The knowledge and attitudes of psychiatrists towards antipsychotic long-acting injections in Nigeria

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Abstract:

Background: Antipsychotic long-acting injections (LAIs) reduce covert nonadherence with medication in the clinical management of psychotic disorders. However, they are variably utilised by clinicians, especially in the long term. Factors including poor knowledge, stigma and perceived coercion can all adversely influence LAI utilisation. Previous research has emanated almost exclusively from developed countries. This study explores the knowledge and attitudes of psychiatrists and trainees in Nigeria towards LAIs.

Methods: A cross-sectional study was undertaken among mental health professionals in Nigeria using a pre-existing questionnaire.

Results: Participant psychiatrists (n = 128) expressed positive attitudes towards LAIs. Their knowledge concerning LAIs and its side effects was fair. The participants reported that nearly half (41.7%) of their patients with a psychotic illness were on LAIs. Those who reported a high prescribing rate for LAIs (>40%) were more likely to endorse more positive 'patient-centred attitudes' ($p < 0.04$). In contrast to previous reports, psychiatrists reported that patients were less likely to feel ashamed when on LAIs, though most endorsed the statement that force was required during LAI administration.

Conclusion: The desirability of treatment by injections differs in Africa in comparison to Western cultures, possibly due to the increased potency that injections are perceived to have. This is perhaps evidenced by high rates reported for use of LAIs. Nigerian psychiatrists had positive attitudes to LAIs but their knowledge, particularly regarding side effects, was fair and needs to be improved. Providing information to patients prior to antipsychotic treatment may enhance informed consent in a country where medical paternalism is still relatively strong.

Keywords: Antipsychotic agents, delayed action preparations, psychiatrists, attitudes, knowledge

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Introduction

Medication adherence in the maintenance phase of schizophrenia constitutes an important factor in the prevention of illness relapse [Lacro *et al.* 2002]. Rates of poor or complete nonadherence to antipsychotic medications are higher on average in developing countries in comparison to Western cultures [World Health Organisation, 2003; James and Omoaregba, 2011]. Reasons for the difference in these rates include beliefs about a spiritual causation for mental illness, stigma and poor psychosocial support [Lacro *et al.* 2002; Adewuya *et al.* 2009].

Antipsychotic depot long-acting injections (LAIs) were developed in the 1960s to improve medication adherence [Johnson, 2009]. The evidence suggesting that LAIs reduce the risk of rehospitalisation among individuals with schizophrenia has been examined and debated recently [Rosenheck *et al.* 2011]. Sampling bias, questionable comparisons of oral second-generation antipsychotics (oral SGAs) with first-generation antipsychotic injections (FGA-LAIs) and problems with blinding were all cited as factors limiting the strength of the evidence in a recent meta-analysis [Leucht *et al.* 2011]. However, a recent study overcoming

most of these challenges showed that use of LAIs reduced rehospitalisation rates in Finland [Tiihonen *et al.* 2011; Haddad *et al.* 2011]. The prescribing rates for LAIs by psychiatrists vary across countries of the world [Walburn *et al.* 2001; Patel and David, 2005]. Several factors have been associated with the variability in prescribing rates across cultures, and include: attitudes of psychiatrists and nurses [Patel *et al.* 2003, 2005, 2010a; Heres *et al.* 2006; Harris *et al.* 2007], stigma [Jaeger and Rossler, 2010], side effects [Taylor, 2009] and compulsory community treatment legislation [Lambert *et al.* 2009; Patel *et al*. 2011].

Systematic reviews have identified a paucity of studies exploring the relationship between psychiatrists' attitudes and willingness to prescribe LAIs [Waddell and Taylor, 2009; Besenius *et al.* 2010]. A recent study comparing trends in LAI prescribing between 2001 and 2006 among psychiatrists showed that stigmatising attitudes towards patients prescribed LAIs had declined over this period but that reported prescribing rates had not increased in spite of the availability of SGA-LAIs [Patel *et al.* 2010a]. Furthermore, unlike in Western cultures, where patients may view injections as coercive, studies in Nigeria show that patients prefer medications administered by the parenteral route to oral drugs, believing them to be more effective [Sowande, 2010]. It is not known if these attitudes would have an effect on Nigerian psychiatrists' prescribing rates for LAIs. Therefore, the study presented here aimed to determine the prescribing patterns of LAIs by psychiatrists (consultant and trainees) in Nigeria, to elicit factors that are associated with prescribing practices, and to determine the relationship between the knowledge and attitudes of these professionals towards LAIs.

Methods

Hypothesis

We hypothesized that reported prescribing rates for LAIs would be higher among psychiatrists who believe that LAIs were readily accepted by their patients (patient-centred attitudes). This was based on the assumption of patients' erroneous belief in the superior efficacy of parenteral medications which would influence psychiatrists and senior trainees to commonly prescribe LAIs.

Design

A cross-sectional study was conducted of the attitudes and knowledge of senior trainees and consultant psychiatrists working in Nigeria.

Setting

This study took place in Nigeria. Psychiatric services are provided for its population of approximately 150 million people, mainly through stand alone psychiatric hospitals, psychiatric departments in teaching hospitals, federal medical centres and some state psychiatric hospitals. There are between 150 and 250 practising psychiatrists in the country. Some centres are accredited to offer postgraduate training in psychiatry, with a training duration of between 4 and 6 years. Commonly available LAIs in Nigeria at the time this study was conducted included fluphenazine decanoate, flupenthixol decanoate, and zuclopenthixol decanoate. Risperidone LAI was introduced in Nigeria some 9–12 months before the study was commenced.

Participants

A list of hospitals offering psychiatric care in the country was drawn up and grouped into geopolitical zones. Due to logistic constraints and limited resources, only four of the six geopolitical zones could be selected; north-west, north central, south-west, and south-south. For each selected zone, two hospitals were then selected using a simple random method, with each selected hospital then sampled as a cluster. Participants at each hospital were consultant psychiatrists as well as trainees. To be included in the study, trainees had to be in the residency program for at least 18 months. All participants who returned a completed questionnaire were deemed to have provided implicit consent.

Questionnaire

A pre-existing questionnaire on the attitudes and knowledge of clinicians towards depot antipsychotics was used for the study. The first section of the questionnaire enquired about sociodemographic variables. The second section enquired about prescription practices: common LAIs used, self-reported prescription rates, factors that promote LAI use, participants' personal dislike for injections and attitudes towards patients who

request LAIs. Responses were coded using open-ended and Likert responses. The third section of the questionnaire concerned knowledge and attitudes towards LAIs. This section of the questionnaire contained 56 items [Patel *et al.* 2010a], modified from the original 44-item questionnaire [Patel *et al.* 2003] divided into four subscales: patient-centred attitudes; nonpatient-centred attitudes; general knowledge about depots; and specific knowledge about the side effects of depot antipsychotics. This questionnaire has been shown to have a modest internal reliability and good test–retest reliability [Patel *et al.* 2010a]. The additional 12 items contained new questions concerning 'patient choice' and 'side effects' distinct from the four original subscales [Patel *et al.* 2010a]. Items are scored on a six-point Likert scale (strongly disagree 0, disagree 1, vaguely disagree 2, vaguely agree 3, agree 4, strongly agree 5). Statements are positively and negatively worded to avoid a response set bias, and negatively worded statements are reverse scored during analysis. Maximum scores for each subscale were: patient centred (40); nonpatient centred (45); general knowledge (85); and knowledge of side effects (50). For this study, we made slight modifications to adapt the section on sociodemographic and clinical experience data to this environment.

Procedure

Following the approval of heads of departments at the various institutions, a local investigator distributed and retrieved the questionnaires, which were then sent to the principal investigator for data extraction and analysis. Each questionnaire included a page detailing the nature and purpose of the study. We collected data anonymously between May and October 2011 with participation being entirely voluntary. Respondents who completed and returned the questionnaire were deemed to have provided consent to participate. Approval for the study was obtained from the Ethical Review Committee of the Federal Psychiatric Hospital, Benin City, Nigeria.

Data analysis

Data were analysed using the Statistical Package for Social Sciences (SPSS) version 16. Descriptive statistics were used to summarise the data into proportions and presented in tables. Associations between categorical and continuous variables were tested using the chi-square test and t test respectively. Summary scores for the four main subscales were calculated and negatively worded items were reverse scored. Higher scores indicate more positive attitudes and greater knowledge [Patel *et al.* 2010a]. Some mean subscale scores were compared using t tests according to categorical variables of gender, current LAI use (≤40%/>40%) and years of psychiatric experience (cutoff point 5 years). Subscale scores were also compared according to participants' personal preference for injections (accept/decline). Level of statistical significance was set at $p < 0.05$.

Results

Sociodemographic characteristics

A total of 175 questionnaires were distributed and 128 returned (73% response rate). About two-thirds of the sample were men (65.6%), with a majority within the age group of 30–39 years (59.4%). General adult psychiatry (83.6%) was the most commonly recorded clinical specialty, with other specialties including child and adolescent (7%), elderly care (5.5%) and forensic psychiatry (3.9%). Years of experience in psychiatry of participants averaged 5.29 years [standard deviation (SD) 4.43, range 2–31].

Prescribing practices

Respondents estimated that 67.9% of their patients had a psychotic illness (SD 15.5, range 10–90%) of which 41.7% were currently prescribed an LAI (SD 21.8, range 5–100%). One hundred and twenty respondents (93.8%) indicated their most frequently prescribed LAI in the preceding year to be fluphenazine decanoate, while 108 (84.4%) indicated that flupenthixol decanoate would be their second choice LAI.

For maintenance phase treatment of schizophrenia, respondents chose oral SGAs (60.2%), oral FGAs (21.9%), FGA-LAIs (7.8%) and risperidone LAI (5.5%) as their preferred treatment of first choice. A minority (4.6%) indicated no first choice preference. The preferred treatment option of second choice ranged from oral FGAs (41.4%), an FGA-LAI (36.7%), oral SGAs (17.9%) to SGA-LAI (2.3%). Two participants indicated no second choice preference.

Certain factors about LAIs that would influence psychiatrists to prescribe them more frequently were, first, the existence of randomised trial data indicating that relapse rates were lower on LAIs

compared with oral antipsychotics (46.8%); second, if LAIs were introduced with fewer side effects (31%); and third, if more SGAs were available in the LAI formulation (28.9%).

The three most common patient-related factors, that would influence psychiatrists to prescribe a LAI were, poor adherence (89.1%), multiple relapse (6.7 %) and patient request (4.2 %). A majority of respondents believed that adherence was slightly better (53.1%) or much better (35.2%) when patients are on SGAs compared with FGAs. Among the respondents, most reported no change (41.4%) or a moderate increase (38.3%) in rates of prescribing for LAIs in the last 5 years compared with a minority reporting a major decrease (2.3%), moderate decrease (11.7%) or a major increase (6.2%).

There was a personal dislike for injections among psychiatrists and trainees in this study as only 27 (21.1%) considered injections were not a problem. Most who would still accept injections had a slight (21.9%) or moderate (32.8%) dislike for injections for themselves. Over half indicated they would feel positive (55.5%) if a patient requested a LAI with others saying that they would be concerned (18.8%), ambivalent (20.3%), negative (3.1%) or relieved (2.3%).

Knowledge and attitudes

Mental health professionals in Nigeria had a positive attitude towards LAIs. The scores (mean, SD) for the attitude subscales were patient centred (28.9, 4.5), nonpatient centred (30.6, 4.8) and patient choice (19.6, 4.6) (see Table 1). Most participants (73.4%) positively endorsed the statement that LAIs were part of a patient-centred approach to treatment and fewer (11.7%) disagreed that LAI administration was associated with a greater risk of stigma. In addition, over half (65.6%) believed that patients' families and friends were more accepting of LAIs. Only very few agreed LAIs were old fashioned (4.7%), with over half (64.8%) believing the good aspects of LAIs outweigh the bad. A majority believed LAIs prevent relapse (90.6%) and that it was easier to monitor patient adherence (94.5%) compared with patients on oral medications. In contrast, a majority believed that force is sometimes required when administering a LAI to patients (72.7%).

Overall, the knowledge of the Nigerian mental health professionals in this study was fair. Their knowledge as evident in the subscale scores (mean, SD) was fair: general knowledge about LAIs (46.8, 5.8), knowledge of side effects (25.7, 5.2). Less than half (46.9%) agreed that LAIs were appropriate for patients under 30. Most (91.4%) agreed that LAIs have comparable efficacy to oral medications. Almost half (46.9%) agreed that major side effects are more commonly associated with FGA-LAIs than with oral FGAs. Moreover, a majority believed that fear of injections was a major reason why patients decline to accept LAIs (71.9%) (see table 1 for full details).

There was a positive and significant correlation between total knowledge and attitude scores ($r = 0.30$, $p < 0.001$). There were no differences in subscale scores compared with gender or years of experience (≤5years/>5 years). However, respondents who reported higher prescribing rates for LAIs (≤40%/>40%) had significantly higher mean scores on the patient-centred attitudes subscale (29.89 *versus* 28.27, $t = 2.107$, $p < 0.04$). In addition, *post hoc* individual item analysis revealed that respondents whose reported prescribing rate for LAIs was less than or equal to 40% were significantly more likely to believe that LAIs were coercive ($p < 0.01$) and more likely to positively endorse the statement that patients receiving LAIs had a forensic history ($p < 0.03$).

Additionally, respondents who personally disliked injections had significantly higher scores on the patient choice subscale ($t = 2.656$, $p < 0.01$).In particular, psychiatrists who disliked injections for themselves were significantly more likely to believe that relapse rates were lower with oral medications compared with LAIs ($p < 0.01$).

Discussion

The authors believe that this is the first report on the knowledge and attitudes of psychiatrists from Africa towards LAIs and that it reduces the paucity of research in this field from developing countries [Waddell and Taylor, 2009]. Our main findings were that psychiatrists' use of LAIs was fairly high, though knowledge was fair. Certain attributes of the respondents (e.g. dislike for medications) were reflected in their attitudes towards LAIs, which included beliefs that relapse rates were lower in patients on oral antipsychotic medications compared with LAIs. Furthermore, psychiatrists who believed that LAI use was coercive and commonly prescribed for patients with a forensic history were less likely to prescribe them.

Table 1. Knowledge and attitude statements.

	Agree (%)	Mean (SD)
Subscale: Attitudes 1 (patient centred)		**28.95 (4.45)**
Depots are part of a patient-centred approach to treatment	73.4	3.26 (1.46)
The patient has no autonomy if they receive a depot (R)	28.9	1.56 (1.58)
Prescribing depots is coercive (R)	24.2	1.92 (1.37)
Patients can negotiate the dose of depot medication	31.2	1.72 (1.31)
Patients have a greater risk of being stigmatised if they receive a depot (R)	11.7	0.91 (1.15)
If a patient is prescribed a depot, they are more likely to have a forensic history (R)	4.7	0.66 (0.82)
Patients are less likely to accept depot than oral medication (R)	32.8	1.89 (1.34)
Patients' friends and family are more accepting of depot than oral medication (R)	65.6	2.93 (1.45)
Subscale: Attitudes 2 (nonpatient centred)		**30.61 (4.84)**
Patient compliance is better with depots than with oral antipsychotics	86.7	3.73 (1.15)
Monitoring patient compliance is easier with depots than with oral antipsychotics	94.5	4.02 (0.92)
Depots are associated with prevention of relapse	90.6	3.72 (0.98)
Depots are old fashioned (R)	4.7	0.70 (0.85)
Prescribing and monitoring are more bothersome for depot than oral medication (R)	14.8	1.25 (1.28)
When newly initiating a depot I prefer an atypical depot rather than a typical depot/If there was an atypical antipsychotic depot, I would prescribe it	58.6	2.73 (1.62)
For depots, the good aspects outweigh the bad	64.8	2.98 (1.42)
Once a patient is on depot, it is unwise to discontinue (R)	20.3	1.45 (1.27)
Special depot clinics are the best place for administration of depot injections	40.6	1.98 (1.43)
Subscale: Knowledge 1 (general)		**46.76 (5.75)**
Depots are appropriate for patients aged under 30 years*	46.9	2.16 (1.65)
Depots should not be commenced for voluntary/informal patients*(R)	24.2	1.53 (1.36)
Depots are only indicated for high levels of psychosis and lack of insight* (R)	14.1	1.09 (1.24)
Depots can be started during the patient's first episode of psychosis*	52.3	2.47 (1.53)
Depots can be indicated for use in nonpsychoses*	28.9	1.54 (1.26)
If long-term antipsychotic treatment is indicated, a depot should be considered*	55.5	2.55 (1.56)
A stable and well patient on a depot should not be switched to an oral atypical*	46.9	2.41 (1.56)
In terms of efficacy, all depots are the same	43.8	2.17 (1.62)
Depots are as efficacious as oral medication in reducing psychopathology	91.4	3.82 (1.01)
Patients receiving a depot seldom require additional long-term oral antipsychotics	45.5	2.33 (1.36)
If a patient does not respond to depot, they are treatment resistant (R)	11.7	1.01 (1.05)
Women are more likely to gain good symptom control on a depot than men (R)	16.4	1.44 (1.05)
Depots are better at relieving negative symptoms than positive symptoms (R)	17.2	1.33 (1.14)

(Continued)

Table 1. (Continued)

	Agree (%)	Mean (SD)
There is less individual variation in plasma levels with depots than with oral medication	71.1	2.96 (1.31)
Steady-state plasma levels are achieved 1 week after the first depot injection (R)	58.6	2.58 (1.29)
Patients on depots should be reviewed every 3 months	49.2	2.40 (1.69)
Patients on depots do not need to be reviewed more regularly than twice a year	12.5	1.12 (1.14)
Subscale: Knowledge 2 (side effects)		**25.71 (5.20)**
Major side effects are more commonly associated with typical depots than typical orals	46.9	2.53 (1.55)
In general, the side effects are worse for depots than oral atypical antipsychotics (R)	58.6	2.76 (1.42)
Local inflammation at the injection site is a rare event	46.1	2.27 (1.41)
Fear of injection is a common reason for patients rejecting depots (R)	71.9	2.99 (1.34)
Depot injections are painful (R)	66.4	2.88 (1.24)
There is an increased risk of tardive dyskinesia with typical depot than oral typicals (R)	60.9	2.86 (1.43)
Major weight gain is a direct consequence of depot medication (R)	41.4	2.20 (1.53)
For typical depots, test doses are indicated to avoid severe prolonged adverse effects	76.6	3.35 (1.41)
Routine prescribing for anti-parkinsonian medication is indicated for typical depots (R)	32.0	1.83 (1.47)
In an adverse event, a typical depot's long duration of action is a disadvantage	68.0	3.27 (1.62)
Knowledge 3 (side effects updated)		**6.28 (2.82)**
Routine coprescribing for anti-parkinsonian medication is indicated for atypical depots	17.2	1.35 (1.26)
Depots make people tired and sluggish more so than do oral medication	18.0	1.45 (1.11)
Oral medication makes patients feel like a zombie more so than do depots	10.2	1.09 (1.07)
Depots allow patients to feel more relaxed more so than do oral medication	47.7	2.39 (1.32)
Patient choice		**19.63 (4.63)**
Patients always prefer to have oral medication instead of a depot	32.0	1.86 (1.39)
Patients taking medication of their own free choice is more likely to be oral than depot	64.1	2.91 (1.58)
Patients on depot are more likely to feel ashamed than those on oral medication	17.2	1.30 (1.37)
Force is sometimes required when administering a depot	72.7	2.99 (1.34)
Threats of enforcing treatment are less likely if a patient is on oral rather than a depot	21.1	1.45 (1.36)
Patients feeling they have control of their medication is more likely for oral than depot	78.9	3.36 (1.22)
It is easier to control patients if they are on a depot rather than oral medication	58.6	2.66 (1.41)
Relapse rates are lower with depots than with oral antipsychotics	75.8	3.20 (1.21)

*Items test prescribing indications.
R, items are reverse scored; SD, standard deviation.

However, this study had some limitations. First, although we aimed to ensure representativeness of the sample, only four of six zones in the country were sampled due to logistic constraints and limited resources. We could not determine if the characteristics of those excluded differed from those included, however we did not expect differences because trainees and psychiatrists in all zones undergo a similar postgraduate training programme and operate broadly similar treatment programmes. The participation rate among those contacted was high, which enables us to generalise our findings to all psychiatrists and senior trainees working in the country. Second, most participants worked in general adult psychiatry. This is reflective of the underdevelopment of subspecialties in Nigeria. Due to a low number of psychiatrists in the country, most offer forensic, old age and child/adolescent care when subspecialists are unavailable.

Prescribing practices

On average, psychiatrists reported that nearly half of their patients with a psychotic illness were prescribed an LAI but considerable variance was observed. Recent reports from Nigeria consistently show that less than a third of patients are either prescribed LAIs alone or in combination with oral antipsychotics [Adewuya *et al.* 2009; James and Omoaregba, 2011; Adelufosi *et al.* 2011]. This difference with our findings might be due to a perceived overestimation of LAI use among participants or a selection bias. The former studies also examined patient case records to determine the proportion of patients prescribed LAIs, whereas our respondents provided an estimate.

Psychiatrists in Nigeria have a limited range of antipsychotic LAIs to choose from. Though respondents indicated they would more likely prescribe LAIs if SGA-LAIs were available, risperidone LAI was not a commonly prescribed LAI. Cost may be a hindrance, as it costs a patient on average approximately US$250/dose of risperidone LAI compared with US$1.50/dose of fluphenazine decanoate, for example. Psychiatric treatments are not subsidised and health insurance is limited to individuals who are employed or their close dependants. Furthermore, there is a tendency by health maintenance organisations to list only affordable medications for prescribing by physicians. Thus, psychiatrists' options regarding medication choice when counselling patients or their caregivers is influenced by cost. The low prescription rate of SGA-LAIs may also be due to the nonfamiliarity with risperidone LAI which, as previously mentioned, is relatively new in the country and thus the psychiatrists sampled are possibly not familiar with its use. We note a preference for SGAs as treatment of first choice in the maintenance phase of schizophrenia. In recent years, oral generic SGAs have become increasingly available at lower costs to the end user [Orubuloye *et al.* 1991]. It is also interesting to note that LAIs were the treatment of second choice for over two-thirds of psychiatrists studied. Perhaps, as SGA-LAIs become increasingly available in the future with reduced cost, a rise in SGA-LAI prescriptions may occur. Fewer side effects and LAIs being available for more SGAs were common factors that would influence psychiatrists to prescribe LAIs. Earlier reports on the influence that SGA-LAIs could have on prescribing practices have been mixed [Patel *et al.* 2004; Heres *et al.* 2006, 2011].

Knowledge and attitudes

Compared with psychiatrists in the UK [Patel *et al.* 2010a], lower subscale knowledge scores were evident in this sample which comprised senior trainees as well as psychiatrists. However, as in earlier reports, we noted a significant relationship between total knowledge and attitude scores, though the strength of the correlation was small [Patel *et al.* 2008, 2010a]. A possible reason for this small correlation may be the heterogeneous nature of the sample. Senior trainees may have imbibed attitudes that are similar to their consultants and thus their attitudinal dispositions towards LAIs may be poorly reflective of actual knowledge. Some variation in the level of agreement with attitude statements compared with earlier reports is worth mentioning. Nigerian psychiatrists and senior trainees did not perceive LAIs to be old fashioned, a finding that contrasts reports and reviews from developed countries [Patel *et al.* 2010a; Besenius *et al.* 2010]. Also, a service users' erroneous belief that injections are more efficacious than oral medications might account for a majority of participants in this study disagreeing that LAIs are associated with a greater risk of stigma, or that patients were less likely to receive LAIs compared with oral medications.

Paradoxically, a majority believed that force may be required in administering LAIs even though they believed that patients were more accepting of

LAIs. This raises some ethical concerns [Patel *et al.* 2003, 2005]. Medical paternalism is common in Nigeria and physicians rarely consider the patients' view. In psychiatry patients remain at risk of being erroneously viewed as incapable of making informed decisions [Samele *et al.* 2007]. Though not peculiar to psychiatry, the belief among lay persons that parenteral medications are more efficacious than oral medications is prevalent. Some health professionals are more likely to recommend parenteral medications in managing cases they perceive as severe, as they believe that there is a high proportion of fake or substandard oral drugs in the country [Raufu, 2002]. This erroneous belief might then be further reinforced in a bid to increase fees charged to patients for medical care [Adetunji *et al.* 2006].

Prescribing rates for LAIs were statistically significantly higher among participants who had higher scores on the patient-centred subscale, although the magnitude of the difference was only slight. The patient-centred subscale of the questionnaire tapped into patient-related factors that may influence psychiatrists' prescription patterns. Questions in this subscale included patients and relatives' acceptance of LAIs, which we hypothesised would significantly affect prescribing patterns. Patient preferences have been found to influence clinicians' tendency to prescribe LAIs [Patel and David, 2005; Patel *et al.* 2009; Heres *et al.* 2011]. We also noted that psychiatrists who prescribed LAIs less frequently were more likely to believe that depots were coercive. This alludes to the negative 'image' of LAIs [Mahadun and Marshall, 2008] which is likely to adversely affect LAI utilisation and promote stigma [Patel *et al.* 2010b]. In contrast to a similar study among psychiatrists in the UK [Patel *et al.* 2010a], we observed a significant relationship between psychiatrists' personal dislike for injections and higher mean scores on the patient-centred subscale. This might suggest that respondents who disliked injections would tend to prescribe them less, believing that patients may dislike injections themselves. Studies examining the attitudes of patients and their caregivers in developing countries towards LAIs and factors influencing LAI prescribing are needed. One wonders whether erroneous beliefs about the potency of parenteral medications over oral medications might positively influence acceptance of LAIs. Furthermore, methods by which medication choice can best be offered need further exploration as high illiteracy rates and low earning power are commonplace.

Conclusion

This study reveals that senior trainees and consultant psychiatrists in Nigeria report a high utilisation rate for LAIs. Although they hold positive views about LAIs, their knowledge concerning LAIs was only fair and should be updated. Although it was mostly agreed that LAIs significantly reduced relapse rates, patient-centred factors were found to be significant in influencing prescribing rates for LAIs.

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Conflict of interest statement

The authors declare no conflicts of interest in preparing this article.

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