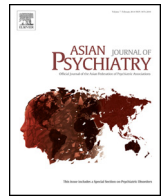




Contents lists available at [ScienceDirect](#)

Asian Journal of Psychiatry

journal homepage: [www.elsevier.com/locate/ajp](http://www.elsevier.com/locate/ajp)



## Trust in Physician Scale: Factor structure, reliability, validity and correlates of trust in a sample of Nigerian psychiatric outpatients

Olutayo Aloba<sup>\*</sup>, Boladale Mapayi, Sanmi Akinsulore, Dominic Ukpong, Olufemi Fatoye

Department of Mental Health, Obafemi Awolowo University Teaching Hospital, Ile-Ife, Osun State, Nigeria

### ARTICLE INFO

*Article history:*  
Received 30 January 2014  
Received in revised form 5 May 2014  
Accepted 25 May 2014  
Available online xxx

*Keywords:*  
Trust  
Nigeria  
Bipolar  
Schizophrenia  
Depression

### ABSTRACT

*Background:* Trust is essential in the patient–physician relationship and has not been explored among Nigerian psychiatric outpatients.

*Objectives:* The purpose of this study was to evaluate the psychometric characteristics of the Trust in Physician Scale among a cross-sectional sample of stable Nigerian outpatients receiving treatment for psychiatric disorders.

*Methods:* A consecutive sample of outpatients attending a Nigerian university teaching hospital psychiatric clinic in South-western Nigeria completed the scale ( $N = 223$ ). Factorial analysis, internal consistency, validity and correlates of the scale were evaluated.

*Results:* The structure of the Trust in Physician Scale was best explained by a 2 factor construct. Cronbach's alpha was 0.68, indicating a rather modest degree of internal consistency. The 2 factors extracted also had modest internal consistencies (Cronbach's alpha 0.66 and 0.76). A fair degree of construct validity was indicated by weak positive correlation of trust with medication adherence and the numbers of previous admissions. The mean trust score was relatively high. Significant positive correlations were observed between trust scores and adherence score, number of previous admissions and the number of schizophrenic relapses.

*Conclusion:* The results suggest that despite the comparatively weak psychometric properties of the Trust in Physician Scale, it is still useful in the evaluation of trust among Nigerian psychiatric outpatients. More studies are needed to further explore and compare the properties of this scale across a wider range of patient groups in Nigeria, and to identify other factors that could interact with trust among the different patient populations in our environment.

© 2014 Elsevier B.V. All rights reserved.

### 1. Introduction

Good and effective healthcare delivery is directly related to the presence of patients' trust in the healthcare providers (Mechanic and Meyer, 2000). It is also crucial to patient readiness to seek healthcare, divulge sensitive information and adhere to physicians' advice (Hall et al., 2001). Studies have explored the influence of trust on the patient–physician relationship in terms of modulating different aspects of the therapeutic processes such as the willingness of health care seekers to endorse the physician's recommended treatment has been reported to be associated with statistically significantly higher level of trust (Collins et al., 2002; Dibben and Lena, 2002). Different authors have also reported positive associations between trust and treatment adherence (Joos et al., 1996; Thom et al., 2002).

A higher level of trust in patients with psychiatric disorders was associated with easier divulgence of their morbid experiences (Repper et al., 1994) and their ability to be in charge of their mental health (Kai and Crosland, 2001; Svedberg et al., 2003). Other authors have also reported that trust influences patients' inclination to access health care services (Sharma et al., 2003; Booth et al., 2004) and to recommend health care facilities to others (Joffe et al., 2003). Patients' satisfaction with health care services has a strong positive correlation with trust (Baker et al., 2003; Scotti and Stinerock, 2003), and more willingness by patients to be involved in clinical trials (Nurgat et al., 2005).

The Trust in Physician Scale (TPS) was developed to measure patients' trust in their primary care physician and the items on the scale consist of questions regarding the patients extent of trust in the physician's counsels, judgment and medical treatment preference (Anderson and Dedrick, 1990). We decided to explore the psychometric qualities of the TPS since it was the first trust measurement specific to the patient–physician relationship. Some of the other measures subsequently developed were by modifying

<sup>\*</sup> Corresponding author. Tel.: +234 814 362 6652.  
E-mail address: [alobatee2002@yahoo.com](mailto:alobatee2002@yahoo.com) (O. Aloba).

the wordings of several items in this scale. Kao and colleagues developed the 10 item Patient Trust Scale which was modified from the Trust in Physician Scale (Kao et al., 1998). Another trust scale is the Primary Care Assessment Survey, an 8 item comprehensive measure of the extent to which patients trusts their primary health care provider. It measures seven domains of trust through 11 summary scales and was demonstrated to possess good reliability (Cronbach's  $\alpha = 0.86$ ) by the authors (Safran et al., 1998). One other scale, the Patient Trust in Their Physician Scale was developed through focus group research, and has been reported to have good to excellent reliability. It consists of 51 items and its length has been described as its major shortcoming (Leisen and Hyman, 2001). Hall and colleagues also developed another trust scale for the measure of patients' trust in their primary caregiver called the Interpersonal Physician Trust Scale; the initial 26 item scale was reduced to a final 10-item questionnaire that was reported to possess excellent reliability (Cronbach's  $\alpha > 0.9$ ) (Hall et al., 2002). Among the currently available measurements of trust, only the Trust in Oncologist Scale is a disease specific instrument that was recently developed to evaluate cancer patients trust in their oncologists (Hillen et al., 2012).

The Trust in Physician Scale (TPS) has been employed to measure trust in the context of diverse patient populations and their physicians. Krajewski-Kulak et al. (2011) used the scale to assess physician–patient trust among 259 women in the obstetrics and gynecological departments of some hospitals in Poland and Greece. Although they did not report on the psychometric qualities of the scale, they concluded that the scale is an appropriate tool for the evaluation of patients trust in their gynecologists and that the Greek patients compared to their Polish counterparts indicated lower levels of trust.

The authors of a study that involved 728 patients with rheumatoid disease reported a mean score of 76.25 on the TPS and a high internal consistency (Cronbach's  $\alpha = 0.87$ ) with principal factor analysis producing a one factor construct, with decreased trust been associated with older age, minority status, higher education and a diagnosis of fibromyalgia, osteoarthritis and poorer health (Freburger et al., 2003). In another study involving a total of 235 African-American and white patients on treatment for inflammatory bowel disease, Nguyen and colleagues reported that apart from race and age, trust in the physician is a potentially modifiable predictor of adherence to medical therapy (Nguyen et al., 2009). One other study of 1111 consecutively recruited patients with coronary artery disease reported a mean score on the TPS that was equivalent to what was reported in primary care patients. In addition the correlates of greater trust in the cardiologists included a lower educational level, higher systolic blood pressure and greater control over their cardiac condition (Kayaniyil et al., 2009). The level of trust in the ophthalmologist was measured with the TPS in 195 patients with open-angle glaucoma, the mean score among the patients was 78.7 and only race was associated with trust, with Caucasians expressing slightly higher levels of trusts than non-Caucasians (Muir et al., 2009). Despite the attention that has been given to the issue of trust in the physician–patient relationship, the subject has largely been understudied among psychiatric patients (Pearson and Raeke, 2000).

In a relatively recent survey that involved psychiatric patients with different diagnostic categories in Japan, the length of duration of treatment with the current psychiatrist and the duration of the psychiatrist's clinical expertise were associated with a high level of trust in the psychiatrist in addition to other findings (Minamisawa et al., 2011). In another recent study comparing patients' trust in the psychiatrist and the general practitioners, patients demonstrated equally good levels of trust in both psychiatrists and

general practitioners, with male patients demonstrating higher levels of trust (Mather et al., 2012).

A significant proportion of Nigerian patients with psychiatric disorders usually would have received treatment from unorthodox facilities, such as traditional native healers and religious centers, prior to presentation in a formal mental health establishment (Lasebikan et al., 2012). It has been said that this observation is as a result of the wide spread belief that the etiology of mental disorders is perceived to be supernatural rather than biological (Adewuya and Makanjuola, 2008). Because of this attitude toward mental disorders, we are of the opinion that Nigerian patients with psychiatric disorders may have difficulty trusting the orthodox health care provider (the psychiatrist).

There is need for the examination of this topic among Nigerian psychiatric outpatients who on account of the chronic nature of the disorder tend to develop long term relationships with the psychiatrist responsible for their care. Whether psychiatric patients with higher levels of trust would be more likely to adhere to medications or follow their psychiatrist's recommendations has not been explored Nigeria. Also, nothing is known about the relationship between trust in the health care provider and satisfaction with care in Nigerian psychiatric patients. Generalization of the results of studies in the developed western countries to African settings may not be proper due to the socio-cultural differences as regards the perception and attitude towards mental illness.

One of our specific objectives is to explore the psychometric characteristics of the Trust in Physician Scale, since the qualities of the scale in primary care and diabetic patients (Anderson and Dedrick, 1990; Thom et al., 1999) may not be extendable to Nigerian psychiatric outpatients. Our second objective is to identify the factors associated with trust in the psychiatrist. We are of the opinion that the baseline data generated will be useful in improving the quality of care received by outpatients with psychiatric disorders in Nigeria.

## 2. Subjects and methods

### 2.1. Subjects

Subjects were outpatients attending the psychiatric clinics of the Obafemi Awolowo University Teaching Hospital in South-western Nigeria. Patients aged 18 and above were consecutively recruited between January 2013 and January 2014. A total of 223 outpatients were recruited during this period. Psychiatric diagnoses were made according to the International Classification and Diagnostic Criteria for Diseases and Disorders, 10th version (WHO, 1994) by the consultant psychiatrist. In Nigeria, the role of the consultant psychiatrist apart from supervising the trainee residents is to coordinate the multidisciplinary mental health team composed of social workers, occupational therapists, the clinical psychologists and the psychiatric nursing staff. A typical outpatient clinic appointment in our center consists basically of the consultant psychiatrist thoroughly reviewing the patients in terms of identifying improvements or deterioration in severity of psychopathologies, reviewing of medications in relation to adequacy of dosage and related side effects and also monitoring the patients' overall functioning. Due to the scarcity of clinical psychologists in Nigeria, psychotherapy is not a routine aspect of the typical outpatient appointments in our setting. Frequency of appointments varies from an average of every fortnight to once a month and these approximately lasts from 45 min to an hour per patient. To avoid the influence of active psychotic or affective symptoms on interpersonal interactions within the patient–psychiatrist relationship, we decided to recruited patients who were not actively psychotic and whose affective symptoms were in

remission. To be eligible for inclusion, participants must have been diagnosed and receiving outpatient treatment for at least a year. Those with comorbid chronic medical illnesses and those who refused consent were excluded from the study. There are 7 consultant psychiatrists in the unit and the clinics are structured such that each participant receives his or her outpatient clinic evaluation regularly under the supervision of a specific consultant.

## 2.2. Procedures

Approval for the study was obtained from the Ethical and Research Committee of the hospital. On each clinic day after the purpose of the study has been explained to the patients and their informed consent obtained, they were ushered into a consulting room for privacy following which the study measures were completed by the patients. Illness related characteristics of the patients such as age at onset of illness, diagnosis, duration of illness, number of admissions were corroborated from the medical records of each patient.

## 3. Measures

### 3.1. Sociodemographic and illness related questionnaire

Detailing characteristics such as age, sex, marital status, number of years of education and illness related variables such diagnosis, duration of illness, number of previous admissions, and duration of relationship with the psychiatrist.

### 3.2. MINI (Mini International Neuropsychiatric Interview)

The MINI is a brief structured interview designed for the psychiatric disorders in both the International Classification of Diseases and Disorders, 10th version, and the Diagnostic and Statistical Manual of Mental Disorders, 4th version (Sheehan et al., 1998). The MINI has 2 aspects; the current (for present symptoms) and lifetime (for retrospective diagnosis) aspect. The lifetime aspect was used for the purpose of this study to confirm the diagnosis of schizophrenia and the previous episodes of mania and depression.

### 3.3. YMRS (Young Mania Rating Scale)

An 11 item scale to objectively rate the symptoms of mania over the last 48 h, with a score range of 0–60 (Young et al., 1978). A score of 5 or below is indicative of remission state (Cooke et al., 1996).

### 3.4. HDRS (Hamilton Depression Rating Scale)

This 17 item clinician administered scale designed to capture depressive symptoms over the past week was used to identify and exclude patients with depressive symptomatology (Hamilton, 1967). Remission is indicated by a score of 7 or less (Pintor et al., 2003).

### 3.5. GAF (Global Assessment of Functioning Scale)

It is an observer-rated rating of patients' level of functioning on a 100 point scale from 1 (least healthy person) to 100 (the healthiest person), where 100 indicates absence of pathology and positive mental health (American Psychiatric Association, 1994).

### 3.6. PANSS (Positive and Negative Syndrome Scale)

The PANSS is an interviewer administered structured interview to evaluate patients on 30 items consisting of positive (7 items) and negative (7 items) symptoms of schizophrenia as well as a general psychopathology (16 items) scale (Kay et al., 1987). Each item are

rated on a 1–7 Likert scale, with higher rating indicating increasing level of psychopathology severity.

### 3.7. Morisky Medication Adherence Questionnaire

We used this scale to assess adherence. This self administered 8 item scale was used to identify ways in which patients may fail to take their psychotropic medications as prescribed, e.g., by not remembering, cutting back on dosage, forgetting to bring along medication when traveling or when they feel that symptoms are under control (Morisky et al., 1986). The scale has been used previously among psychiatric outpatients in Nigeria (Adewuya et al., 2009).

### 3.8. TPS (Trust in Physician Scale)

This was the first scale developed to measure trust and it was originally evaluated among men with diabetes mellitus receiving treatment at a Veteran's Administration medical center in North Carolina (Anderson and Dedrick, 1990). The authors reported that the scale had satisfactory psychometric properties with high internal consistency (Cronbach's alpha 0.90) and adequate construct validity in their sample. It consists of 11 items scored on a 5 point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Some of the items in the scale (items 1, 5, 7 and 11) are reversely scored. The aggregate measurement of trust is obtained by transforming the unweighted mean of the subject responses to the 11 items to a 0–100 scale using the formula; Transformed Score = (Raw Score – 1)/Range × 100. The range is 4 since each item has a minimum of 1 and a maximum of 5. The patients were told to put into perspective the consultant psychiatrist who specifically attends to them during their outpatient clinic appointments when completing the scale. The TPS is an interviewer administered scale. In order to avoid any biasing or distorting effect that may arise from the participant been administered the scale by his/her consultant psychiatrist, it was ensured that during the period of the study, the outpatients were attended to by another consultant psychiatrist, who administered the scale in addition to other measures.

### 3.9. Charleston Psychiatric Outpatient Satisfactory Scale

The scale was used to assess the level of satisfaction with outpatient treatment (Pellegri et al., 2001). It consists of 15 items with the first 14 items scored on a 5 point Likert scale ranging from 1 (poor) to 5 (excellent) while item 15 is scored using a 4 point Likert scale from 1(no, definitely not) to 4(yes, definitely). Total score ranges from 13 to 65, with higher scores indicating a higher level of satisfaction with outpatient care. It has been shown to demonstrate satisfactory psychometric properties among Nigerian psychiatric outpatients (Ukpong et al., 2008).

### 3.10. Statistical analysis

All analysis was performed with the Statistical Package for Social Scientists (SPSS), 20th version. Descriptive statistics were calculated for the patients' sociodemographic and illness related characteristics. Internal consistency of the Trust in Physician Scale was assessed by calculating the Cronbach's alpha. Principal factor analysis with Varimax rotation and Kaiser Normalization was used to identify the loading pattern of the items of the Trust in Physician Scale. Construct validity was evaluated using correlational analysis. The outcome variable was the Trust in Physician Scale score while the exploratory variables included the patients' sociodemographic and illness related characteristics. All tests were 2-tailed, and the level of statistical significance was set at  $P < 0.05$ .

**Table 1**  
Sociodemographic and illness related data (n=223).

Variable	Mean (SD)/Frequency (%) / Range
Sex	
Male	102 (45.7%)
Female	121 (54.3%)
Age (Years)	38.01 (SD 11.99) [18–81]
Marital status	
Single	128 (57.4%)
Married	80 (35.9%)
Separated/divorced	15 (6.7%)
No of years of education	12.55 (SD 3.27) [5–24]
Average monthly income <sup>a</sup>	36,736 (SD 43,403) [1500–200000]
Diagnosis	
Schizophrenia	141 (63.2%)
Bipolar disorder	43 (19.3%)
Depressive disorder	39 (17.5%)
Duration of illness (in months)	95.26 (SD 89.49) [12–708]
PANSS POSITIVE	12.35 (SD 3.39) [7–16]
PANSS NEGATIVE	7.05 (SD 0.30) [7–10]
PANSS GENERAL	16.34 (SD 0.53) [16–18]
YMRS	4.50 (SD 0.55) [3–5]
HRSD	4.89 (SD 0.84) [3–6]
No of schizophrenic relapses	2.99 (SD 1.71) [1–15]
No of depressive episodes	2.34 (SD 1.37) [1–7]
No of previous admissions	1.13 (SD 1.27) [0–6]
Duration of relationship with psychiatrist (in months)	79.69 (SD 67.33) [12–300]
Global Assessment of Functioning score	61.50 (SD 11.04) [45–80]
Morisky Adherence Scale score	2.46 (SD 1.51) [0–6]
Charleston Psychiatric Outpatient Satisfaction Scale score	47.00 (SD 5.09) [30–58]
Trust in Physician Scale score	75.74 (SD 11.66) [29.55–100]

<sup>a</sup> 142 (63.7%) outpatients were currently employed.

## 4. Results

### 4.1. Sociodemographic and illness related data

Females accounted for 54.3% of the participants, the mean age of the respondents were (38.01 ± 11.99) and most of the patients were unmarried (57.4%). Sixty three percent of the respondents had a diagnosis of schizophrenia with the remaining approximately equally divided between bipolar affective disorder and depressive disorder. The mean duration of illness was 95.26 ± 89.49 months. Average duration of relationship with the psychiatrist was 76.69 ± 67.33 months. Mean transformed score of the Trust in Physician Scale was 75.74 ± 11.66 indicating a fairly high level of trust in the psychiatrists (Table 1).

**Table 2**  
Mean scores on TPS in relation to sociodemographic characteristics and diagnostic groups.

Variable	No (%)	Mean (SD)/range	t/F value	p value
Sex:				
Male	102 (45.7%)	76.78 (9.90)/56.82–100		
Female	121 (54.3%)	74.87 (12.93)/29.55–100	t = 1.222	0.223
Marital status:				
Single	128 (57.4%)	76.37 (10.76)/43.18–100		
Married	80 (35.9%)	74.57 (11.83)/56.82–100		
Separated/divorced	15 (6.7%)	76.67 (17.42)/29.55–100	F = 0.630	0.533
Diagnosis:				
Schizophrenia	141 (63.2%)	75.52 (11.22)/43.18–100		
Bipolar disorder	43 (19.3%)	75.69 (14.08)/29.55–100		
Depressive disorder	39 (17.5%)	76.63 (10.50)/52.27–100	F = 0.139	0.870

### 4.2. Mean trust scores on the TPS in relation to sociodemographic characteristics and diagnostic groups

Table 2 shows that there were no statistically significant differences in term of mean trust scores in relations to sex, marital status and the diagnostic groups.

### 4.3. Descriptive and psychometric characteristics of the Trust in Physician Scale

The respondents had the highest mean score (4.32 ± 0.76) on item 3 (“I trust my doctor so much that I always try to follow his/her advice”). The corrected item-to-scale correlations were relatively lower compared to what was originally described by the authors of the scale. (Anderson and Dedrick, 1990) The internal consistency was rather modest as indicated by a Cronbach’s alpha of 0.68 (Table 3). Less than 3% of the respondents (n = 6) had transformed total score of 100, which indicates that ceiling effects was not a problem.

### 4.4. Principal component analysis with Varimax rotation

The items of the Trust in Physician Scale loaded on 2 factors (>0.40), with the reversely scored items (questions 1, 5, 7 and 11) loading on factor 2. Eigenvalues were 3 and 2 respectively for factors 1 and 2. Factor 1 and 2 accounted for 28.82% and 19.23% of the variances respectively (Table 4).

### 4.5. Variable correlations with the Trust in Physician Scale

As seen in Table 5, there were significant positive correlations between mean trust scores and the previous number of admissions, number of schizophrenic relapses and Adherence Scale score.

### 4.6. Multiple linear regression data

Multiple linear regressions indicated that trust score was significantly determined by the previous number of admissions (Table 6). The standardized coefficients show that the previous number of admissions explained only 14.9% of the variation in the trust scores (i.e., R<sup>2</sup> = 0.149).

## 5. Discussion

The internal consistency of the scale among the Nigerian psychiatric outpatients was relatively low (Cronbach’s alpha 0.68) compared to was reported by the original developers (Anderson and Dedrick, 1990). Cronbach’s alpha value of 0.70 or above is considered acceptable and value ranges of 0.60–0.69 are marginally acceptable (Gliner and Morgan, 2000). The item-to-scale

**Table 3**  
Descriptive and psychometric characteristics of the Trust in Physician Scale (n=223).

Item	Mean (SD)	Item-Scale Correlations	Cronbach's alpha if deleted
1. I doubt that my doctor really cares about me as a person. <sup>†</sup>	3.48 (1.49)	0.36	0.66
2. My doctor is usually considerate of my needs and puts them first.	4.17 (0.87)	0.33	0.65
3. I trust my doctor so much that I always try to follow his/her advise.	4.32 (0.76)	0.33	0.65
4. If my doctor tells me something is so, then it must be true.	4.25 (0.64)	0.52	0.63
5. I sometimes distrust my doctor's opinion and would like a second one. <sup>†</sup>	3.78 (1.17)	0.41	0.64
6. I trust my doctor's judgment about my medical care.	4.22 (0.64)	0.50	0.64
7. I feel that my doctor does not do everything he/she should for my medical care. <sup>†</sup>	3.78 (1.20)	0.30	0.69
8. I trust my doctor to put my medical needs above all other considerations when treating my medical problems.	4.16 (0.77)	0.37	0.66
9. My doctor is a real expert in taking care of medical problems like mine.	4.30 (0.63)	0.39	0.65
10. I trust my doctor to tell me if a mistake was made about my treatment.	3.91 (0.85)	0.31	0.67
11. I sometimes worry that my doctor may not keep the information we discuss totally private. <sup>†</sup>	3.94 (1.13)	0.32	0.64

Cronbach's alpha=0.68; Split-half Cronbach's alpha=0.68.

<sup>†</sup> Reverse scored items.

correlations were comparatively also lower to what other authors have reported (Anderson and Dedrick, 1990; Freburger et al., 2003). We are of the opinion that, despite the relatively weak psychometric characteristics of the TPS, it is still applicable in evaluating the level of trust that Nigerian psychiatric outpatients have in their psychiatrists, based on our observation that the participants were able to demonstrate an understanding of the items of the scale and coupled with the observation of a high mean score (75.74), a value that is comparable to what the original authors reported (78.9) (Anderson and Dedrick, 1990).

The scale also demonstrated a fair level of construct validity through statistically significant positive correlations with the number of previous admissions and medication adherence, though the correlation coefficients were weak. Future use of this scale among Nigerian outpatients may require some adjustments such as the removal of some items. But, as reflected in Table 3, the deletion of any of the scales' item will not significantly improve its overall internal consistency. Also, we believe there is the need to examine the psychometric characteristics of other measures of trust among Nigerian outpatients with psychiatric disorders and compare to what has been obtained with the TPS in this study.

The relatively weaker psychometric properties of the scale in terms of the lower internal consistency and construct validity observed among the Nigerian psychiatric outpatients may be due to a number of factors. Firstly, despite recruiting outpatients who are in remission, there could be certain characteristics of the participants such as the presence of sub-syndromal symptoms which could have interfered or influenced the manner in which

they responded to the items of the scale. Another plausible factor albeit remotely, is that the scale was administered in English language which is essentially a secondary language among the participants. It would be interesting to explore in the future the psychometric characteristics of the native language (Yoruba) translated version of this scale. The item that addressed confidentiality (item 11) had a low item-to-scale correlation and was observed to have the lowest factor loading in the factor analysis. Previous studies have reported similar observations as regarding the confidentiality item of the TPS (Thom et al., 1999).

We also found that Nigeria psychiatric outpatients' trust on principal component analysis is best explained by a 2 factor construct and not a distinct construct as reported by other authors (Freburger et al., 2003). Interestingly, the reversely scored items (1, 5, 7 and 11) all loaded on a single factor, while the other items loaded on the second factor. Careful examination of the wordings of items 1 ("I doubt that my doctor really cares about me as a person"), 5 ("I sometimes distrust my doctor's opinion and would like a second opinion"), 7 ("I feel that my doctor does not do everything he/she should for my medical care") and 11 ("I sometimes worry that my doctor may not keep the information we discuss totally private"), appears to have a central theme of "doubt" or "uncertainty", while the other items (4, 3, 2, 8, 9, 6 and 10) appear to share the central theme of "trustworthiness". We could argue that the emergence of a different factor structure of the TPS among the Nigerian psychiatric outpatients maybe attributed to the concept of trust not been a distinct construct, which could be another reason why the scale exhibited rather different psychometric characteristics.

**Table 4**  
Principal component analysis with Varimax rotation.

Item	Factor 1	Factor 2
4. If my doctor tells me something is so, then it must be true.	0.857	–
3. I trust my doctor so much that I always try to follow his/her advise.	0.785	–
2. My doctor is usually considerate of my needs and puts them first.	0.734	–
8. I trust my doctor to put my medical needs above all other considerations when treating my medical problems.	0.624	–
9. My doctor is a real expert in taking care of medical problems like mine.	0.589	–
6. I trust my doctor's judgment about my medical care.	0.563	–
10. I trust my doctor to tell me if a mistake was made about my treatment.	0.574	–
1. I doubt that my doctor really cares about me as a person. <sup>†</sup>	–	0.723
7. I feel that my doctor does not do everything he/she should for my medical care. <sup>†</sup>	–	0.721
5. I sometimes distrust my doctor's opinion and would like a second one. <sup>†</sup>	–	0.719
11. I sometimes worry that my doctor may not keep the information we discuss totally private. <sup>†</sup>	–	0.542
Eigen value	3	2
Percent of total variance explained	28.82%	19.23%

Cronbach's alpha (Factor 1 items)=0.764.

Cronbach's alpha (Factor 2 items)=0.653.

<sup>†</sup> Reverse scored items.

**Table 5**  
 Variable correlations with the Trust in Physician Scale.

Variable	Correlation coefficient	p value
Age	0.075	0.267 <sup>†</sup>
No of years of education	0.108	0.123 <sup>†</sup>
No of previous admissions	0.229	<b>0.001</b> <sup>††</sup>
Morisky Adherence Scale score	0.257	<b>&lt;0.001</b> <sup>†</sup>
No of schizophrenic relapses <sup>a</sup>	0.319	<b>&lt;0.001</b> <sup>††</sup>
Duration of relationship with doctor	0.021	0.750 <sup>†</sup>
Duration of illness	0.061	0.365 <sup>††</sup>
Charleston Psychiatric Outpatient Satisfaction Scale score	0.014	0.835 <sup>†</sup>
Global Assessment of Functioning Scale score	0.022	0.749 <sup>††</sup>

<sup>a</sup> Pertains to 63.2% of the sample diagnosed with schizophrenia.  
<sup>†</sup> Pearson's correlations.  
<sup>††</sup> Spearman's correlation.

An interesting observation in our study is that our patients reported fairly high levels of trust in their psychiatrists as indicated by a mean score of 75.74 which was comparable to the mean score of 78.9 in 266 diabetic patients among whom the psychometric properties of the scale were originally evaluated (Anderson and Dedrick, 1990). It was also comparable to what has been reported in studies involving patients receiving specialist care. The mean score was 76.25 in a study that evaluated correlates of trust in the rheumatologist in patients with rheumatic disease (Freburger et al., 2003), and 78.45 and 78.7 respectively in patients been cared for by cardiologists (Kayaniyil et al., 2009), and ophthalmologists (Muir et al., 2009). It has been suggested that the presumptive reason for the high scores may be attributed to the fact that individuals who have more trust in health care providers have a higher likelihood to seek out medical care and remain committed to the health care provider (Freburger et al., 2003).

We found that there were no statistically significantly differences in terms of trust scores in relation to sex, marital status, and diagnostic groups. A recent study that evaluated trust in a sample of patients receiving treatment for mental disorders found that male patients had lower mean scores on the Trust in Physician Scale (Mather et al., 2012), although other studies have shown that there are no sex differences in relation to trust in their health care provider (Kayaniyil et al., 2009; Muir et al., 2009). That there were no differences in the mean trust scores among the our three diagnostic groups is not necessarily surprising since all our participants currently had no florid psychopathological symptoms that may influence their interaction with or perception of their health care providers. This is coupled with our observation that the mean duration of the relationship with the psychiatrist responsible for their care is about 7 years, a duration that is enough for them to have developed a significant level of trust. In support of our observation, it has been previously reported that better health status is associated with increased trust in relation to increased duration of patient–physician interaction in patients receiving care in medical subspecialties (Keating et al., 2004). We observed no

correlation between trust and the duration of relationship with the psychiatrist among our patients despite the reports of positive correlations between the length of time in the patient–physician relationship and trust scores (Kao et al., 1998; Doescher et al., 2000). The positive correlation between trust and medication adherence in our data has been confirmed in previous studies (Elder et al., 2012; Abel and Efirid, 2013; Schoenthaler et al., 2013).

Interestingly, the mean trust score of our patients correlated positively with the number of previous hospital admissions, although some studies have reported a different observation (Mather et al., 2012). A possible reason for this observation in our participants could be that the exposure to various psychosocial interventions such as family psycho education and counselling during the recurrent inpatient treatment may have contributed to the increased level of trust, probably when they patients start to experience the benefits of these interventions on their well-being following discharge from the hospital. This observation needs further exploration. Only 14.9% of the variation in the trust scores was explained by the previous number of admissions in our multivariate model. Further studies are needed to identify other factors that may explain more variations in trust levels between patients with mental disorders and the psychiatrists.

The strength of this study lies in the fact that it is the first to explore the concept of trust among Nigerian psychiatric outpatients. One other strength is that we evaluated the psychometric properties of the first scale developed to measure trust in a relatively large sample of clinically stable Nigerian psychiatric outpatients. A possible limitation is that our sample was slightly tilted toward patients receiving treatment for schizophrenia. Though, the mean trust scores were not statistically different among the three diagnostic groups. Another limitation was that patients were recruited from only one tertiary health care facility, thus there is need for caution in generalizing our results to psychiatric patients in other health care facilities in other parts of the country. Also, in terms of limitations, we did not explore the influence that other types of treatments, such as medication type may have had on trust levels. In addition, we did not investigate the possible influence that certain attributes of the psychiatrist may have had on the Nigerian psychiatric outpatients' trust levels. Trust has been reported to be positively correlated with sex concordance between patient and physician (Bertakis et al., 2003; Bonds et al., 2004). Patients have been reported to have higher trust and satisfaction with care in relation to female physicians (Bertakis et al., 2003). We only have one female consultant psychiatrist (second author) in our center, nevertheless it will be interesting to explore the interactions between trust in relation to concordance with physician sex in future studies.

Despite the limitations, we have generated baseline information on Nigerian psychiatric outpatients' sociodemographic and illness related characteristics associated with trust in the psychiatrist. Due to the chronic or episodic nature of psychiatric disorders, in addition to the disruptive effects on affected individuals' functioning, trust in the psychiatrist may be particularly important to the health of patients with psychiatric disorders.

**Table 6**  
 Multiple linear regression data.

Variable	Unstandardized coefficient		Standardized coefficient			95% confidence interval
	B	S.E.	B	t	p	
Constant	71.744	2.583		27.773	<0.001	66.637–76.852
No of previous admissions	2.898	0.929	0.268	3.121	<b>0.002</b>	1.062–4.734
Morisky Adherence Scale score	0.830	0.659	0.104	1.259	0.210	–0.474 to 2.134
No of schizophrenic relapses	0.946	0.546	0.144	1.733	0.085	–0.133 to 2.025

R<sup>2</sup> = 0.149; adjusted R<sup>2</sup> = 0.130.

It has been suggested that continuity of care is directly related to trust in the healthcare provider (Thom et al., 1999). More studies on the interaction between trust and other factors such as health outcomes and quality of life are needed among Nigerian psychiatric outpatients.

## 6. Conclusion

Our results show that the TPS, despite its weak psychometric qualities is still a useful tool for evaluating the level of trust that Nigerian outpatients' with mental health disorders have in their psychiatrists. We believe that other health care researchers in Nigeria and Sub-Sahara Africa will be encouraged to further explore the properties of this scale and other related scales and identify factors that can be modified as to improve patients' trust in their healthcare provider.

## Acknowledgements

We acknowledge our outpatients who agreed to participate in this study. We also thank Miss Esther Atanda for her assistance toward the preparation of the manuscript.

## References

- Abel, W.M., Efrid, J.T., 2013. The association between trust in health care providers and medication adherence among black women with hypertension. *Front. Public Health* 1, 66. <http://dx.doi.org/10.3389/fpubh.2013.00066>.
- Adewuya, A.O., Makanjuola, R.O., 2008. Lay beliefs regarding causes of mental illness in Nigeria: patterns and correlates. *Soc. Psychiatry Psychiatr. Epidemiol.* 43 (4) 336–341.
- Adewuya, A.O., Owoeye, O.A., Erinfolami, A.R., Coker, A.O., Ogun, O.C., Okewole, A.O., Dada, M.U., Ez, C.N., Bello-Mojeed, M.A., Akindipe, T.O., Olagunju, A.T., Etim, E., 2009. Prevalence and correlates of poor medication adherence amongst psychiatric outpatients in Southwestern Nigeria. *Gen. Hosp. Psychiatry* 31 (2) 167–174.
- American Psychiatric Association, 1994. *Diagnostic and Statistical Manual of Mental Disorders*, 4th ed. American Psychiatric Association, Washington DC.
- Anderson, L.A., Dedrick, R.F., 1990. Development of the Trust in Physician Scale: a measure to assess interpersonal trust in patient–physician relationship. *Psychol. Rep.* 67 (3) 1091–1100.
- Baker, R., Mainous III, A.G., Gray, D.P., Love, M.M., 2003. Exploration of the relationship between continuity, trust in regular doctors and patient satisfaction with consultations with family doctors. *Scand. J. Prim. Health Care* 21 (1) 27–32.
- Bertakis, K.D., Franks, P., Azari, R., 2003. Effects of physician gender on patient satisfaction. *J. Am. Med. Womens Assoc.* 58 (2) 69–75.
- Bonds, D.E., Foley, K.L., Dugan, E., Hall, M.A., Extrom, P., 2004. An exploration of patients' trust in physicians in training. *J. Health Care Poor Underserved* 15 (2) 294–306.
- Booth, M.L., Bernard, D., Quine, S., Kang, M.S., Usherwood, T., Alperstein, G., Bennet, D.L., 2004. Access to health care among Australian adolescents: young people's perspectives and their sociodemographic distribution. *J. Adolescent Health* 34 (1) 97–103.
- Collins, T.C., Clark, J.A., Petersen, L.A., Kressin, N.R., 2002. Racial differences in how patients perceive physician communication regarding cardiac testing. *Med. Care* 40 (1) 127–134.
- Cooke, R.G., Robb, J.C., Young, L.T., Joffe, R.T., 1996. Well-being and functioning in patients with bipolar disorder assessed with the MOS 20-ITEM short form (SF-20). *J. Affect Disord.* 39 (2) 93–97.
- Dibben, M., Lena, M., 2002. Achieving compliance in chronic illness management: Illustrations of trust relationships between physicians and nutrition clinic patients. *Health. Risk. Soc.* 5 (3) 241–259.
- Doescher, M.P., Saver, B.G., Franks, P., Fiscella, K., 2000. Racial and ethnic disparities in perception of physician style and trust. *Arch. Fam. Med.* 9 (10) 1159–1163.
- Elder, K., Ramamonjiravelo, Z., Wiltshire, J., Piper, C., Horn, W.S., Gilbert, K.L., Hullest, S., Allison, J., 2012. Trust, medication adherence, and hypertension control in Southern African American men. *Am. J. Public Health* 102 (12) 2242–2245.
- Frebarger, J.K., Callahan, L.F., Currey, S.S., Anderson, L.A., 2003. Use of the Trust in Physician Scale in patients with rheumatic disease: psychometric Properties and correlates of trust in the Rheumatologist. *Arthritis Rheum.* 49 (1) 51–58.
- Gliner, J.A., Morgan, G.A., 2000. *Research Methods in Applied Settings: An Integrated Approach to Design and Analysis*. Lawrence Erlbaum Associates, Mahwah, NJ.
- Hall, M.A., Dugan, E., Zheng, B., Mishra, A.K., 2001. Trust in physicians and medical institutions: what is it, can it be measured, and does it matter? *Milbank. Q.* 79 (4) 613–639.
- Hall, M.A., Zheng, B., Dugan, E., Camacho, F., Kidd, K.E., Mishra, A., Balkrishnan, R., 2002. Measuring patients trust in their primary care providers. *Med. Care Res. Rev.* 59 (3) 293–318.
- Hamilton, M., 1967. Development of rating scale for primary depressive illness. *Br. J. Soc. Clin. Psychol.* 6 (4) 278–296.
- Hillen, M.A., Koning, C.C., Wilink, J.W., Klinkenbijn, J.H., Eddes, E.H., Kallimanis-King, B.L., de Haes, J.C., Smets, E.M., 2012. Assessing cancer patients' trust in their oncologist: development and validation of the Trust in Oncologist Scale (TiOS). *Support. Care Cancer* 20 (8) 1787–1795.
- Joffe, S., Manocchia, M., Weeks, J.C., Cleary, P.D., 2003. What do patients value in their hospital care? An empirical perspective on autonomy centered bioethics. *J. Med. Ethics* 29 (2) 103–108.
- Joos, S.K., Hickam, D.H., Gordon, G.H., Baker, L.H., 1996. Effects of a physician communication intervention on patient care outcomes. *J. Gen. Intern. Med.* 11 (3) 147–155.
- Kai, J., Crosland, A., 2001. Perspectives of people with enduring mental health problems from a community-based qualitative study. *Br. J. Gen. Pract.* 51 (370) 730–736.
- Kao, A.C., Green, D.C., Zaslavsky, A.M., Koplan, J.P., Cleary, P.D., 1998. The relationship between method of physician payment and patient trust. *JAMA* 280 (19) 1708–1714.
- Kay, S.R., Fiszbein, A., Opler, L.A., 1987. The positive and negative syndrome scale (PANSS) for schizophrenia. *Schizophr. Bull.* 13 (2) 261–276.
- Kayaniyil, S., Gravely-Witte, S., Stewart, D.E., Higginson, L., Suskin, N., Alter, D., Grace, S.L., 2009. Degree and correlates of patient trust in their cardiologist. *J. Eval. Clin. Pract.* 15 (4) 634–640.
- Keating, N.L., Gandhi, T.K., Orav, E.J., Bates, D.W., Ayanian, J.Z., 2004. Patient characteristics and experiences associated with trust in specialist physicians. *Arch. Intern. Med.* 164 (9) 1015–1020.
- Krajewski-Kulak, E., Chilicka, M., Kulak, W., Adranoitis, J., Chadzopulu, A., Rozwadowska, E., 2011. Assessment of physician–patient trust in the obstetrics and gynecological departments in Poland and Greece. *Ginekol. Pol.* 82 (12) 905–910.
- Lasebikan, V.O., Owoaje, E.T., Asuzu, M.C., 2012. Social network as a determinant of pathway to mental health service utilization among psychotic patients in a Nigerian hospital. *Ann. Afr. Med.* 11 (1) 12–20.
- Leisen, B., Hyman, M.R., 2001. An improved scale for assessing patients' trust in their physician. *Health Mark. Q.* 19 (1) 23–42.
- Mather, G., Baker, D., Laugharne, R., 2012. Patient trust in psychiatrists. *Psychosis* 4 (2) 161–167.
- Mechanic, D., Meyer, S., 2000. Concepts of trust among patients with serious illness. *Soc. Sci. Med.* 51 (5) 657–668.
- Minamisawa, A., Suzuki, T., Watanabe, K., Imasaka, Y., Kimura, Y., Takeuchi, H., Nakajima, S., Kashima, H., Uchida, H., 2011. Patient's trust in their psychiatrist: a cross-sectional survey. *Eur. Arch. Psychiatry Clin. Neurosci.* 261 (8) 603–608.
- Morisky, D.E., Green, L.W., Levine, D.M., 1986. Concurrent and predictive validity of a self-reported measure of medication adherence. *Med. Care* 24, 67–74.
- Muir, K.W., Santiago-Turla, C., Stinnet, S.S., Herndon, L.W., Allingham, R.R., Challa, P., Lee, P.P., 2009. Glaucoma patients' trust in the physician. *J. Ophthalmol.* <http://dx.doi.org/10.1155/2009/476726>, 476726.
- Nguyen, G.C., Laveist, T.A., Harris, M.L., Datta, L.W., Bayless, T.M., Brant, S.R., 2009. Patient trust-in-physician and race are predictors of adherence to medical management in inflammatory bowel disease. *Inflamm. Bowel. Dis.* 15 (8) 1233–1239.
- Nurgat, Z.A., Craig, W., Campbell, N.C., Bissett, J.D., Cassidy, J., Nicolson, M.C., 2005. Patients motivations surrounding participation in Phase I and Phase II clinical trials of cancer chemotherapy. *Br. J. Cancer* 92 (6) 1001–1005.
- Pearson, S.D., Raeke, L.H., 2000. Patients' trust in physicians: many theories, few measures, and little data. *J. Gen. Intern. Med.* 15 (7) 509–513.
- Pellegrin, K.L., Stuart, G.W., Maree, B., Frueh, B.C., Ballenger, J.C., 2001. A brief scale for assessing patients' with care in outpatient psychiatric services. *Psychiatr. Serv.* 52 (6) 816–819.
- Pintor, L., Gasto, C., Navarro, V., Torres, X., Fananas, L., 2003. Relapse of major depression after complete and partial remission during a 2-year follow-up. *J. Affect. Disord.* 73 (3) 237–244.
- Repper, J., Ford, R., Cooke, A., 1994. How can nurses build trusting relationships with people who have severe and long term mental health problems? Experiences of case managers and their clients. *J. Adv. Nurs.* 19 (6) 1096–1104.
- Safran, D.G., Kosinski, M., Tarlov, A.R., Roger, W.H., Taira, D.A., Lieberman, N., Ware, J.E., 1998. The Primary Care Assessment Survey: tests of data quality and measurement performance. *Med. Care* 36 (5) 728–739.
- Schoenthaler, A., Montague, E., Baier Manwell, L., Brown, R., Schwartz, M.D., Linzer, M., 2013. Patient–physician racial/ethnic concordance and blood pressure control: the role of the trust and medication adherence. *Ethn. Health*, [Epub ahead of Print].
- Scotti, D.J., Stinerock, R.N., 2003. Cognitive predictors of satisfaction with hospital service encounters among the elderly: a matter of trust. *J. Hosp. Mark. Public Relations* 14 (2) 3–22.
- Sharma, R., Haas, M., Stano, M., 2003. Patient attitudes, insurance and other determinants of self-referral to medical and chiropractic physicians. *Am. J. Public Health* 19 (12) 2111–2117.
- Sheehan, D.V., Lecruibier, Y., Sheehan, K.H., Amorim, P., Janavs, J., Weiller, E., Hergueta, T., Baker, R., Dunbar, G.C., 1998. The Mini International Neuropsychiatric Interview. *J. Clin. Psychiatry* 59 (Suppl 20) 22–33.

- Svedberg, P., Jormfeldt, H., Arvidsson, B., 2003. Patients' conceptions of low health processes are promoted in mental health nursing. A qualitative study. *J. Psychiatr. Ment. Health Nurs.* 10 (4) 448–456.
- Thom, D.H., Kravitz, R.L., Bell, R.A., Krupat, E., Azari, R., 2002. Patients trust in the physician: relationship to patients request. *Fam. Pract.* 19 (5) 476–483.
- Thom, D.H., Ribisi, K.M., Stewart, A.L., Luke, D.A., 1999. Further validation and reliability testing of the Trust in Physician Scale. *The Stanford Trust Study Physicians. Med. Care* 37 (5) 510–517.
- Ukpong, D.I., Mosaku, S.K., Aloba, O.O., Mapayi, B.M., 2008. Reliability and Validity of a Satisfaction Scale in a Nigerian Psychiatric Out-Patient Clinic. *Nig. J. Psychiatr.* 6 (1) 31–36.
- WHO, 1994. *International Classification of Diseases and Disorder. Tenth Edition.*
- Young, R.C., Biggs, J.T., Ziegler, V.E., Meyer, D.A., 1978. A rating scale for mania; reliability, validity and sensitivity. *Br. J. Psychiatry* 133 (2) 429–435.