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RESEARCH ARTICLE

The knowledge and attitudes of psychiatrists toward antipsychotic long-acting injections in Turkiye

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ABSTRACT

Objective: Schizophrenia is a chronic psychiatric disorder frequently complicated by nonadherence to oral antipsychotics. Long-acting injectable antipsychotics (LAIA) improve adherence and reduce relapse, yet their use differs across countries. This study examined the knowledge, attitudes, and prescribing practices of psychiatrists in Türkiye regarding LAIA treatments.

Method: A cross-sectional online survey was conducted between March 2024 and March 2025. The questionnaire, distributed to 1,255 psychiatrists, collected sociodemographic data, clinical workload, and responses to 13 attitude statements. A total of 157 psychiatrists completed the survey and met inclusion criteria. Descriptive statistics and chi-square analyses were performed to assess associations between attitudes and demographic or institutional characteristics.

Results: Participants had a mean age of 38 years; 72.6% were female. Most respondents (79.6%) reported routinely considering LAIA therapy. Paliperidone (80.3%) and aripiprazole (47.8%) were the most frequently preferred agents. Positive attitudes were more common among psychiatrists with longer professional experience and those working in institutions with inpatient clinics. More experienced clinicians were significantly less likely to endorse misconceptions, such as the belief that LAIAs limit therapeutic relationships, are costlier than hospitalization, or represent an unpleasant treatment for patients. Attitudes varied across workplace settings: private sector psychiatrists more often expressed caution, particularly regarding first-episode psychosis.

Conclusion: Psychiatrists in Türkiye generally recognize the value of LAIAs beyond nonadherent cases, with professional experience and institutional context shaping prescribing patterns. While favorable attitudes predominate, misconceptions and systemic barriers persist. Targeted education, supportive policies, and shared decision-making strategies may promote wider, evidence-based use of LAIAs in clinical practice.

Keywords: Schizophrenia, long-acting injectable antipsychotics, psychiatrist attitudes, treatment adherence

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INTRODUCTION

Schizophrenia is among the most debilitating psychiatric disorders worldwide, often leading to significant impairment in functioning and quality of life. Antipsychotic agents have been the cornerstone of treatment since the 1950s (1). Although both first-generation (FGA) and second-generation (SGA) antipsychotics are effective for managing acute episodes and preventing relapse, studies show that nearly half of patients (46.6%) relapse within five years (2). Among various treatment strategies, antipsychotics have demonstrated the strongest evidence in preventing relapse (3).

Antipsychotic medications are available in both oral and long-acting injectable antipsychotic (LAIA) forms. LAIAs were first introduced in the 1960s to enhance treatment adherence by providing sustained drug release, thereby allowing for less frequent dosing—typically once or twice a month (4, 5). The first second-generation antipsychotic LAIA formulations became available in the early 2000s.

Compared to their oral counterparts, LAIA forms offer several clinical advantages: improved adherence, reduced relapse and hospitalization rates, delayed and lower risk of relapse following treatment discontinuation, and a clearer distinction between true treatment resistance and nonadherence. Moreover, LAIA use has been associated with lower all-cause mortality compared to oral forms (6). While LAIAs were traditionally reserved as a last-line option, recent studies have demonstrated their advantages in early-phase psychosis, showing that they are generally associated with fewer complications and better overall health outcomes compared to oral antipsychotic treatments (7, 8). In addition, LAIAs help to keep drug levels in the bloodstream stable, minimizing fluctuations that can lead to side effects or reduced efficacy, and may therefore reduce the overall burden of side effects compared to oral formulations.

However, the global utilization of LAIA forms varies widely—from 5.4% to 80%—with prescribing rates influenced by national healthcare policies, sociodemographic characteristics, cultural attitudes, and logistical factors (9–13). Despite generally positive attitudes toward long-acting injectable (LAI) forms among clinicians, some still reserve them for use as a last-line option (13, 14).

Factors influencing LAIA prescription include clinician and patient attitudes, stigma associated with injections, concerns about autonomy, perceived side effects, cost, availability, and, in some countries, the legal framework regarding involuntary outpatient treatment (6, 13). Additionally, some studies have shown that as clinical experience increases, the use of LAIAs becomes more common and clinicians' attitudes toward these treatments tend to become more positive (10, 15, 16).

Given their clinical benefits in enhancing adherence and reducing relapse, LAIAs represent a valuable treatment modality for schizophrenia. Yet, their underutilization in some settings highlights the importance of exploring professional attitudes toward these treatments. This study aims to investigate the current perspectives of psychiatrists working in Turkiye regarding the use of LAIAs. To our knowledge, it is the first study of its kind conducted in the Turkish context. We hypothesized that as professional experience increases, negative perceptions of LAIAs decrease. We also hypothesized that the characteristics of psychiatrists' workplaces—such as the presence of an inpatient clinic—would be associated with higher agreement rates with positive statements regarding the use of LAIAs.

METHODS

Participants were recruited from psychiatrists practicing in Turkiye. Data were collected between March 1, 2024 and March 1, 2025 via an online questionnaire created using Google Forms. The survey link was randomly distributed via professional Yahoo and WhatsApp groups and sent to a total of 1,255 psychiatrists. The invitation stated that participation in the survey was voluntary and that informed consent was obtained from participants. In addition, the email explained the purpose of the survey and included an option to "opt out." Confidentiality was maintained, and no personal information was disclosed to anyone. Participants were not financially compensated for completing the survey.

Sampling Frame

Psychiatry specialization training in Turkiye is provided by university hospitals (excluding those affiliated with the University of Health Sciences), psychiatric training and research hospitals, and psychiatric departments within general training and research hospitals (including both city hospitals and general training and research hospitals, some of which are affiliated with the University of Health Sciences). Following the national medical specialization examination,

physicians undergo a four-year training period in adult psychiatry, culminating in the completion and approval of a medical specialization thesis. Upon successful completion, the title of adult psychiatrist is conferred.

Following graduation, psychiatrists in Turkiye must complete a compulsory service service term of 300 to 600 days in locations assigned by the Ministry of Health. After fulfilling this compulsory service, psychiatrists are eligible to work in state hospitals (non-training institutions), psychiatric departments of training and research hospitals (including city hospitals and general research hospitals, some affiliated with the University of Health Sciences), psychiatric training and research hospitals, university hospitals (excluding those affiliated with the University of Health Sciences), private hospitals, or private clinics. The population of this study includes all adult psychiatrists actively practicing in Turkiye.

Sample Size Calculation

According to the Turkish National Mental Health Action Plan (2021–2023), the estimated number of actively practicing psychiatrists in Turkiye is approximately 6,000 (17). A power analysis was performed using G*Power 3.1 software to determine the minimum required sample size for chi-square tests. Assuming a medium effect size (w=0.3), a significance level of α=0.05, and a power of 80%, the minimum sample size was calculated to be 88 participants.

Inclusion criteria were being a psychiatrist, working as an active clinician, and being between the ages of 28 and 65. Exclusion criteria were ongoing specialization training and the presence of an impediment that precluded participation in the computerized tests.

The research was conducted as a cross-sectional study. The study was approved by the Erenköy Mental and Neurological Diseases Training and Research Hospital Scientific Research Ethics Committee (approval no. 65) on December 30, 2022.

Data Collection Tool

A sociodemographic data form and an LAIA administration attitude form were administered to participants. The questionnaire was designed by the researchers after reviewing the existing literature. The sociodemographic data form included questions on participants' age, gender, institution where they received specialty training, current workplace, and professional experience (categorized as 1–10 years, 11–15 years, and more than 15 years). The questionnaire included both open-ended and multiple-choice questions on the following topics: frequency of use of LAIAs in routine clinical practice, most preferred LAIAs, psychiatrists' perspectives regarding the use of LAIAs, factors affecting their preferences, and opinions on cost, hospitalization, and the experiences of patients and their relatives. Completing the survey required approximately 12 to 14 minutes.

Statistical Analysis

All data obtained during the study were analyzed using IBM SPSS Statistics version 26 software. Power analysis was not performed, as the aim was to reach the entire sample available prior to the study. All data were categorical, except for the age of the participating psychiatrists. Sociodemographic data were expressed as percentages. The chi-square test was applied to compare the propositions used in the questionnaire with other categorical data. The significance level was set at $p<0.05$. In cases where the requirements for the chi-square test could not be met, only percentages were used to compare categorical data.

RESULTS

Sociodemographic Features of the Participants

The survey was administered online and targeted only practicing psychiatrists; those still in specialization training were excluded. Of the 1,255 psychiatrists invited to participate, 157 provided complete responses and met the inclusion criteria. The mean age of the participants was 38.03 years (standard deviation [SD]=6.45), with 114 (72.6%) identifying as female and 43 (27.4%) as male.

Clinical experience was divided into three groups (1–10 years, 11–15 years, and more than 15 years), and the distribution of respondents across these categories is presented in Table 1. Of the participants, 58.6% had completed their specialty training in university hospitals (excluding hospitals affiliated with the University of Health Sciences, which are classified under both city hospitals and general training and research hospitals), 28.7% in psychiatric training and research hospitals, and 12.7% in the psychiatric departments of general training and research hospitals (including both city hospitals and general training and research hospitals).

All participants were actively employed at the time of the study. Of these, 29.3% were working in state hospitals (non-training institutions), 24.2% in psychiatric departments of training and research hospitals (both city hospitals and general training and research hospitals), 14% in psychiatric training

Table 1: Sociodemographic and clinical experience data of the participants

	Values, n (%)
Sex	
Female	114 (72.6)
Male	43 (27.4)
How many years have you been working as a psychiatrist?	
1–10 years	68 (43.3)
11–15 years	71 (45.2)
>15 year	18 (11.5)
Where did you complete your specialized training?	
University Hospital	92 (58.6)
Psychiatric Department of a General Hospital	45 (28.7)
Psychiatric Training and Research Hospital	20 (12.5)
Which hospital are you currently working at?	
State Hospital	46 (29.3)
Psychiatric Training and Research Hospital	38 (24.2)
Psychiatric Department of a Training and Research Hospital	22 (14.0)
University Hospital	14 (8.9)
Private Hospital	14 (8.9)
Private Clinic	23 (14.6)
Is there an inpatient clinic in your institution?	
Yes	72 (45.9)
No	85 (54.1)
Total	157 (100)

Table 2: Clinical workload of psychiatrists in the past month

Question	Range	Mean	SE	SD
During one month, how many patients do you examine on average?	(0–1590)	515.29	29.484	369.431
During one month, how many schizophrenia patients do you examine on average?	(0–500)	70.41	6.762	84.731
During one month, how many patients do you prescribe long-acting injectable antipsychotic (LAIA) treatment to on average?	(0–450)	38.09	5.455	68.349
During one month, how many first-episode psychosis patients do you examine on average?	(0–100)	5.408	0.7794	9.7655
During one month, how many of your patients start LAIA treatment for the first time?	(0–65)	5.835	0.8543	10.7042

SE: Standard error; SD: Standard deviation.

and research hospitals, 8.9% in university hospitals (excluding those affiliated with the University of Health Sciences), 8.9% in private hospitals, and 14.6% in private clinics. More than half of the units where clinicians worked did not have an inpatient clinic (n=157; 54.1%) (Table 1).

Clinical Study Features of the Participants

The monthly clinical workload of the participants, including the total number of patient visits, schizophrenia cases, and LAIA prescriptions, is presented in Table 2.

When psychiatrists were asked which of the LAIAs currently available in Turkiye they most frequently preferred, paliperidone was the top choice (80.3%), followed by aripiprazole (47.8%). Zuclopenthixol was the third most preferred agent (24.8%), while risperidone LAIA was chosen by 18.5% of respondents. The least preferred agent was haloperidol, with a rate of 3.2%.

Psychiatrists' opinions on the use of LAIA treatments, including general recommendations, molecule preferences based on prior oral treatment response,

Table 3: Psychiatrists' opinions on long-acting injectable antipsychotic (LAIA) treatment

Question	Values, n (%)
Does it often occur to you to offer LAI treatment to a patient with schizophrenia?	125 (79.6)
Yes	5 (3.2)
No	27 (17.2)
Sometimes	
Would you recommend the molecule that has benefited the patient in oral form when recommending an LAIA?	97 (61.8)
Yes	1 (0.6)
No	59 (37.6)
Other	
If the patient is receiving first-generation LAIA therapy, would you recommend switching to a second-generation LAIA?	
Yes	65 (41.4)
No	6 (3.8)
Sometimes	86 (54.8)
Total	**157 (100)**

and attitudes toward switching between first- and second-generation LAIAs, are presented in Table 3.

Psychiatrists' Knowledge and Attitudes Toward LAI

This section of the survey included 13 statements about LAIA use, to which participants responded by selecting "Agree," "Neutral," or "Disagree." Some statements were grounded in evidence-based recommendations and reflected current best practices, while others represented common misconceptions or prevailing prejudices surrounding LAIA treatment. Figure 1 presents the overall distribution of responses from all participating psychiatrists, offering a general perspective on attitudes toward LAIA use independent of demographic or institutional variables.

When the relationship between years of professional experience and responses to the survey statements was analyzed, the highest rate of "Agree" responses to the statement, "Regardless of the stage of the disorder, second-generation LAIA treatments should be considered in all patients with schizophrenia" came from participants with 11–15 years of experience (77.5%), compared to lower rates in the group with 0–10 years of experience (50%). Similarly, psychiatrists with more than 11 years of experience gave the highest rate of "Agree" responses to the following statements: "The use of second-generation LAIA treatments to improve treatment compliance may be a reasonable choice in the early phase of treatment in patients with first-episode schizophrenia", "LAIA treatments should be considered in inpatients with proven relapse symptoms, symptoms of severe illness, lack of insight, lack of caregivers, or doubts about medication adherence," and "In schizophrenia patients with substance abuse comorbidity, the use of LAIA treatments is recommended to increase treatment adherence."

Among those who responded "Disagree" to the following statements—which reflect common misconceptions and prejudices—"LAIA prevents the formation of a therapeutic relationship between the patient and the psychiatrist," "LAIA treatment is an unpleasant experience for patients (loss of autonomy, pain, increased symptoms such as skepticism)," "LAIA are more expensive than hospitalization," "Frequent injection visits are very time-consuming for LAIA treatments," and "LAIA treatments should be initiated in centers where close follow-up can be performed (inpatient service, community mental health center, etc.)," psychiatrists with more than 10 years of experience gave "Disagree" responses at significantly higher rates compared to those with less than 10 years of experience (respectively: 100% vs. 39.7%; 100% vs. 38.2%; 100% vs. 76.5%; 85.9% vs. 73.5%; 85.9% vs. 13.2%). However, chi-square analysis could not be performed due to insufficient cell frequencies related to years of professional experience.

Differences were observed in responses to the survey statements based on the participants' workplace settings, particularly between those working in private clinics and those in other institutions. For instance, agreement with statements such as "Regardless of the stage of the disorder, second-generation LAIA treatments should be considered in all patients with schizophrenia," "The use of second-generation LAIA treatments to improve treatment compliance may be

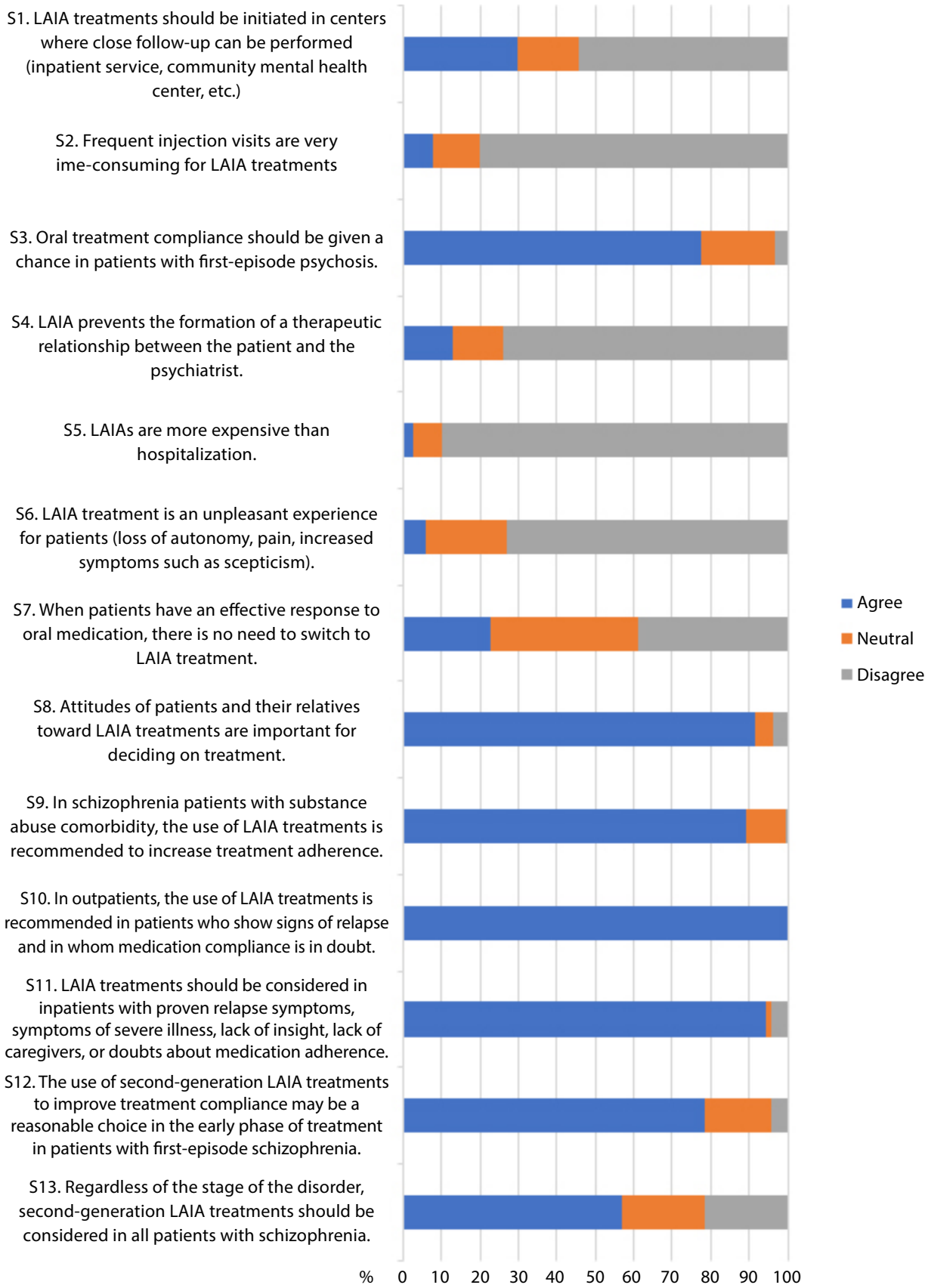

Figure 1. Attitudes of psychiatrists toward statements on long-acting injectable antipsychotic treatment.

Table 4: Comparison of agreement rates based on inpatient clinic availability

Statement	Agreement rate (%) with inpatient clinic	Agreement rate (%) without inpatient clinic
Regardless of the stage of the disorder, second-generation LAIA treatments should be considered in all patients with schizophrenia	80.6	36.5
The use of second-generation LAIA treatments to improve treatment compliance may be a reasonable choice in the early phase of treatment in patients with first-episode schizophrenia.	90.3	68.2
LAIA treatments should be considered in inpatients with proven relapse symptoms, symptoms of severe illness, lack of insight, lack of caregivers, or doubts about medication adherence.	98.6	90.6
In schizophrenia patients with substance abuse comorbidity, the use of LAIA treatments is recommended to increase treatment adherence	98.6	81.2
Attitudes of patients and their relatives toward LAIA treatments are important for deciding on treatment	98.6	85.9

a reasonable choice in the early phase of treatment in patients with first-episode schizophrenia," "LAIA treatments should be considered in inpatients with proven relapse symptoms, symptoms of severe illness, lack of insight, lack of caregivers, or doubts about medication adherence," "In schizophrenia patients with substance abuse comorbidity, the use of LAIA treatments is recommended to increase treatment adherence," and "Attitudes of patients and their relatives toward LAIA treatments are important for deciding on treatment" was lower among participants working in private clinics compared to those in other institutions (respectively: 0% vs. 66.4%; 69.6% vs. 79.9%; 69.6% vs. 98.5%; 95.7% vs. 88.1%; 43.5% vs. 100%). Meanwhile, disagreement with statements such as "When patients have an effective response to oral medication, there is no need to switch to LAIA treatment," "LAIA treatment is an unpleasant experience for patients (loss of autonomy, pain, increased symptoms such as skepticism)", "LAIA treatments are more expensive than hospitalization", "LAIA treatments prevent the formation of a therapeutic relationship between the patient and the psychiatrist", "Oral treatment compliance should be given a chance in patients with first-episode psychosis," "Frequent injection visits are very time-consuming for LAIA treatments", and "LAIA treatments should be initiated in centers where close follow-up can be performed (inpatient service, community mental health center, etc.)" was higher among participants working in private clinics compared to those in other institutions (respectively: 100% vs. 28.4%; 100% vs. 68.7%; 100% vs. 88.1%; 100% vs. 69.4%; 21.7% vs. 0%; 78.3% vs. 80.6%; 78.3% vs. 50%).

When all survey statements were cross-tabulated with the institution where participants received their psychiatry specialization training, notable differences emerged for two statements. Psychiatrists who completed their specialization at psychiatric training and research hospitals were more likely to disagree with the statement "When patients have an effective response to oral medication, there is no need to switch to LAIA treatment" compared to those trained at other institutions. They also showed a significantly higher rate of agreement with the statement "LAIA treatments should be considered in inpatients with proven relapse symptoms, symptoms of severe illness, lack of insight, lack of caregivers, or doubts about medication adherence."

Furthermore, the presence of an inpatient clinic in the participants' institutions was associated with notable differences in response patterns. These differences are presented in Table 4.

DISCUSSION

LAIAs were developed to reduce noncompliance with oral treatment in patients with schizophrenia; however, prescription rates vary widely across countries. This study aimed to explore the current knowledge, attitudes, and prescribing practices of psychiatrists in Turkiye regarding long-acting injectable antipsychotics. The findings revealed that while most clinicians acknowledge the clinical value of LAIAs and hold generally positive views toward their use, certain misconceptions and variations in prescribing patterns persist, shaped by factors such as clinical experience, institutional setting, and work environment.

This study included responses from 157 psychiatrists, a sample size comparable to previous surveys conducted in regions such as Europe, France, Croatia, Japan, and South Africa (18–22). The majority

of participants in our study were within the first 15 years of their professional careers, indicating a relatively early-career sample. Compared to studies from Europe and Japan, where the average duration of psychiatric experience tends to be higher, our sample reflects a younger and potentially more adaptive group of clinicians (20, 21).

Clinical Study Features of the Participants

Participants reported seeing an average of 515.29 patients per month, prescribing long-acting injectable antipsychotics to approximately 7.4% of them. This indicates that LAIAs are selectively used in a subset of psychiatric patients in routine clinical practice. However, it should be noted that the survey question did not specifically ask how many patients with schizophrenia received LAIA prescriptions. Therefore, this proportion reflects the overall number of LAIA prescriptions among all patients seen monthly, regardless of diagnosis. This may have led to variability in interpretation among participants and should be considered when comparing with studies focused solely on schizophrenia populations. Still, this proportion appears comparable to or slightly lower than those reported in some international studies. For instance, the European ALTO study (Attitudes towards Long-acting injectable antipsychotics for the Treatment of Schizophrenia) highlighted growing clinician acceptance of LAIAs, although prescription rates varied widely by country depending on healthcare policies and the availability of second-generation formulations (21). In France, prescription rates were as low as 5.4% (15), while a study from Australia reported a higher rate of 13% (23). Similarly, Gundugurti et al. (24) found that 9% of chronic schizophrenia patients in India received LAIA treatment, with barriers such as cost and conservative prescribing practices influencing uptake. Compared to these figures, the 7.4% LAIA prescription rate observed in our study suggests a moderate level of use in Turkiye, reflecting both clinical caution and contextual influences such as health system structure and prescribing norms.

In line with recent European findings reporting increased prescription rates of second-generation LAIA formulations, largely attributed to their growing availability (21), paliperidone emerged as the most preferred long-acting molecule among clinicians in our study, followed by aripiprazole. This preference may reflect evolving trends in clinical practice in Turkiye, potentially influenced by increased availability and familiarity with SGA LAIAs. In Turkiye, both first-generation and second-generation LAIAs are fully covered by the national health insurance system. Therefore, psychiatrists' prescribing decisions are unlikely to be constrained by issues of financial accessibility or reimbursement. Unusually, in contrast to both European and Turkish trends, a study from India reported higher use of FGA LAIAs, primarily due to cost-related considerations (13). However, this finding should be interpreted with caution, as the range and availability of first-generation LAIA formulations in India are considerably broader than in Turkiye. The wider accessibility of these formulations in the Indian market likely contributes to this distinct prescribing pattern.

Although risperidone is a second-generation antipsychotic, its long-acting injectable formulation is less preferred than that of zuclopenthixol. This may be attributed to its side effect profile at higher doses, which resembles that of first-generation LAIAs, as well as the practical challenges associated with its storage requirements. Furthermore, the need for concurrent oral supplementation during the initiation phase and the delayed release of its active metabolite after the first injection may further limit its use. Given that risperidone's active metabolite is paliperidone, many clinicians may prefer the latter, which offers a more favorable pharmacokinetic profile and a simpler dosing regimen.

Approximately half of the participants in our study stated that they routinely consider switching from a first-generation LAIA to a second-generation LAIA, while the remaining half reported doing so occasionally, depending on the clinical context. These findings suggest that psychiatrists in Turkiye approach LAIA treatment with a degree of flexibility, tailoring their decisions to individual patient needs. In a study conducted by Grover et al. (13) in India, switching decisions were primarily driven by pragmatic concerns, including treatment cost, side effect burden, and patient adherence. Similarly, Roopun et al. (25) reported that psychiatrists in South Africa demonstrated a greater willingness to switch to second-generation LAIAs, particularly when such transitions were aligned with improved patient acceptability and engagement.

When evaluated alongside international findings, the data from Turkiye reveal a consistent pattern regarding the influence of professional experience on psychiatrists' attitudes toward LAIA use. In our study, clinicians with 11-15 years of experience showed the highest levels of agreement with evidence-based

statements, including the recommendation of LAIAs across all illness stages, as well as in early psychosis, relapse, and substance use comorbidity. Furthermore, psychiatrists with over 10 years of experience were less likely to endorse common misconceptions—such as concerns about patient autonomy or disruption of the therapeutic relationship—indicating a reduced susceptibility to LAIA-related prejudice. These findings suggest that increased clinical experience may foster greater confidence and competence in prescribing LAIAs, encouraging their broader and more appropriate application. Supporting this interpretation, Patel et al. (21) reported that openness to LAIA use was positively associated with the influence of experienced colleagues who held favorable views of these treatments, highlighting the potential role of peer modeling in shaping prescribing behavior.

Notably, in that study, most participants had an average of 20 years of professional experience and reported increased use of LAIAs in recent years, often attributing this change to growing confidence and a sense of ease in managing these treatments. Interestingly, a study from Japan (20) found that more senior psychiatrists were actually less likely to initiate LAIAs in cases of first-episode schizophrenia, suggesting that without continued education and exposure to evolving practices, clinical habits may become more conservative over time. In contrast, our findings in Turkiye point to a more encouraging trend. This openness may reflect positive shifts in psychiatric training, greater access to updated clinical guidelines, and a growing culture of adaptability in mental healthcare. Rather than being shaped solely by tradition or seniority, prescribing practices in this group seem to be guided by curiosity, evolving evidence, and a genuine desire to improve patient outcomes.

Psychiatrists' Knowledge and Attitudes About LAIA

In our survey, some of the statements reflected evidence-based knowledge about LAIA use, while others were based on common misconceptions that may still influence clinical decision-making. When these attitudes were examined across variables such as professional experience and work setting, meaningful patterns emerged. These contextual factors appear to shape psychiatrists' approaches—sometimes reinforcing accurate information, and at other times reflecting lingering doubts or cautious attitudes.

While some of these trends mirror findings from international literature, others point to context-specific dynamics within Turkiye's mental health landscape. In the following sections, each statement will be discussed in more detail—going beyond simple reporting of agreement rates to explore the possible clinical, institutional, and cultural factors that may explain these preferences.

Those with 11-15 years of clinical practice were significantly more inclined to recommend starting LAIA treatment in facilities offering intensive follow-up. This finding is in line with Samalin et al. (22), who reported that experienced psychiatrists in France viewed LAIAs not only as a solution for noncompliance but also as part of a broader clinical management strategy. The European ALTO study further showed that positive attitudes toward LAIAs increased with clinical experience, supporting the idea that experienced clinicians may prefer settings where close monitoring is possible during initiation (21). Roopun et al. (25) similarly noted that infrastructure enabling follow-up plays a key role in LAIA decisions. One explanation may be that mid-career psychiatrists often assume greater responsibility for treatment safety and monitoring.

In our study, clinicians working in the private sector (both private clinics and hospitals) more frequently agreed that frequent injection visits make LAIA treatment time-consuming. However, this perception contrasts with findings from previous research. Arango et al. (26) reported that most psychiatrists did not find LAIA administration to significantly extend treatment duration; rather, they viewed it as an opportunity for structured follow-up and therapeutic continuity. Similarly, in a study by Schreiner et al. (27), regular injection visits were found to support both pharmacological adherence and psychiatric stability, contributing to fewer crisis-based healthcare contacts. The responses from private-sector clinicians in our study may reflect context-specific challenges, such as tighter scheduling demands, limited infrastructure for administering injections, or patient flow dynamics particular to private practice. In Turkiye, this perception may also be shaped by the organizational realities of private psychiatric services, where shorter consultation times, appointment-based workflows, and limited ancillary support staff may make the logistics of regular intramuscular injections less feasible in routine practice. These structural factors may create the impression that LAIA use is more time-intensive than oral treatment, even when clinical benefits are acknowledged.

Participants working in private clinics more frequently supported giving oral treatment a chance

in patients experiencing first-episode psychosis, suggesting a preference for oral strategies during the early stages of illness within this subgroup. While this may reflect an approach that respects patient autonomy and prioritizes shared decision-making, contextual factors specific to Turkiye must also be considered. These include reimbursement policies requiring approval by three psychiatrists for prescribing second-generation LAIAs and the relatively high cost of these medications. To our knowledge, there is no prior literature directly comparing attitudes in private clinics versus state hospitals regarding early-phase LAIA use. Therefore, our findings offer a preliminary perspective that may guide future research on setting-related prescribing patterns.

Rejection of the belief that LAIA treatment hinders the development of a therapeutic relationship between the patient and psychiatrist increased with years of clinical experience in our study. This suggests that the misconception may diminish over time as clinicians gain more confidence in long-acting treatment models and observe their real-world outcomes. Supporting this, a study conducted in Croatia found that 68% of psychiatrists believed the patient- psychiatrist relationship was actually better under LAIA treatment, primarily due to the increased structure and predictability of care (19). LAIA administration often facilitates regular contact and follow-up, which can foster trust and therapeutic continuity. In Turkiye, the increased rejection of this misconception among more experienced clinicians may reflect a growing appreciation of how structured, regular follow-up enabled by LAIA use can strengthen—rather than weaken—the therapeutic alliance. Rather than viewing depot formulations as distancing, experienced Turkish psychiatrists may increasingly see them as tools to sustain clinical engagement over time.

The misconception that LAIA treatments are more expensive than hospitalization was less common among psychiatrists with more than 10 years of clinical experience in our study. This may reflect a more nuanced understanding of healthcare economics acquired over time. In fact, multiple U.S.-based economic models have demonstrated that although LAIAs incur higher upfront pharmaceutical costs, they significantly reduce overall expenditures by lowering relapse-related hospitalizations and emergency care needs (16, 28). Some studies even suggest that early implementation of LAIA treatment—particularly in first-episode schizophrenia—may be a cost-effective strategy when broader health system outcomes are considered (29, 30). In Turkiye, where the psychiatric healthcare system faces both resource constraints and increasing caseloads, the stronger endorsement of this cost-related insight by experienced psychiatrists may indicate an evolving clinical perspective: one that prioritizes long-term functional outcomes and system efficiency over short-term cost considerations. This shift could signal growing awareness of the hidden economic burden of recurrent hospitalizations and the value of preventative strategies such as early LAIA initiation.

The view that LAIA treatment is an unpleasant experience for patients—due to factors such as perceived loss of autonomy, injection-related pain, or increased skepticism—reflects one of the most persistent prejudices against long-acting formulations. In our study, disagreement with this statement was notably higher among clinicians with 10 or more years of experience, suggesting that increased clinical exposure and familiarity with patient outcomes may help dispel such biases over time. Supporting this, Arango et al. (26) noted that negative patient attitudes toward LAIAs often stem from insufficient information or previous adverse experiences, and that these attitudes can be reshaped through effective communication and counseling. In contrast, clinicians working in private clinics in Turkiye were more likely to agree with this perception. This may be influenced by the unique dynamics of private psychiatric clinic practice, where treatment choices are often shaped by patient preference, heightened concern for therapeutic rapport, and sensitivity to perceived coercion or discomfort associated with injectable treatments.

In our study, psychiatrists who disagreed with the view that patients responding well to oral medication do not need to switch to LAIA therapy were predominantly those with greater clinical experience. This trend suggests that clinical seniority may increase awareness of the long-term advantages of LAIAs. A similar pattern was observed among those trained in psychiatric training and research hospitals or general training and research hospitals, compared to those trained in university hospitals. Additionally, psychiatrists working in settings without inpatient services were more likely to reject this view, possibly reflecting a stronger emphasis on treatment continuity in outpatient care. Previous studies have shown that hesitation to recommend LAIA therapy in adherent patients is a common concern. For instance,

psychiatrists in France and Japan often perceived LAIAs as unnecessary when oral compliance was considered adequate (20, 22). However, this conservative approach has been criticized for overlooking the fragile and context-dependent nature of adherence to oral medication. Guidelines such as those from the National Institute for Health and Care Excellence (NICE) emphasize that, even when patients respond well to oral treatments, LAIAs should still be discussed during shared decision-making due to their protective role against relapse (31). In Turkiye, the diversity of views observed across institutions and levels of experience suggests that attitudes toward LAIA use are shaped not only by clinical outcomes but also by differences in training culture, service structure, and perceptions of patient monitoring needs.

In our study, the majority of participants agreed with the statement that the attitudes of patients and their relatives towards LAIA treatments are important when deciding on treatment. This underscores the increasing emphasis placed on shared decision-making and the value of patient and caregiver perspectives in psychiatric care. In the Nigerian study by James et al. (32), it was reported that patients' and families' perceptions of injectable treatment could significantly influence psychiatrists' prescribing decisions. Likewise, in a large-scale study conducted in Spain, Arango et al. (26) noted that regional differences in LAIA use were shaped not only by healthcare policies but also by the attitudes of patients, their families, and professionals involved in care. These findings align with internationally accepted frameworks such as the NICE guidelines, which prioritize collaborative, patient-centered treatment planning (31). The results of the present study indicate that Turkish psychiatrists also value the role of patients and caregivers in treatment decisions, reflecting a shift toward more participatory clinical practice models.

The statement that LAIA treatments are recommended to improve adherence in schizophrenia patients with comorbid substance use received a high level of agreement. This suggests that psychiatrists in Turkiye consider LAIAs not only to address noncompliance but also as part of a broader clinical strategy in complex cases. Previous studies have reported that switching to LAIAs in such patients improves adherence and reduces both emergency department visits and hospitalizations (25, 33). Similarly, in a Nigerian study, nearly half of the psychiatrists viewed LAIA use as clinically necessary in patients with a history of substance abuse (32). The strong support observed in our sample implies that Turkish psychiatrists recognize the multidimensional benefits of LAIA use in dual-diagnosis patients—not only in improving clinical stability but also in potentially reducing the burden on healthcare services.

All participants agreed that LAIA treatment should be recommended for outpatients who show signs of relapse and whose medication adherence is in doubt. This consensus highlights that impaired adherence remains one of the most universally accepted indications for LAIA use across different treatment settings. Supporting this, Grover et al. (13) reported that in India, poor adherence was the most common reason for initiating LAIA therapy, particularly in outpatient populations. The complete consensus in our sample indicates that Turkish psychiatrists view medication noncompliance as one of the most decisive factors guiding LAIA use in outpatient care.

There was a high level of agreement among participants with the statement that LAIA treatments should be considered for inpatients presenting with relapse, severe symptoms, poor insight, lack of caregiver support, or suspected nonadherence, reflecting adherence to classical indications for LAIA use. This view was more commonly expressed by those trained in psychiatric training and research hospitals and those currently working in inpatient clinics, suggesting that clinical experience in structured settings may shape familiarity with LAIA indications. In the European ALTO study, Patel et al. (21) reported that LAIAs were more frequently used in patients with prior hospitalizations, reflecting similar practice trends. Likewise, Oguchi et al. (20) noted that Japanese psychiatrists were more likely to recommend LAIAs in cases involving severe illness or poor insight, despite general hesitancy about their use in early phases. Lin et al. (28) also confirmed that LAIAs are more commonly prescribed in the U.S. to patients with severe schizophrenia and poor adherence. Considering the relationship between LAIA use and oral treatments in terms of higher compliance, fewer relapses, and fewer suicide attempts, it has been reported that the use of second-generation antipsychotic LAIAs is more appropriate for individuals with severe schizophrenia (34). In the current study, the strong agreement among Turkish psychiatrists with classical indications—such as severe illness, relapses, and lack of insight—suggests a cautious and clinically grounded approach. Rather than using LAIAs broadly, Turkish psychiatrists appear to reserve them for high-risk cases where the clinical need is most apparent.

Turkish psychiatrists widely endorsed the idea that second-generation LAIAs can be a reasonable option to improve treatment adherence during the early stages of first-episode schizophrenia. This is consistent with current literature, including meta-analyses showing that LAIAs reduce relapse and improve adherence in first-episode patients compared to oral formulations (16). This openness to early intervention may reflect growing familiarity with second-generation LAIA formulations and increased awareness of long-term outcomes. In contrast, Oguchi et al. (20) reported that most Japanese psychiatrists remained hesitant about initiating LAIAs at first episode, possibly due to cultural conservatism or systemic prescribing norms. Similarly, while U.S.-based data confirm the benefits of early LAIA use, actual clinical uptake remains limited, often due to payer systems and infrastructure barriers (28). While openness to early LAIA use appears to be increasing, particularly in first-episode cases, classical indications still represent the main rationale for most prescribing decisions in inpatient settings.

The view that second-generation LAIAs should be considered at all stages of schizophrenia was more commonly endorsed by psychiatrists with more than 11 years of experience. This finding aligns with international literature suggesting that clinical experience is associated with a broader, more proactive view of LAIA use. For example, Samalin et al. (22) reported that experienced clinicians in France perceive LAIAs not only as a solution to nonadherence but also as a general management strategy. Likewise, the European ALTO study showed increasing support for LAIAs with greater seniority (21). However, studies from countries like the USA continue to show a more limited approach, with clinicians often reserving LAIA use for severe or noncompliant cases (16). In contrast, the responses in our study indicate that Turkish psychiatrists—particularly those with moderate experience—are more open to early and comprehensive use of LAIAs. This may reflect changes in psychiatric training curricula, increasing availability of second-generation LAIA formulations, or shifting clinical priorities toward relapse prevention in Turkiye's evolving mental health system.

This study has limitations that should be taken into account. The data were collected through an online survey with voluntary participation, which may have introduced a self-selection bias. The survey invitation was distributed to approximately 1,255 psychiatrists via professional scientific communication channels, as noted in the Methods section. Psychiatrists who are more knowledgeable about or interested in LAIA treatments may have been more likely to respond. Although the sample size (n=157) is comparable to those of similar studies conducted internationally, it represents only a small portion of psychiatrists currently practicing in Turkiye. Additionally, the study did not collect data on the geographical distribution of participants; therefore, it was not possible to analyze potential differences between rural and urban clinical practices. This limits the ability to assess regional trends in LAIA prescribing behavior. The findings should thus be interpreted with caution, and future studies with randomized or stratified sampling methods that include geographical representation are recommended to enhance generalizability.

Despite these limitations, the findings of this study hold significant value in informing future practice. They not only reflect current prescribing preferences and attitudes toward LAIA treatments among psychiatrists in Turkiye but also offer valuable insights into broader clinical practices and future interventions. Understanding clinicians' beliefs and hesitations allows for the development of targeted educational programs that can address misconceptions and promote evidence-based use of LAIAs. In the long term, revealing such attitudinal patterns can help inform national mental health policies, optimize resource allocation, and ensure that patients receive timely and effective treatment. Moreover, highlighting the influence of professional experience and training background can guide future curricula and continuing medical education strategies to support more consistent and guideline-aligned prescribing practices across institutions.

CONCLUSION

This study comprehensively reveals the knowledge, attitudes, and clinical practices of practicing psychiatrists in Turkiye regarding LAIA treatments. The results show that the majority of Turkish psychiatrists consider LAIAs an important treatment option not only for noncompliant patients but also for different clinical presentations. The positive attitude toward LAIA treatment is particularly notable among cases involving first-episode patients and those with comorbid substance use disorders.

The study also found that length of clinical experience, gender, institution of the specialization training, and healthcare system of employment were determinants of LAIA preferences. It is assumed that as experience increases, prejudice against LAIAs decreases and these treatments are evaluated more holistically within a patient-centered framework.

However, it should be noted that some structural limitations, such as the need for approval from three psychiatrists for a drug report or high medication costs, may still influence clinical decisions.

The majority of participants adopted a collaborative decision-making approach that emphasized the attitudes of patients and their families, suggesting that a patient-centered approach is gaining strength in modern psychiatric practice. In addition, scientific evidence that LAIAs contribute to cost-effectiveness by reducing hospital admissions is increasingly being factored into clinical decision-making.

In conclusion, psychiatrists' attitudes in Turkiye are broadly aligned with international trends, though context-specific challenges remain. Future research should investigate the perspectives of both patients and caregivers to better understand barriers and facilitators to LAIA uptake. In addition, qualitative and longitudinal studies exploring the impact of training, healthcare infrastructure, and policy changes on prescribing behavior would offer valuable insights. Developing targeted educational and policy initiatives could help address misconceptions and promote evidence-based, equitable use of LAIAs across diverse clinical settings.

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