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The development and internal consistency of the Satisfaction with Antipsychotic Medication scale

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ABSTRACT

Background. Satisfaction with antipsychotic medication is an important outcome variable. To date, there is a lack of a well-established measure to quantify patient satisfaction with psychiatric medication. This paper describes the development, dimensionality, reliability and validity of the Satisfaction with Antipsychotic Medication (SWAM) scale.

Method. Clinical and academic experts devised a 33-item Likert scale satisfaction questionnaire. Following a pilot study in a sample of 69 people with schizophrenia, 315 people with schizophrenia on the caseload of local mental health services in three London boroughs completed the questionnaire. The dimensionality, internal consistency and validity of the devised instrument were assessed.

Results. Reliability of the SWAM scale was good for subscales and total scores. The α coefficient for the two subscales: treatment acceptability and medication insight were 0·92 and 0·84 respectively. The α coefficient for the SWAM scale total score was 0·91 and ranged from 0·92 to 0·90.

Conclusion. Testing of the psychometric properties of the SWAM scale demonstrate that it is a reliable instrument for measuring patient satisfaction with antipsychotic medication. The measure could be used in routine clinical practice in mental health services to assess patient satisfaction with psychiatric medication.

BACKGROUND

There is an increasing recognition that patients' opinions, of the care and treatment they receive, need to be taken seriously by health professionals. Mental health policies such as the National Service Framework for Mental Health (Department of Health, 1999), and the National Health Service Plan (Department of Health, 2000) focus on the need to assess and improve patients' subjective experiences, and satisfaction with their care and treatment. Although satisfaction is a concept that every mental health worker understands, there is remarkably little in the literature defining what satisfaction is, or how it can be measured. Further, although measures that assess attitudinal and behavioural factors towards antipsychotic medication, e.g. the 'Drug Attitude Inventory' (Hogan *et al.* 1983) or the 'Rating of Medication Influences Scale' (Weiden *et al.* 1994) exist, they do not address the concept of satisfaction in sufficient detail from the patient's perspective.

Some authors have proposed that satisfaction is a uni-dimensional concept that is affected by numerous factors (Kane *et al.* 1997; Sitzia & Wood, 1997). Naber & Kasper (2000) described patients who are satisfied as those who find their treatment acceptable. A meta-analysis by Walburn *et al.* (2001) highlighted the lack of an operational definition of patient satisfaction with antipsychotic medication.

A systematic search of Medline, CINHAL, and PsycInfo, from 1980 to January 2003, using the key words 'satisfaction', 'patient', 'consumer', 'user', 'antipsychotic' and 'treatment' was conducted. A total of 80 papers were identified which included the terms 'patient

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satisfaction' and 'antipsychotic medication' in the title or abstract. From this review the following determinants of satisfaction were identified: side-effects experienced (Hellewell *et al.* 1999); information provided (Jackson *et al.* 2001); patient expectations (Linder-Pelz, 1982); patient and clinical characteristics such as age (Williams, 1994) and type of commitment (Kalman, 1983); and psychological states such as anxiety (Sitzia & Wood, 1997). To our knowledge there is no study in the literature which considered all the factors associated with patient satisfaction, or identified the key factors associated with satisfaction.

When considering people with schizophrenia on antipsychotic medication, the assessment of patient satisfaction, which is reliant on self-report measures, presents challenges due to language and memory problems (Fleming *et al.* 1995) as well as the issue of social desirability (Sitzia & Wood, 1997). One consequence of this is that our understanding of patient satisfaction with antipsychotic medication has been driven by clinical experience and intuition rather than empirical evidence from the patients' perspective. Nevertheless, previous research has indicated that people with mental disorders are able to report their subjective experiences reliably (Atkinson *et al.* 1997; Waring *et al.* 1989, 2003).

Previous research that assessed patient satisfaction with antipsychotic medication has generally used cross-sectional survey designs using self-report questionnaires to elicit information about satisfaction. Examples include Kalali (1999) and Hellewell *et al.* (1999). There is no 'gold standard' for measuring patient satisfaction with antipsychotic medication. Specifically, none of the questionnaires had been used on more than one occasion, and there were no studies exploring the clinical utility of the questionnaires, or the psychometric properties of the measure. Further, questionnaires differ in the number of items included and the rating scale. Notable examples include Hellewell *et al.* (1999), who measured patient satisfaction with quetiapine using a seven-item questionnaire and a 5-point rating scale from 'very dissatisfied' to 'very satisfied', and Koivumaa Honkanen *et al.* (1999), who used a 10-item questionnaire. Although the latter rated satisfaction as a continuous variable (from 1 to 10), scores were dichotomized as 'satisfied' or 'dissatisfied' for statistical analysis.

Consequently, there is a need to identify and refine the core determinants and develop a valid and reliable measure of patient satisfaction with antipsychotic medication. Such a measure would be useful as an indication of best practice (e.g. are patients involved in treatment decisions?) and could provide a reference for future research and clinical practice.

METHOD

Study aim

The aim of this study was to produce a reliable and valid standardized measure of patients' satisfaction with antipsychotic medication.

Design

A cross-sectional survey design, using a self-administered questionnaire that portrayed a sample of people with schizophrenia taking antipsychotic medication over 5 months was used. This design enabled a large number of patients to be compared at the same time, provided data that was sufficient for an exploration of the psychometric properties of the devised questionnaire and was the most cost and time effective method. Each of the items in the questionnaire represented an independent variable. The dependent variable was patient satisfaction with antipsychotic medication.

Development of the Satisfaction questionnaire

The development was overseen by an advisory group, which included service users; mental health workers and service managers. Based on the literature, clinical expertise and discussions with patients, broad statements were generated, which were developed into specific statements, to assess patients' subjective experiences with antipsychotic medication. There were 40 items, reflecting a range of experiences relevant to psychiatric medication and corresponding to five empirically derived areas: (1) therapeutic alliance, (2) insight, (3) knowledge, (4) attitudes, and (5) beliefs. Items had predominantly closed responses but space was provided so that patients could express additional comments, which would bring to attention any other important dimensions. The items were then completed by 10 patients (six females and four males, mean age

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38 years) who found it acceptable and clearly understood, and specific feedback on the wording of the questions, meaning, ambiguity, and layout was obtained. The feedback was discussed by the advisory board, who produced a second draft questionnaire. A total of 69 patients (32 females and 36 males, mean age 29 years) then completed the questionnaires and the responses were analysed.

Based on the pilot study and systematic literature searches, a Satisfaction questionnaire was constructed and included 33 items. Seven items had been excluded due to patients' reports that items were 'difficult to understand' or 'repetitive'.

The items were rated using a 5-point Likert scale from, 'strongly disagree' to 'strongly agree', to give a reasonable range of choice of response, especially given the cognitive dysfunction associated with psychosis. There were 15 items that had a positive direction, 15 that had a negative direction and three neutral items. Scores ranged from 33 to 165, with higher scores reflecting a level of satisfaction. A simplified measure of gobbledygook grade 11 (McLaughlin, 1969) was obtained suggesting that patients do not need a college education to understand the document.

Items in section A included patients' beliefs such as involvement in treatment decisions and the consequences of not taking treatment. Section B concerned current issues such as whether they viewed antipsychotic medication as 'embarrassing to take' or 'helpful'. Section C concerned previous subjective experiences with antipsychotic medication such as the side-effects encountered. Section D assessed other aspects of treatment including social support and section E 'Information about you' was included to enable comparison of sample details with the national average to determine whether the collected data was representative and could be generalized.

The 33-item Satisfaction questionnaire was then scrutinized by colleagues and potential users of the information generated (e.g. patients, psychiatrists, psychologists and clinical nurse specialists) to assess content and face validity of items. Additionally, a cross-section of patients who met the inclusion criteria participated in a preliminary study, which involved 10 patients (five females and five males, mean age 41 years) from a psychiatric hospital in Kent. This elicited verbal and non-verbal feedback about the clarity of items, the reaction to the survey amongst patients and any necessary refinement of the statements' order and content. The Satisfaction questionnaire was reviewed for further adjustments and modified accordingly.

Maximizing survey response

To maximize cooperation, letters were sent to psychiatrists, team leaders and ward managers to explain the purpose of the study and that a researcher would visit. The researcher made several visits to the wards and community centres when necessary to make contact.

Patients were informed that the questionnaire was strictly confidential using the combined information/consent form and briefing on the questionnaire. A freepost envelope was provided for its return.

Participants

Community mental health services, long-term residential and in-patient units (rehabilitation/intensive care) were targeted in three London boroughs. The recruitment of participants was based on case-notes, according to specific inclusion and exclusion criteria. Inclusion criteria were: (*a*) case-note diagnosis of schizophrenia; (*b*) currently taking antipsychotic medication or advised by their doctor to do so; (*c*) aged 16–65 years and; (*d*) gave written consent. Exclusion criteria were: (*a*) case-note diagnosis of comorbid learning disabilities and (*b*) brain injury or any other organic disorder. The sampling method was purposive, as patients were conveniently available during the time that their community psychiatric nurse visited.

Sample size

As there is no formal method to estimate sample size, in order to conduct an exploratory factor analysis, the generally accepted rule of 10 participants for every item (Tabachnick & Fidell, 2001) was employed.

With 33 items to be included in the exploratory factor analysis, it was estimated that 330 patients was an acceptable sample size. This figure was in line with Comrey & Lee (1992) who proposed that a sample size of 300 was considered 'good'.

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Satisfaction studies usually have a low response rate of between 30% and 40% (Ruggeri, 1996). The convention of at least 80% response is likely to be modest due to the nature of the sample, many of whom may encounter cognitive processing deficits (Frangou & Murray, 1997). It was, therefore, anticipated that in order to obtain a sample size of approximately 300 patients, approximately 800 questionnaires would be despatched.

Procedure

Local research ethics committees approved the protocol. The relevant health professionals were informed about the survey and their support obtained, with the opportunity for any queries to be addressed directly to the researcher. The bed occupancy for each ward was clarified.

The necessary survey packs, for each ward or community centre, were prepared and a visiting time arranged so that the procedure could be clarified, any concerns addressed, and immediately afterwards the community psychiatric nurses would distribute the packs. Purposive sampling was employed as a list of all the patients could not be obtained and therefore random sampling, although preferential, was impractical. Community psychiatric nurses were asked to distribute a survey pack to the first five patients on their caseload who met the inclusion criteria (five was considered sufficient to provide the requisite number of responses). If a patient refused to participate, nurses were asked to offer the pack to the next patient on their caseload until they had no more survey packs. Written informed consent was obtained from all patients.

After 1-week follow-up calls were made, and a thank-you letter was sent to all those who had assisted in the facilitation of the survey.

Data management

SPSS for Windows (Version 11) was used for data entry (Norusis, 2001). A principal component analysis was conducted to determine the instrument structure, with components having eigenvalues $>1{\cdot}0$ considered significant (Tabachnick & Fidell, 2001). Cronbach's α (Cronbach, 1951) was used to check the internal consistency of the whole questionnaire and of the different dimensions.

Table 1. *Initial statistics for a principal components analysis of the 33-item questionnaire: eigenvalue, variances and cumulative variance for items with an eigenvalue >1*

Factor	Eigenvalue	Percentage of variance	Cumulative percentage
1	9·682	29·338	29·338
2	3·524	10·680	40·018
3	1·872	5·674	45·692
4	1·555	4·712	50·404
5	1·434	4·345	54·749
6	1·305	3·953	58·702
7	1·145	3·471	62·173

RESULTS

Of the 787 questionnaires despatched, 315 were returned (213 had been completed by outpatients, and 102 were received from wards). This represents a 40% response rate. Just over half of the respondents (54%, $n=170$) were male, were on average 33 years old (range 16–64) and from a diverse range of ethnic backgrounds. Participants were recruited from mental health services in three London boroughs.

Factor structure of Satisfaction items

After deleting cases with missing data ($n=1$), a principal component analysis was performed on the resulting sample ($n=314$). Seven principal axis factors were initially extracted with eigenvalues >1 (Table 1). Closer observation of Table 1 shows a major difference in the size of the eigenvalue after the second factor and therefore only two factors were orthogonally rotated.

These explain 40·0% of the systematic covariance between the 33 items. Although this leaves 60·0% of the variance remaining, Cattell's Scree Test (Cattell, 1966), displayed in Fig. 1, confirms that only the two factors are powerful enough to explain any of the covariance amongst the 33 items that form the questionnaire.

However, the two-factor solution was further investigated to determine for the actual item loadings for each factor. A Varimax rotation principal components with 25 iterations was carried out as the factors are considered independent and the findings of this analysis can be seen clearly in Table 2 with the factor loadings

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Table 2. *A factor loading matrix, using varimax-rotated principal components, of the 33-item Satisfaction questionnaire (SWAM scale)**

	SWAM items	Factor 1	Factor 2
A9	Antipsychotic medication enables me to be independent	0·77	
A10	It is important to take my antipsychotic medication even when I feel better	0·74	
A8	My health professionals know best	0·70	
A5	The consequence of not taking my antipsychotics are severe	0·69	
B4	Antipsychotic medication is helpful to me	0·68	
B6	I feel motivated to take my antipsychotic medication	0·67	
A2	If someone said I have a mental illness, they would be correct	0·67	
A11	My antipsychotic medication makes me better	0·65	
B9	I am satisfied with the communication between myself and health professionals about my antipsychotic medication	0·63	
B8	I am satisfied with the outcome of my last discussion with my health professionals about my antipsychotic medication	0·62	
A1	I am involved in treatment decisions	0·60	
B1	I am satisfied with the information provided to me about the possible side-effects caused by my antipsychotic medication	0·59	
C3	I am satisfied with the way health professionals have dealt with the side-effects of my antipsychotic medication	0·54	
A3	It is likely that the symptoms of my illness will persist	−0·52	
C8	I have received a clear explanation from health professionals about my antipsychotic medication	0·50	
B7	Antipsychotic medication prevents future problems	0·49	
D3	It is more convenient to take my antipsychotic medication as tablets	0·43	
D4	Apart from health professionals, I have at least one friend/family to help me if needed	0·40	
D2	The thought of my illness scares me	0·30	
A7	Antipsychotic medication interfere with my everyday activities		0·71
B3	I am dissatisfied with my antipsychotic medication		0·70
A6	By taking antipsychotic medication, I do not have control		0·67
C4	It's okay to forget to take my antipsychotic medication		0·66
C5	It's okay to alter the amount of antipsychotic medication I take		0·62
B2	I am embarrassed to be seen taking my antipsychotic medication		0·60
C7	I find it unpleasant to take antipsychotic medication		0·59
D1	Most people who are important to me think I should not take my antipsychotic medication		−0·59
C1	I get side-effects from my antipsychotic medication		0·55
C9	I am dissatisfied with the alternative treatment options available to me		0·54
A4	Non-drug treatments are more beneficial to me than antipsychotic medication		0·48
C2	I tolerate the side-effects I get from my antipsychotic medication		0·42

* Item B5: 'I take my antipsychotic medication because health professionals tell me to' and item C6: 'It's unacceptable to take my antipsychotic medication at a different time to that recommended by my doctor' did not load on factors 1 or 2.

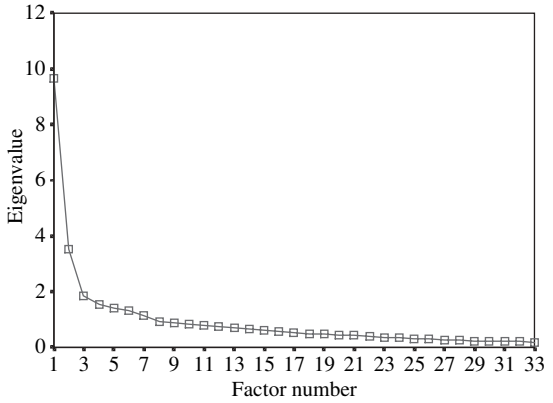


FIG. 1. Factor scree plot of eigenvalues for the 33-item Satisfaction questionnaire.

matrix for the two factors. Varimax rotation was chosen because it selects the factors that do not correlate strongly (orthogonal rotation). The internal correlation of the two factors was 0·60.

Labelling the extracted factors

After careful review of the content of the original variables, each of the two factors was given a label to reflect the items related to that factor. By referring to the 33-item questionnaire inference was made from the relevant items to determine the nature of the two factors for measuring patients' satisfaction. For each of the factors, examples of items are provided and the interpretations made stated:

Factor 1 with an eigenvalue of 9·68, accounted for 29·3% of the variance and consisted of 19

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items with loadings ranging from 0·30 to 0·77. Generally, it has been accepted that the first factor usually has moderate loadings, ranging from approximately 0·3 to 0·7 (Kline, 1993). The items defining this factor, such as 'Antipsychotic medication enables me to be independent'; 'It is important to take my antipsychotic medication even when I feel better' and 'Antipsychotic medications are helpful to me'; all reflect a positive orientation and acceptability towards treatment, and are thus labelled 'treatment acceptability'.

Factor 2 with an eigenvalue of 3·53, accounted for 10·7% of the variance and consisted of 12 items with loadings ranging from 0·42 to 0·70. The items defining this factor, such as 'Antipsychotic medication interferes with my activities'; 'By taking antipsychotic medication, I do not have control'; and 'It's okay to forget to take my antipsychotic medication'; all reflect a negative orientation towards treatment and a lack of awareness, knowledge and understanding towards treatment and its effect, and are thus labelled 'medication insight'.

Reliability analysis

To investigate the internal reliability of the formulated questionnaire [Satisfaction with Antipsychotic Medication (SWAM) scale], Cronbach's α was calculated for the whole questionnaire and for the two dimensions.

The total Cronbach's α for the 23 items was 0·91 and ranged from 0·92 and 0·90. This indicates that 91% of the items are correlating with each other.

Factor 1 'Treatment acceptability'

Five cycles of Cronbach's α were applied to the data (with an initial α of 0·89 and final solution of 0·92), which resulted in removing the following five items measuring patients beliefs: the thought of their illness scared them; the symptoms of their illness would persist; it is more convenient to take their antipsychotic medication as tablets; apart from health professionals they have at least one friend/family to help if needed; and the extent to which patients tolerated any side-effects they experienced. Closer examination of the items revealed they might not be directly representative of treatment acceptability. Cronbach's α of 0·92 indicates that approximately 92% of the remaining 14 items indicate higher treatment acceptability and, therefore, higher satisfaction levels.

Factor 2 'Medication insight'

Three cycles of Cronbach's α applied to the data (with an initial α of 0·76 and final solution α of 0·84) which resulted in removing the following three items: whether patients experienced side-effects; the extent to which they tolerated any side-effects experienced; and patients belief that, the majority of people who were close to them thought they should not take their antipsychotic medication. Careful reading of the items revealed they might not be directly representative of medication insight. Cronbach's α of 0·89 indicates that approximately 89% of the remaining nine items are correlating with each other. Higher scores on these items indicates a lack of insight into the need for medication and its potential side-effects, and lower satisfaction levels.

Final stage of the questionnaire

As a result of factor analysis and reliability test, the 23-item SWAM scale was developed. The scale quantifies patient satisfaction using two subscales: (1) Treatment acceptability: positive orientations towards antipsychotic medication; and (2) Medication insight: self-awareness, knowledge and understanding for the need for antipsychotic medication and its effect.

Two items did not load onto either of the two key factors (item B5: 'I take my antipsychotic medication because health professionals tell me to'; and item C6: 'It's unacceptable to take my antipsychotic medication at a different time to that recommended by my doctor'). These items seem to be related to compliance to authority. A factor relating to this was identified in the Drug Attitude Inventory (Hogan *et al*. 1983).

The mean for the full SWAM scale for the sample of 315 patients was 77·41 (S.D. = 18·24). Means and standard deviations for the 10 different patient characteristics for the two subscales and total satisfaction are presented in Table 3.

Content validity

The advisory team thought that all the content of the SWAM scale is relevant and important to patient satisfaction with antipsychotic

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Table 3. *Means and standard deviations for the subscales of the Satisfaction with Antipsychotic Medication and total satisfaction*

	Treatment acceptability		Medication insight		Total Satisfaction		
Characteristic	Mean	S.D.	Mean	S.D.	Mean	S.D.	*n*
Gender							
Male	51·32	12·11	27·89	7·39	79·21	17·59	167
Female	47·51	14·05	27·79	7·85	75·30	18·90	137
Age (years)							
16–40	48·30	12·89	27·70	7·84	76·00	17·49	155
40–64	51·04	13·13	28·04	7·32	79·08	18·74	141
Ethnicity							
White	51·97	12·90	29·39	6·67	81·36	18·17	150
Black	45·68	13·18	24·66	8·22	70·34	17·24	116
Asian	52·29	11·64	32·47	5·32	84·76	14·94	28
Other	52·18	9·65	27·64	4·39	79·82	12·70	11
Qualifications							
GCSEs or equivalent	48·72	12·86	26·67	7·56	75·39	17·21	88
A level or higher	49·24	12·94	29·32	6·23	78·56	17·21	87
Other	53·69	11·64	28·45	5·83	82·14	16·32	29
None	49·72	13·74	27·50	8·89	77·22	20·25	103
Employment							
Working full time	51·85	9·16	30·62	5·94	82·46	13·97	13
Working part time	46·53	14·46	26·53	8·11	73·06	21·73	34
Unemployed	50·88	12·76	28·21	7·54	79·09	17·44	227
Economically inactive	42·77	13·39	25·55	7·51	68·32	18·52	31
Status							
In-patient	44·67	12·56	26·25	7·56	70·97	16·95	102
Out-patient	52·09	12·73	28·68	7·51	80·66	18·08	213
Type of antipsychotic							
Atypical	49·05	13·25	27·82	7·76	76·87	18·23	204
Typical	51·80	12·50	28·77	7·01	80·57	18·19	66
Number of antipsychotics							
1	49·13	13·23	27·89	7·67	77·02	18·37	243
2	52·29	12·56	27·89	7·38	80·18	17·02	35
>2	51·81	14·16	28·06	7·91	79·88	21·31	16
Experience side-effects							
Yes	49·47	13·07	27·67	7·51	77·15	18·74	239
No	50·78	13·59	29·91	7·60	80·69	15·75	54
Use of substances							
No substance use	50·24	13·54	29·42	6·60	79·66	17·28	113
Alcohol	48·78	12·54	25·81	8·30	74·59	19·15	131
Cannabis	45·55	13·97	24·55	8·22	70·10	18·89	66

medication. Specifically, the SWAM scale appears to have clear face validity. Examination of the content items of previous work such as Hellewell *et al.* (1999) coincides with our own operational definition of satisfaction.

Consensual validity

All the professionals (e.g. consultants, clinical and health psychologists, psychiatric nurse specialists and service managers) who reviewed the questionnaire felt that it was useful. Some consultants reported 'This is a very good questionnaire' and one emphasized that 'the concept of satisfaction is problematic as it overlaps other aspects such as happiness'.

DISCUSSION

This paper describes the development of the SWAM scale, a modified version of the original 33-item satisfaction with antipsychotic medication questionnaire. It also describes the assessment of the psychometric properties of the new instrument with regard to its internal

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consistency. Findings demonstrate that the newly developed SWAM scale has very good psychometric properties.

The principal components analysis indicated that factor 1 (treatment acceptability) and factor 2 (medication insight) accounted for 40% of the systematic covariance of the satisfaction items. However, the items 'I take my antipsychotic medication because health professionals tell me to' and 'It's unacceptable to take my antipsychotic medication at a different time to that recommended by my doctor' did not load on either factor. This suggests that there may be another dimension related to compliance to authority. A factor relating to this was identified in the Drug Attitude Inventory (Hogan *et al*. 1983). Further research is warranted to confirm with greater certainty a possible third factor.

However, close examination of Cattell's Scree Test (Cattell, 1966) indicates that only the two factors are powerful enough to explain any of the covariance amongst the satisfaction items. These findings are consistent with work by Naber & Kasper (2000) and Hellewell *et al*. (1999) who defined patients who were satisfied as those who find their treatment acceptable. Awad (1999) proposed a conceptual model for satisfaction in medicated patients with schizophrenia. In line with the empirical findings of this study, the model which is primarily based on clinical intuition suggests that satisfaction is directly related to insight. The model identifies other mediating factors including self-concept and stigma. Whilst clinical intuition suggests that these factors are important to patient satisfaction with antipsychotic medication, further empirical work is necessary to confirm this conceptual model.

The scale has a very good overall Cronbach's α (0·91), which verifies its sufficiency in terms of internal consistency if it is used as a global satisfaction with antipsychotic medication measure. Both dimensions showed good internal consistency as indicated by coefficients of Cronbach's α of 0·92 for Treatment acceptability and 0·89 for Medication insight; and exceeded Nunnally's (1978) threshold of 0·70.

The results obtained from this study identify the SWAM scale as a useful tool to measure patients' satisfaction with antipsychotic medication. However, it is essential that there is an understanding of the current limitations of the data and methodological considerations.

Purposive sampling was used as a list of patients could not be obtained, and community psychiatric nurses assisted in the facilitation of the survey, so that a relatively large number of patients could be included. Such a design leaves a theoretical risk of bias. Community psychiatric nurses' involvement and interest in the distribution of survey packs, that contain a measure to quantify patients' satisfaction with their antipsychotic medication, may have led some patients to give more positive ratings or influenced the accuracy of responses. Further, community psychiatric nurses may have been reluctant to approach patients who were most likely to express dissatisfaction with their treatment. Although such effects cannot be eliminated, an attempt to eradicate any strong effects was made by following the guidelines suggested by Breakwell *et al*. (2000). An example is that a number of community psychiatric nurses were involved in the facilitation of this survey so that bias was minimized.

The low response rate may have been a result of patients' concern to show dissatisfaction with psychiatric medication in case it results in unfavourable treatment in a later situation. However, Ruggeri (1996) demonstrated that satisfaction studies usually have a low response rate of between 30% and 40%. The convention of at least 80% response is likely to be modest due to the nature of the sample (patients with schizophrenia), many of whom may encounter cognitive processing deficits (Frangou & Murray, 1997).

Although the findings of this study are encouraging, further research is warranted to confirm the dimensionality, reliability and validity of the SWAM scale. Further, one of the items of the SWAM scale relates to whether the patient believes that the symptoms of their illness will persist, and some of the items refer to side-effects of antipsychotic medication. It is controversial whether patients can indeed differentiate between the symptoms of their illness and the side-effects of their treatment, and further research is warranted to determine with greater certainty whether patients with a mental illness are able to do so.

In addition, the impact of potential side-effects (incurred from taking antipsychotic

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medication) on 'Treatment acceptability' and 'Medication insight', together with the measurement of psychopathology should be further investigated in future clinical trials of antipsychotic medication.

This study extends previous research efforts, to include aspects perceived important by both patients and professional health carers, in order to develop a measure to quantify patient satisfaction with psychiatric treatment. The utility of the SWAM scale might be directed to medicine management programme administrators, service providers and patients. Specifically, the SWAM scale could be used as part of routine clinical practice to assess patients' overall satisfaction with psychiatric medication. In addition, the SWAM scale could be used to assess aspects of psychiatric treatment which contribute to overall satisfaction. This would allow clinicians to acknowledge, target and improve aspects of psychiatric treatment, that patients are perhaps dissatisfied with (e.g. side-effects), therefore managing patients' medication programmes more effectively as well as improving and maintaining patient well-being.

Assuming that satisfaction is a determinant of patients' adherence to treatment regimens (Pellegrin *et al*. 2001), use of the SWAM scale might give an indication of the likelihood that a patient will continue to adhere to their medication regimen as recommended by their doctor. In addition, the SWAM scale could be used to provide an indication of best practice and could provide a point of reference for future research and development in clinical practice.

In conclusion, the analysis of the psychometric properties of the SWAM scale are encouraging and suggest that it is a reliable and valid instrument for measuring patient satisfaction with antipsychotic medication in people with schizophrenia. Further validation of the measure is warranted. The measure could be used in routine clinical practice in mental health services.

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DECLARATION OF INTEREST

None.

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