Published as: *International Journal of Nursing Studies 49 (2012) 72–83*

Mental health nurses' attitudes towards the physical health care of people with severe and enduring mental illness: The development of a measurement tool

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ABSTRACT

Background: It is well established that people with schizophrenia and related serious mental illnesses die prematurely and have significantly higher medical co-morbidity compared with the general population. Mental health nurses have a key role in improving the physical health of patients but their attitudes to this aspect of their role have not been systematically examined.
Objectives: To develop and validate a measure of mental nurses' attitudes towards physical health care.
Design: The measurement tool was developed from a literature review, focus groups and responses to a postal questionnaire.
Participants and setting: All registered nursing staff working within a NHS mental health trust in the UK were sent the questionnaire and 585 (52%) staff responded.
Methods: Completed questionnaires were analysed by standard descriptive statistical methods. Exploratory factor analysis (principal component analysis) was used to examine and reduce attitude items to a coherent and parsimonious scale.
Results: A 28-item measure comprised of four factors accounted for 42% of the variance. The factor solution appeared to provide meaningful dimensions, and the internal consistency of the measure and of its derived subscales was adequate (Cronbach's alpha between 0.76 and 0.61). The factors were labelled nurses' attitudes to involvement in physical health care; nurses' confidence in delivering physical health care; perceived barriers to physical health care delivery and nurses' attitudes to smoking. Validity was established by associations between the total scale and subscales with pre-determined respondent variables.
Conclusion: The Physical Health Attitude Scale for mental health nurses (PHASe) is a first attempt to develop a valid and reliable measure of this important area. The initial development methods and its testing in a large sample provide indications of content and construct validity. Further testing in different samples and consequent refinement are necessary, however the PHASe appears to be a useful tool for measuring attitudes among this professional group and evaluating the effects of professional development.

What is already known about the topic?

- Health inequalities exist for people with a severe enduring mental illness compared with those who are mentally well and are caused by poor health behaviours, adverse effects of psychotropic medication and health service related barriers.
- Improving mental health nurses' competence in the assessment and management of physical health care has been identified as a key area of practice development.
- Positive attitudes are important for adopting new ways of working and to date there are no published valid and reliable tools to measure the attitudes of mental health nurses towards the physical heath care of people with severe and enduring mental illness.

What this paper adds

- A new scale has been developed that measures mental health nurses' attitudes in this area
- Initial use of the this scale (the PHASe) shows moderate associations between nurses' confidence and their prior training in physical health care
- The scale has been developed systematically and subjected to initial psychometric testing in an adequately sized sample: details of this process and findings will enable researchers and clinicians to appraise the strengths and weaknesses of this measure and use it in further studies of this topic.

1. Background

It is now well established that people with severe mental illnesses (SMI) such as schizophrenia, bipolar disorder and severe depression die prematurely and have significantly higher medical co-morbidity compared with the general population. It has been estimated that the life expectancy of people with SMI is reduced by 10–25 years (Newman and Bland, 1991; Parks et al., 2006). The risk of coexisting long term conditions such as cardiovascular disease, type 2 diabetes, respiratory disease and some cancers is elevated 2–3-fold among people with SMI compared to those without these disorders (Evans et al., 2005; Osborn et al., 2007, 2008).

A number of reasons have been suggested for the association between severe mental illness and poor physical health, including health behaviours, the iatrogenic effects of psychotropic medication and health service related factors. In addition, mental disorders may influence physical health via direct physiological processes such as inflammation, immune dysfunction and decreased heart rate variability (Skala et al., 2006). It has been argued that high rates of smoking are the cause of the majority of the excess morbidity and mortality in people with SMI (Brown et al., 2000). The prevalence of daily smoking for patients with major depression, bipolar disorder, and schizophrenia is estimated to be 57%, 66%, and 74%, respectively (Diaz, 2009) compared to approximately 21% in the general population (Office of National Statistics, 2009; Dube et al., 2009). People with SMI are more likely to be heavier smokers, have higher levels of nicotine dependence and have smoked longer than smokers in the general population (Kumari and Postma, 2005). Other important health behaviours also contribute to increased rates of preventable health problems. For example, people with SMI are likely to eat less nutritionally balanced diets and are less physically active than the general population (McCreadie, 2003; Kilbourne et al., 2007) and also have higher rates of alcohol and illicit drug misuse (Mueser et al., 1990; Drake and Meuser, 2002). Psychotropic medications have a number of negative effects on physical health: central obesity, dyslipedemia, and insulin resistance are frequently reported in patients prescribed antipsychotic medications (Haddad, 2004; Holt et al., 2004). An increased risk of falls (Woolcott et al., 2009) and cerebrovascular accidents (Douglas and Smeeth, 2008) are associated with the use of psychotropic medication in older people; whilst sexual side effects are a common consequence of antidepressant (Werneke et al., 2006) and antipsychotic use (Smith et al., 2002).

Despite efforts over the past two decades to provide holistic and integrated health services for people with SMI, meeting the physical health care needs of this population continues to be a challenge for healthcare professionals working in primary and secondary care. Systematic physical health screening, access to appropriate resources for physical health examinations and training programmes to improve knowledge, confidence and skills of mental health professionals have the potential for positive impact in this area (Barnes et al., 2007; Lambert and Newcomer, 2009). The physical health of patients with SMI has been the focus of a range of clinical guidelines and consensus statements in Europe, USA and Australia (Cohen and Hove,2001; Barnett et al., 2007; Marder et al., 2004; RANZCP,2005). Whilst such initiatives are essential for synthesising the current evidence base and providing direction for delivering high quality services, the implementation of evidence based guidelines requires a capable workforce. Improving mental health nurses' knowledge, skills and attitudes in this aspect of care has been identified as a key area of practice development (Department of Health, 2006), though there is a paucity of research in area. The attitudes of nurses are likely to affect their practice, clinical behaviour and their willingness to adopt new ways of working.

Attitudes are comprised of personal responses and evaluations of situations, ideas, activities, and other people ('attitude objects') which in turn predispose the individual to particular behaviours. Attitudes are conceptualised in terms of magnitude and direction, as well as the particular area that they encompass (Fabrigar et al., 2005). The attitude construct has been seen to comprise of three domains: cognitions (thoughts, opinions, beliefs), an affective element (feelings) and a behavioural component, which are activated as a result of exposure to an attitudinal object or stimulus (Eagly and Chaiken, 1993). Previously these three domains were considered the 'anatomy' of attitudes, however contemporary theorists tend to view attitudes as derived from but distinct from these components (Fabrigar et al., 2005). Attitudes may be best understood as personal evaluative summaries based on a range of sources (cognitive, affective, behavioural), that not only predispose particular responses, but have self and group identity functions (Fabrigar et al., 2005).

Mental health nurses' attitudes have been explored regarding a range of important areas of practice, such as acute in-patient care (Munro and Baker, 2007) and community care (Chambers et al., 2010) using validated tools. However, their attitudes and practice regarding physical health care of patients with SMI have received modest attention. Hyland et al. (2003) explored physical health care attitudes and practice of 27 case managers in Melbourne, Australia. Although the majority of case managers were involved in enquiring about health behaviours, there was a general pessimistic attitude that anything positive could be done about improving some aspects of the physical health of patients with

mental health difficulties, particularly in terms of obesity and smoking. In a study of 168 mental health nurses in London, England, Nash (2005) focused on training needs in physical health care. The majority (71%) of nurses were involved in delivering physical health care, however almost all of them (96%) believed they needed more training. Howard and Gamble (2011) reported findings from a survey of the views and physical health care practice of 37 in-patient workers in London, England. There was overwhelming support for the role of the mental health nurse undertaking physical health checks such as measuring blood pressures and weighing patients but less support for their role in physical health screening. Nurses also appeared to be more confident in practices they believed were their role and those they carried out frequently, and less confident carrying out tasks that they felt were someone else's role. Importantly, none of these studies used standardised instruments or focussed sufficiently on the psychometric properties of measures, possibly resulting in under or over estimation of the attitudes, confidence and practice of these nurses. To date there are no published valid and reliable tools to measure the attitudes of mental health nurses towards the physical heath care of people with SMI.

2. The study

2.1. Aim

The aim of this study was to develop and validate a measure of the attitudes of mental health nurses in caring for the physical health needs of patients with SMI.

2.2. Method

2.2.1. Scale development

Items for the scale were generated using both deductive and inductive methods. A literature review of the physical health of people with SMI was conducted to initially inform the study (Robson and Gray, 2006). We were unable to identify any existing measure of mental health nurses' attitudes towards physical health care of mental health patients. The review of the literature provided us with an overview of the physical health problems people with SMI face and highlighted the barriers to delivering and accepting physical health care. In addition to the literature review, two focus groups, one involving 7 patients from an acute in-patient unit in a mental health hospital in the UK, the other with 6 mental health nurses from the same hospital, were held to generate data to inform the content of the questionnaire. Both focus groups were facilitated by two mental health nurses. The central focus of both groups was to discuss the mental health nurse's role and responsibilities in the physical health care of people with SMI. Group members were asked to generate statements relating to the topic and these were recorded by one of the facilitators. The focus groups generated over 100 statements. Overlapping and repetitive themes were combined or removed. Seventy five items were identified and adapted into statements to create 4 sub sections concerning:

(A) 35 items to determine attitudes towards delivering physical health care e.g. informing patients about the possible effects medication may have on their physical health will increase non-adherence;
(B) 18 items to determine confidence about their physical health care skills e.g. I am confident I can motivate a patient to stop smoking
(C) 15 items to determine current practice in this area e.g. helping patients manage their weight is part of my current role
(D) 7 items to determine perceived physical health care training needs e.g. I would like more training on how to help clients manage their cardiovascular health.

It was envisaged that the attitude and confidence (A and B) items could, following data analysis and reduction, be combined to construct a staff attitude measure; and that items relating to practice and training (C and D), together with certain demographic variables would enable initial construct validation of the attitude measure, as well as providing information on these important variables in their own right. We hypothesised that a more confident attitude would be associated with the extent of involvement in physical healthcare, prior post registration training in physical health care, and an additional Adult Nursing qualification.
Based on the literature review (Robson and Gray, 2006) and the findings of the focus groups, the items covered a wide variety of physical health problems and health behaviours that people with SMI may experience and the barriers they face in achieving an optimal state of physical health. The questionnaire was divided into 9 themes covering general health, diet and exercise, smoking, eye and dental health, weight, glucose abnormalities, cardiovascular health, hygiene and bowel function and reproductive health. Items were scored on a five point Likert scale (strongly disagree = 1 to strongly agree = 5). Statements were positively and negatively worded to avoid response set bias and scores were reversed as appropriate during data analysis. Questions about demographic and clinical

characteristics were also included e.g. gender, age, highest qualification and clinical area. An expert steering group including senior mental health clinicians, academic nurses and a service user reviewed the items for domain coverage, relevance and comprehension. The questionnaire was piloted with 20 mental health nurses to obtain feedback about the acceptability and feasibility of the questionnaire. The data collected from these 20 nurses were not used in the final sample.

3. Participants

3.1. Sample selection and size

The primary purpose of this study was the development and initial validation of a new attitude measure. Tabachnick & Fidell (1996) note that the required sample size for factor analysis of a measure is between 5 and 10 respondents per item. Rates of response to postal surveys of health professionals vary widely: reviews indicate a range from 16% to 91% (Lusk et al., 2007). The initial instrument was comprised of 53 attitude and confidence items, necessitating a sample size of between 265 and 530. We conservatively estimated a response rate for this survey of 40%, indicating a total sample of 1325 to be necessary to provide sufficient responses. It was decided to involve the whole of the registered mental health nursing workforce (n = 1424) of a large National Health Service mental health trust in the UK as this was a feasible means of obtaining the required adequate response volume.

3.2. Procedure for collecting data

Data were collected between 2006 and 2007. All registered mental health nurses were identified by National Health Service mental health trust human resource records and were sent an information sheet, questionnaire and a stamped return envelope. Instructions were written on the back of the envelopes asking for unopened questionnaires (e.g. if staff had moved clinical areas or left the Trust) to be returned to the researchers.

Each questionnaire had a unique identification code to identify non-responders: these were sent a second copy after 8 weeks. Attention was given to evidence based strategies to maximise survey response rates, for example printing the questionnaire on coloured paper, using coloured envelopes and addressing letters to individuals by name (McColl et al., 2001).

3.3. Ethical considerations

The study was approved by the local ethics committee. An information leaflet was sent to all study participants together with the questionnaire. Participation was on a voluntary basis and responses were confidential with the identification code only known to the researchers. Return of the completed questionnaire was taken as consent to participate.

3.4. Data analysis

The readability of the questionnaire was reviewed and Flesch-readibility and Flesch-Kincaid reading grade were identified. Data were analysed using SPSS (version 15). Descriptive statistics were used to describe the sample characteristics. Questionnaire responses were reviewed for any items with frequent missing data, and the item means and medians were examined to determine score distributions. Because change scores cannot be reliably estimated for participants with extreme scores, data were also examined for the presence of floor and ceiling effects (maximum or minimum ratings). Items were deemed to have moderate or major floor or ceiling effects if more than 20% or more than 50% of respondents respectively provided such scores (Parent et al., 2010).

The correlation matrix for attitude item responses was examined to ascertain the factorability of these variables, and measures of sampling adequacy for each item were determined from the anti-image correlation matrix diagonal. Items with values less than 0.5 were excluded. Two tests were conducted to determine if there were sufficient numbers of significant correlations among the items to justify undertaking a factor analysis: Bartlett's test of sphericity (Bartlett, 1954), a chi square test, which tests the null hypothesis of no relationship between the items (a significant result indicating suitability for analysis) and the Kaiser–Meyer–Olkin (KMO) test (Kaiser, 1974) which examines whether the items have enough in common to justify conducting a factor analysis; results are reported in a range from 0 to 1, with desirable values closer to 1.

Exploratory factor analysis using the principal component analysis (PCA) extraction method with Varimax rotation was used to explore the latent structure of the initial 53 items, and to form a smaller number of coherent subscales based on individual measures of sampling adequacy and item communality, as well as judgements of theoretical consistency in the patterns of item loading and component themes. Items with weak loadings (less than 0.30) or those that did not load reasonably on any factor were deleted. Item-to-total scale correlations were computed for each item, and redundant items and those where the Cronbach's alpha (Cronbach, 1951) of the scale was improved by their removal were deleted. Successive further PCA that excluded the eliminated items were then undertaken. Plots of the variance in data represented by each principal component (scree plots) were

used to assist decisions about the relative importance of components and the number of these to be retained.
Internal consistency was assessed by Cronbach's alpha values, conducted for the subscales that emerged from this data reduction and analysis, as well as for the attitude scale as a whole. Construct validity was assessed using the known-groups technique comparing the attitude responses of participants who had received training in physical health care in the previous 5 years and those who had not. We also compared the attitudes of those who held an additional general adult nursing qualification with those who were solely registered as mental health nurses. Independent sample t-tests were used to analyse the association between attitude scores and these grouping variables. Pearson product moment correlation coefficient was used to analyse the relationship between respondents' involvement in physical care activities (assessed by 15 items on the questionnaire), with Cohen's interpretation of values applied (Cohen, 1988, 1992).

4. Results

4.1. Participants

In the first round, questionnaires were posted to 1424 mental health nurses, 443 were returned completed, and 142 returned unopened stating that the nurse no longer worked at that address. A second round of questionnaires was posted to the non-responders, resulting in a further 142 completed responses, with a further 152 returned unopened. The unopened questionnaires were removed from the denominator, providing a 52% (585/1130) response rate.

4.2. Respondent characteristics

The demographic and clinical characteristics of the respondents are described in Table 1. Just over half of the respondents were female and had been a registered mental health nurse for an average of 13 years. The majority worked in in-patient settings and more than 50% were educated to degree level and above.

4.3. Attitude measure: descriptives and acceptability

The Flesch/Flesch–Kincaid readability tests were used to indicate comprehension difficulty for the attitude measure, and provided a readability index of 55.5 and reading grade level of 9, indicating it to be understandable by average 14–15-year-old students. Item response rates were examined and there was a modest variation in completion of the individual attitude items; these ranged from 561 to 582, with lower completion associated with items related to sexual and womens' health (contraception and breast self-examination), and highest rates for general physical health, weight, and smoking related items. However, the extent of item non-response was acceptable for all the items (0.7–4.3%).
The responses at the top and bottom ends of the
measure (floor and ceiling effects) were examined to evaluate acceptability of statements, effects larger than 20% and 50% were considered as moderate and major, respectively (Parent et al., 2010). Of the 53 attitude questionnaire items, all displayed median values of 2, 3, or 4, except a single item. Item mean scores for responses to 52 of the statements ranged from 1.85 to 4.01, whilst for a single item the mean score was 4.56. Sixteen items had more than 20% of responses at the lowest (1) or highest (5) values; of these, 5 items exhibited such scores for more
than 30% of respondents, and for a single of these
(concerning confidence in measuring blood pressure) 61% responded at the highest 'strongly agree' level.

4.4. Principal components analysis

The distribution of total scores of the 53 items appeared to be normal and responses were subjected to PCA. Prior to performing PCA the suitability of data for factor analysis was assessed. Inspection of the correlation matrix revealed the presence of a number of coefficients of 0.3 and above and no correlations greater than 0.70, indicating the desired absence of multicollinearity. Bartlett's test of sphericity, was conducted and a P-value of < 0.0001 was observed, favourably rejecting the null hypothesis and supporting the factorability of the correlation matrix. The KMO measure of sampling adequacy was 0.845, exceeding the minimum recommended value of 0.6. The anti-image correlation matrix was examined to further determine if the correlation matrix was factorable based on the measures of sampling adequacy reported for each item along the matrix diagonal. Measures of sampling adequacy for 46 individual items were ≥0.7. Principal components analysis revealed the presence of 14 components with eigenvalues exceeding 1, explaining 59.4% of the variance. An inspection of the scree plot (Fig. 1) indicated a clear break at the fifth component. Therefore we decided to extract 3, 4, 5, and 6 components for further analysis.
In order to simplify the item structure, varimax rotation was used following principal components factor extraction. Items that loaded weakly (<0.3) or cross-loaded on several components were dropped, resulting in 28 attitude items being retained. The rotated solution (Table 2) that provided the most

parsimonious and understandable solution was a 4 component model. This model explained a total of 42.1% of the variance, with component 1 (C1), labelled as nurses' attitudes to involvement in physical health care (10 items) contributing 15.5% of the variance; component 2 (C2), labelled as nurses' confidence in delivering physical health care (6 items) contributing 9.9% of the variance: component 3 (C3), labelled as perceived barriers to physical health care delivery (7 items) contributing 9.4% of the variance and component 4 (C4) labelled as nurses' attitudes to smoking (5 items) contributing 7.2% of the variance.

4.5. Internal consistency

The correlation of each item with the total scores of all other items was examined to determine the extent of correlation with the overall scale; 22 of the 28 items had item-total correlations items within the 0.2–0.6 range (a correlation of <0.20 is considered poor). Four of the six items with poor item-total correlations related to smoking; one concerned the possibility of client's physical health worries being due to mental illness, and one concerned difficulties enabling clients to follow weight management advice. The 28 item attitude scale demonstrated satisfactory internal consistency, with Cronbach's alpha values of 0.765 for the whole scale; whilst the following values were obtained for the 4 components; C1 = 0.86; C2 = 0.742; C3 = 0.67 and C4 = 0.61. Removal of items from the scale led to very modest changes in the Cronbach's alpha value: no individual deletion resulted in an increase beyond 0.772.

4.6. Scale validity

The validity of the attitude scale was established by several procedures: its construct validity was a key consideration in the approach to item development, and its concurrent validity was demonstrated by examining its correlation with other sample characteristics. As predicted, attitude scores were correlated moderately with specific sample variables. The final scale (28 items) (Appendix A) was examined in relation to participants' responses to a series of 15 questions concerning the current physical health care clinical practice of the respondent (Appendix A). A medium positive correlation was found between these measures $r = 0.48$, $P < 0.001$, indicating that 24% of the variance in respondents' attitude score is explained by the extent of involvement in practice. As planned, the scale scores of respondents trained as adult (RGN/RN adult) nurses in addition to their mental health qualification were compared with those without such qualification. Adult trained nurses were more likely to be confident about their physical health practice (C2): mean difference 0.301 (95% C.I. 0.197–0.414, $t = \_5.187$, df 548, $P < 0.001$). RGN/RN trained nurses were also more critical of cigarette smoking (C4): mean difference 0.163 (95% C.I. 0.043–0.284, $t = \_2.63$, df 560, $P = 0.08$). No significant difference was evident for the other subscales or for the scale as a whole for this variable. Similarly, the attitude scores of mental health nurses who had received physical health training during the past five years were compared with those who had not received such training. Nurses who had undertaken training were identified as holding more confident and positive views about physical health care practice: for their attitude to involvement in physical health care (C1) the mean difference was 0.134 (95% C.I. 0.002–0.267, $t = \_1.990$, df 545, $P = 0.047$); whilst for confidence in delivering physical health care (C2) the mean difference was 0.175 (95% C.I. 0.064–0.296, $t = \_2.832$, df 561, $P = 0.005$). The total scale score indicated a more positive attitude among those staff with this training, however this difference was not significant ($P = 0.063$). The simple and logical factor structure identified by PCA, together with the adequacy of measures of internal consistency are further indications of the convergent validity of the scale.

5. Discussion

The primary purpose of this study was the development and initial validation of a new attitude measure of the physical health attitudes of mental health nurses (PHASe) (Appendix A). The content of the measure was conceptually grounded in the views of patients and nurse identified from focus groups, together with a synthesis of the literature. This development process was overseen by an expert steering group and piloted with a small group of mental health nurses. These approaches were designed to ensure face and content validity of the measure, and acceptability and feasibility of administration. The Cronbach's alpha score for the total scale showed good internal consistency and was adequate for the four subscales. This study also sought to assess the validity of this new scale. As no other measures of mental health nurses' attitudes in this area exist, comparison could not be made to an accepted 'gold standard' instrument. In order to establish the concurrent validity of the scale, the new instrument was compared with particular staff variables that were judged a priori to provide an indication of attitudes to involvement in physical care. Examination of the relationship between attitude scores provided by this new scale revealed correlations between positive attitudes and involvement in this aspect of practice. Similarly comparisons between staff on the basis of prior staff training

indicated statistically significant attitude measure differences.
Mental health nurses' attitudes towards physical healthcare is a relatively new topic for study and to date there are no theoretical frameworks to guide our exploration of this area. Several theoretical models have been developed that provide insight into factors that impact individual health behaviours, but little attention has been given to explaining mental health nurses' work behaviour. The Theory of Planned Behaviour (TPB) is a social cognitive model that suggests that behavioural intentions are influenced by a combination of beliefs and attitudes, which in turn affect the outcome of a behaviour (Ajzen, 1988). The model has traditionally been used to understand patients' health behaviours, however psychologists argue that the model can be equally applied to health professionals' beliefs and how these affect their clinical practice (Ogden, 2000). According to the TPB, intentions and subsequent behaviour are predicted by three main factors. The first of these factors is the attitude towards a behaviour, which is composed of both a positive or negative evaluation of a particular behaviour and beliefs about the outcome of the behaviour. The second factor is subjective norms, which is a function of an individual's view of how other people around them would like them to behave, and also how important conforming to that view is to them. The third factor is perceived behavioural control which is the extent to which a person feels able to change a behaviour successfully based upon internal or external control factors.
Previous studies (Hyland et al., 2003; Nash, 2005; Howard and Gamble, 2011) have indicated that although staff regard this as an important part of practice, deficits in clinical practice and training exist. Although not formally tested in these studies, one could contend that the willingness or intention of the nurses in these samples to engage in physical health care practices may have been influenced by their attitudes (which were mostly positive), their perception of what was expected of them by their peers, other professionals and patients (subjective norms), and their internal and external barriers (e.g. levels of self confidence and lack of training). In our study, the attitude items in the PHASe may enable links with these dimensions to provide a fuller and theoretically based understanding of nursing behaviour. For instance, item 16 ''Clients should be given cigarettes to help achieve therapeutic goals'' is an attitude previously reported to be held by some mental health clinicians (Stubbs et al., 2004) and may affect their decision to promote smoking cessation, particularly if they do not believe that staff and clients should be banned from smoking on hospital premises (items 14 and 20). If a culture of permissiveness towards smoking together with therapeutic negativism about the value of promoting smoking cessation with people with SMI exists, it is plausible to see that these facets may combine to diminish the likelihood of nurses providing health promotion in this area. Conceptualising behaviour in this way may enable a range of interventions to target the relevant individual and contextual aspects that influence actions. Measuring nurses' attitudes is integral to developing and extending such understanding, and is an important part of identifying staff training needs, and evaluating the effects of educational interventions.

6. Limitations

Potential limitations of the study include the representativeness and generalisability of the respondents and sample. A response rate of 52% is low but common for surveys of mental health nurses. Baker et al. (2005) in the development of their measure to test mental health nurses attitudes to acute in patient care surveyed 251 nurses and achieved a 56% response rate. Patel et al. (2009) in their survey of 299 mental health nurses and 294 psychiatrists regarding their attitudes about mental health nurse prescribing achieved a response rate of 45% for nurses and 38% for psychiatrists. A low response rate can introduce bias, especially if those staff returning questionnaires are different from those who do return them (Oppenheim, 1996). Although we had two rounds of posting questionnaires, we may have improved the response rate if we had attended individual clinical areas to provide face to face information to mental health teams. The generalisability of the questionnaire may be influenced by only collecting data from one mental health trust. Therefore further testing of the scale with more varied samples should be undertaken to further refine and improve it. Several items demonstrated low item-total correlations, indicating that the overall scale is not measuring a single well-delineated construct, but rather that the subscales are measuring a number of related concepts. This particularly may be the case for the smoking subscale which fits weakly with the overall measure; however the attitude of mental health nurses towards smoking is an important construct to assess and target through training. Also removing this subscale did not significantly improve the internal consistency of the overall scale. The variance among the four subscales also suggests that further refinement of the scale is needed. Although we were able to confirm that holding more positive attitudes was linked to having attended additional training, we do not know if positive attitudes are linked to level of knowledge. The authors did consider including knowledge items in the initial questionnaire, however measuring knowledge in a postal survey may produce a less accurate result

compared to testing knowledge in face to face interviews or under examination conditions. Although we have not examined either the stability (test–retest reliability) or the sensitivity of the scale to measuring changes, the differences identified within the initial sample in relation to training and practice variables provide strong indications of its potential to evaluate the effects of education and professional development interventions upon nurses' attitudes.

7. Conclusions

The attitudes of mental health nurses have the potential to affect the outcome of care and are an appropriate target of training and education. Developing a clear understanding of the attitudes of mental health nurses towards physical health care is important when evaluating interventions in this area. The new Physical Health Attitude Scale for mental health nurses (PHASe) demonstrates adequate internal consistency as well as content, concurrent and convergent validity. Further testing on varied samples will be conducted to establish if the scale is a suitable outcome measure for evaluating educational interventions to modify mental health nurses' attitudes towards physical health care of people with severe and enduring mental health problems.

Conflict of interest:
None declared.
Funding: South London and Maudsley NHS Foundation Trust R&D Committee. The funders paid no part in the research.
Ethical approval: South London and Maudsley and Institute of Psychiatry Ethics Committee. Re 197/04.
Acknowledgements: The authors wish to thank all the members of the steering group and staff who assisted in the development of the PHASe, especially Richard Gray, Sarah Burleigh, Graeme Kerr, Fiona Couper, Ann Pegram, Mary Bragg and Kevin Gournay.

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Table 1: Respondent characteristics

Variable	*n*	%
Gender	n	%
Female	365	62.2
Male	216	37.8
Age		
20-30	72	12.7
31-40	189	33.3
41-50	182	32.1
50+	124	21.9
Band		
5	217	45.3
6 and above	262	54.7
Years qualified (mean, SD)	13.3	9.9
Clinical area		
In patient	397	70
Community	171	30
Highest qualification		
Certificate and Diploma	217	45.3
Degree and above	262	54.7

Figure: Scree Plot

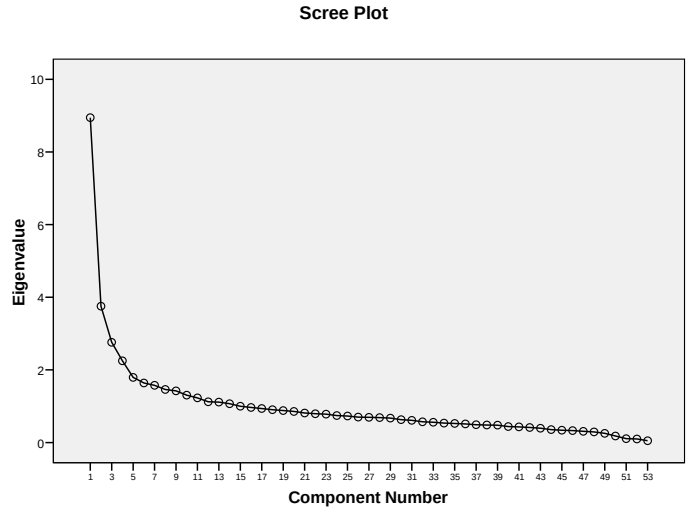

Table2: Rotated component matrix

	Component			
	1	2	3	4
(C1) Mental health nurses should educate female clients about the importance of breast self-examination	**.788**	.085	.095	-.087
(C1) Mental health nurses should educate male clients about the importance of testicular self-examination	**.769**	.104	.135	-.046
(C1)Giving advice on how to prevent heart disease should be part of the mental health nurses role	**.682**	.218	-.010	.092
(C1) Ensuring clients have their eyes regularly checked by an optician should be part of the mental health nurses role	**.681**	.109	-.042	-.011
(C1) F1_Ensuring clients are registered with a dentist should be part of the mental health nurses role	**.676**	.087	-.099	.051
(C1) It should not be the mental health nurse role to check with a client if they have had cancer screening checks (ie cervical smear and mammogram)	**.664**	.022	.108	-.096
(C1) Helping clients manage their weight should be part of the mental health nurses role	**.632**	.120	.006	.139
(C1) Giving nutritional advice to clients should be part of a mental health nurses role	**.609**	.066	.045	.114
(C1) It should not be the role of the mental health nurse to provide advice on exercise to clients	**.553**	-.038	.256	.088
(C1) Mental health nurses should provide clients with contraceptive advice	**.545**	.029	.139	-.068
(C2) I am confident that I would know if someone was presenting with symptoms of hyperglycaemia	.080	**.780**	-.041	.026
(C2) I am confident that I would know if a client was presenting with symptoms of hypoglycaemia	.091	**.771**	.021	.016
(C2) I am confident that I know which psychotropic drugs increase the risk that a client may experience cardiac problems	.081	**.667**	-.053	-.035
(C2) I am confident that I could resuscitate a client who had a cardiac arrest	.114	**.573**	.059	-.028
(C2) I am confident that I know which psychotropic medication may cause damage to the eyes	.140	**.569**	-.086	-.097
(C2) I am confident that I can measure a clients blood-pressure accurately	.045	**.533**	.031	.066
(C3) Clients with serious mental health problems are not interested in improving their physical health	.092	-.034	**.642**	.127
(C3) It is difficult to get clients to follow advice on how to manage their weight	-.018	-.057	**.605**	-.101
(C3) It is difficult to get clients to follow healthy-eating advice	.079	-.001	**.601**	-.022
(C3) Clients are not motivated to exercise	.070	-.051	**.589**	-.046
(C3) Informing clients about the possible effects medication may have on their physical health will increase non-adherence	.096	-.100	**.526**	.063
(C3) Clients' physical health worries are mostly due to their mental illness	-.107	.177	**.526**	.125
(C3) My workload prevents me doing any physical health promotion with clients	.162	.069	**.447**	.057
(C4) Staff should be banned from smoking on all Trust premises	.017	.023	-.203	**.737**
(C4) Clients should be banned from smoking on all Trust premises	-.057	.110	-.302	**.676**
(C4) Staff and clients smoking together helps to build a therapeutic relationship	-.048	-.133	.220	**.611**
(C4) Clients should not be encouraged to give up smoking, as they have enough to cope with	.138	.019	.145	**.534**
(C4) Clients should be given cigarettes to help achieve therapeutic goals	.036	-.055	.273	**.528**

	Please read the statement and tick/click the box that relates best to you personal opinion	Strongly disagree	Disagree	Uncertain	Agree	Strongly agree
1	Helping clients manage their weight should be part of the mental health nurses role					
2	Giving nutritional advice to clients should be part of a mental health nurses role					
3	I am confident in assessing signs and symptoms of **hyper**glycaemia					
4	It should **not** be the role of the mental health nurse to provide advice about exercise to clients					
5	Clients with serious mental health problems are not interested in improving their physical health					
6	Giving advice on how to prevent heart disease should be part of the mental health nurses role					
7	It should **not** be the mental health nurse role to check with a client if they have had cancer screening checks (ie cervical smear /mammogram)					
8	I am confident that I can measure a clients blood-pressure accurately					
9	It is difficult to get clients to follow advice on how to manage their weight					
10	Ensuring clients are registered with a dentist should be part of the mental health nurses role					
11	Mental health nurses should provide clients with contraceptive advice					
12	Clients should **not** be encouraged to give up smoking, as they have enough to cope with					
13	Informing clients about the possible effects medication may have on their physical health will increase non-adherence					
14	Staff should be banned from smoking on all Healthcare premises					
15	Clients are **not** motivated to exercise					
16	Clients should be given cigarettes to help achieve therapeutic goals					
17	Mental health nurses should educate female clients about the importance of breast self-examination					
18	It is difficult to get clients to follow healthy-eating advice					
19	I am confident in assessing signs and symptoms of **hypo**glycaemia					
20	Clients should be banned from smoking on all Healthcare premises					
21	I am confident that I know which psychotropic drugs increase the risk that a client may experience cardiac problems					
22	Ensuring clients have their eyes regularly checked by an optician should be part of the mental health nurses role					
23	My workload prevents me doing any physical health promotion with clients					
24	I am confident that I know which psychotropic drugs may cause damage to the eyes					
25	Mental health nurses should educate male clients about the importance of testicular self examination					
26	I am confident that I could resuscitate a client who had a cardiac arrest					
27	Clients' physical health worries are mostly due to their mental illness					
28	Staff and clients smoking together helps to build a therapeutic relationship					

My current practice involves……	Never	Rarely	Often	Very often	Always
Checking if clients have had their general physical health assessed when they first come into contact with our service					
Checking if the clients I work with are registered with a GP					
Assisting clients to attend to their personal hygiene					
Monitoring clients blood-pressure					
Giving clients advice on the benefits of exercising regularly					
Helping clients manage their weight					
Giving clients advice on how to eat healthily					
Assessing clients' bowel habits					
Giving clients advice on dental health					
Testing clients for glucose abnormalities (eg checking glucose in urine/checking a clients BM)					
Weighing clients routinely throughout their contact with our service					
Helping clients to stop smoking					
Giving clients contraceptive advice					
Ensuring clients have their eyesight assessed regularly					

I would like more training on……..	**Yes**	**No**	**Not sure**
how to care for mental health clients with diabetes			
how to help clients manage their cardiovascular health			
interventions to help clients eat more healthily			
how to help clients exercise safely and effectively			
how to help clients stop smoking			
interventions to help clients manage their weight			
how to discuss reproductive health issues with clients			