
Arbanas, G., Bosnjak, D., Sabo, T., 2018. Impact of a nursing in psychiatry course on students' attitudes toward mental health disorders. J. Psychosoc. Nurs. Ment. Health Serv. 56, 45–51.
Byrne, B.M., 2012. Structural Equation Modelling with Mplus. Routledge, NY.
Byrne, L., Happell, B., Welch, T., Moxham, L., 2013. Things you can't learn from books': teaching recovery from a lived experience perspective. Int. J. Ment. Health Nurs. 22, 195–204.
Byrne, L., Happell, B., Platania-Phung, C., 2015. Attitudes of nursing students on consumer participation: the effectiveness of the mental health consumer participation

questionnaire. Perspect. Psychiatr. Care 51, 45–51.
Cattell, R.B., 1966. The Scree test for the number of factors. Multivar. Behav. Res. 1, 245–276.
Chambers, M., Guise, V., Valimaki, M., Botelho, M.A., Scott, A., Staniuliene, V., Zanotti, R., 2010. Nurses' attitudes to mental illness: a comparison of a sample of nurses from five European countries. Int. J. Nurs. Stud. 47, 350–362.
Cleary, M., Raeburn, T., Escott, P., West, S., Lopez, V., 2018. Walking the tightrope': the role of peer support workers in facilitating consumers' participation in decision-making. Int. J. Ment. Health Nurs. 27, 1266–1272.
Commonwealth of Australia, 2017. The Fifth National Mental Health and Suicide Prevention Plan. Australian Government, Canberra.
Cronbach, L.J., 1951. Coefficient alpha and the internal structure of tests. Psychometrika 16, 297–334.
Cutcliffe, J., Stevenson, C., Lakeman, R., 2013. Oxymoronic or synergistic: deconstructing the psychiatric and/or mental health nurse. Int. J. Ment. Health Nurs. 22, 125–134.
Dabby, L., Tranulis, C., Kirmayer, L.J., 2015. Explicit and implicit attitudes of Canadian psychiatrists toward people with mental illness. Can. J. Psychiatr. 60, 451–459.
Gee, A., McGarty, C., Banfield, M., 2016. Barriers to genuine consumer and carer participation from the perspectives of Australian systemic mental health advocates. J. Ment. Health 25, 231–237.
Hagquist, C., Bruce, M., Gustavsson, J.P., 2009. Using the Rasch model in nursing research: an introducation and illustrative example. Int. J. Nurs. Stud. 46, 380–393.
Hair, J.F., Black, W.C., Babin, B.J., Anderson, R.E., Tatham, R.L., 2006. Multivariate Data Analysis, 6th ed. Pearson Education International, NJ.
Hamilton, S., Pinfold, V., Cotney, J., Couperthwaite, L., Matthews, J., Barret, K., Warren, S., Corker, E., Rose, D., Thornicroft, G., Henderson, C., 2016. Qualitative analysis of mental health service users' reported experiences of discrimination. Acta Psychiatr. Scand. 134, 14–22.
Happell, B., Hayman-White, K.G., 2009. Nursing students' attitudes to mental health nursing: psychometric properties of a self-report scale. Arch. Psychiatr. Nurs. 23, 376–386.
Happell, B., Pinikahana, J., Roper, C., 2002. Attitudes of postgraduate nursing students towards consumer participation in mental health services and the role of the consumer academic. Int. J. Ment. Health Nurs. 11, 240–250.
Happell, B., Moxham, L., Platania-Phung, C., 2010. A psychometric analysis of the mental health consumer participation questionnaire. Int. J. Ment. Health Nurs. 19, 377–384.
Happell, B., Platania-Phung, C., Harris, S., Bradshaw, J., 2014. It's the anxiety: facilitators and inhibitors to nursing students' career interests in mental health nursing. Issues Ment. Health Nurs. 35, 50–57.
Happell, B., Bennetts, W., Tohotoa, J., Wynaden, D., Platania-Phung, C., 2017. Promoting recovery-oriented mental health nursing practice through consumer participation in mental health nursing education. J. Ment. Health (in press).
Health Service Executive, 2017. A National Framework for Recovery in Mental Health. HSE, Dublin.
Horgan, A., Manning, F., Bocking, J., Happell, B., Lahti, M., Doody, R., Griffin, M., Bradley, S.K., Russell, S., Bjornsson, E., O'Donovan, M., MacGabhann, L., Savage, E., Pulli, J., Goodwin, J., van der Vaart, K.J., O'Sullivan, H., Dorrity, C., Ellila, H., Allon, J., Hals, E., Sitvast, J., Granerud, A., Biering, P., 2018. 'To be treated as a human': using co-production to explore experts by experience involvement in mental health nursing education - the COMMUNE project. Int. J. Ment. Health Nurs. 27, 1282–1291.
Kortteisto, T., Laitila, M., Pitkanen, A., 2017. Attitudes of mental health professionals towards service user involvement. Scand. J. Caring Sci. 32, 681–689.
Laitila, M., Nummelin, J., Kortteisto, T., Pitkanen, A., 2018. Service users' views regarding user involvement in mental health services: a qualitative study. Arch. Psychiatr. Nurs. 32, 695–701.
Mackey, A., Bassendowski, S., 2017. The history of evidence-based practice in nursing education and practice. J. Prof. Nurs. 33, 51–55.
Ministry of Social Affairs and Health, 2013. Plan for Mental Health and Substance Abuse Work: Proposals for Development of Mental Health and Substance Abuse Work 2015. Helsinki, Ministry of Social Affairs and Health.
Neech, S.G.B., Scott, H., Priest, H.M., Bradley, E.J., Tweed, A.E., 2018. Experiences of user involvement in mental health settings: user motivations and benefits. J. Psychiatr. Ment. Health Nurs. 25, 327–337.
Pallant, J.F., Tennant, A., 2007. An introduction to the Rasch measurement model: an example using the hospital anxiety and depression scale (HADS). Br. J. Clin. Psychol. 46, 1–18.
Pallant, J., Haines, H., Green, P., Toohill, J., Gamble, J., Creedy, D., Fenwick, J., 2016. Assessment of the dimensionality of the Wijma delivery expectancy/experience questionnaire using factor analysis and Rasch analysis. BMC Pregnancy Childbirth 16, 361.
Paul, C., Holt, J., 2017. Involving the public in mental health and learning disability research: can we, should we, do we? J. Psychiatr. Ment. Health Nurs. 24, 570–579.
Poreddi, V., Gandhi, S., Thimmaiah, R., Suresh, B.M., 2016. Attitudes toward consumer involvement in mental health services: a cross-sectional survey of Indian medical and nursing undergraduates. Investig. Educ. Enferm. 34, 243–251.
Rasch, G., 1980. Probabilistic Models for some Intelligence and Attainment Tests. MESA Press, Chicago.
Reid, R., Escott, P., Isobel, S., 2018. Collaboration as a process and an outcome: consumer experiences of collaborating with nurses in care planning in an acute inpatient mental health unit. Int. J. Ment. Health Nurs. 27, 1204–1211.
Ridley, S., Martin, R., Mahboub, L., 2017. Learning from mental health lived experience and the influence on Students' practice. Aust. Soc. Work. 70, 372–380.
Rosen, A., Goldbloom, D., McGeorge, P., 2010. Mental health commissions: making the critical difference to the development and reform of mental health services. Curr. Opin. Psychiat. 23, 593–603.
Ross, C.A., Goldner, E.M., 2009. Stigma, negative attitudes and discrimination towards mental illness within the nursing profession: a review of the literature. J. Psychiatr. Ment. Health Nurs. 16, 558–567.
Smith Jr., E.V., 2002. Detecting and evaluating the impact of multidimensionality using item fit statistics and principal component analysis of residuals. J. Appl. Meas. 3, 205–231.
Tambuyzer, E., Van Audenhove, C., 2015. Is perceived patient involvement in mental health care associated with satisfaction and empowerment? Health Expect. 18, 516–526.
Tennant, A., Conaghan, P.G., 2007. The Rasch measurement model in rheumatology: what is it and why use it? When should it be applied, and what should one look for in a Rasch paper? Arthritis Rheum. 57, 1358–1362.
Watkins, M.W., 2000. Monte Carlo PCA for Parallel Analysis. Ed and Psych Associates, State College.
Wei, Y., McGrath, P.J., Hayden, J., Kutcher, S., 2015. Mental health literacy measures evaluating knowledge, attitudes and help-seeking: a scoping review. BMC Psychiat. 15, 291.
World Health Organization, 2016. Framework on Integrated, People-Centred Health Services. WHO, Geneva.
Zwick, W.R., Velicer, W.F., 1982. Factors influencing four rules for determining the number of components to retain. Multivar. Behav. Res. 17, 253–269.