Patient Preference and Adherence

Dovepress
Taylor & Francis Group

Open Access Full Text Article

ORIGINAL RESEARCH

One-Year Evaluation of Paliperidone Palmitate 6-Monthly: Satisfaction and Perceived Effectiveness Among Patients, Relatives, and Clinicians

Sofía Manchado Perero[1], Ana Rodríguez Lorente[2], Alba García-Pérez[3], Guillermo Isidro García[4,5], Luis Alberto Forcen-Muñoz[6], Santiago Ovejero[1], Rocío Sáez Povedano[7], Ana Luisa González-Galdámez[8], Laura Mata Iturralde[1], Mariluz Ramirez Bonilla[4,5], Paloma Fuentes-Pérez[5], Claudia Ovejas-Catalán[5], Paula Suárez-Pinilla[4,5], Blanca Fernandez Abascal Puente[4,5], Miguel Omaña Colmenares[9], María Pilar Campos-Navarro[2], Enrique Baca-García[1], Ana Lara Fernández[10], Sergio Benavente-López[10], Alberto Raya Platero[11], Miguel Barberán Navalón[9], Sergio Sánchez-Alonso[1], Javier Vázquez-Bourgon[4,5,12], Sofia Pappa[13,14]*, Juan Antonio García-Carmona[15–17]*

[1]Fundación Jiménez Díaz University Hospital, Madrid, Spain; [2]Department of Psychiatry, Santa Lucía University Hospital, Cartagena, Murcia, Spain; [3]Centre of Mental Health Molina de Segura, Molina de Segura, Murcia, Spain; [4]Department of Psychiatry, Marqués de Valdecilla University Hospital, Universidad de Cantabria, Santander, Spain; [5]Psychiatry and Mental Health Research Group, Instituto Investigación Sanitaria Valdecilla (IDIVAL), Santander, Spain; [6]Centre of Mental Health Lorca, Lorca, Murcia, Spain; [7]Department of Psychiatry, General Hospital de Villarrobledo, Villarrobledo, Albacete, Spain; [8]Department of Psychiatry, Los Arcos-Mar Menor University Hospital, San Javier, Murcia, Spain; [9]Department of Psychiatry, Alcanyis General Hospital, Xátiva, Valencia, Spain; [10]Department Psychiatry, Infanta Elena University Hospital, Madrid, Spain; [11]Department of Psychiatry, San Cecilio Clinic Hospital, Granada, Spain; [12]Centro de Investigación Biomédica en Red en Salud Mental (CIBERSAM), Instituto de Salud Carlos III, Sevilla, Spain; [13]West London National Health System (NHS) Trust, London, UK; [14]Department of Brain Sciences, Imperial College of London, London, UK; [15]Department of Neurology, Santa Lucía University Hospital, Cartagena, Murcia, 30202, Spain; [16]Group of Clinical and Experimental Pharmacology, Institute for Biomedical Research of Murcia (IMIB), Murcia, Spain; [17]Faculty of Pharmacy and Nutrition, San Antonio Catholic University of Murcia (UCAM), Murcia, Spain

*These authors contributed equally to this work

Correspondence: Juan Antonio García-Carmona, Department of Neurology, Santa Lucía University Hospital, C/Mezquita s/n 30202, Cartagena, Murcia, Spain, Tel/Fax +34 968 110 859, Email dr.jagarcar@gmail.com

Background: Patient satisfaction and perceived treatment effectiveness play a critical role in healthcare outcomes and overall well-being. Understanding patient experiences can help identify barriers to adherence and guide improvements in therapy. Previous studies, such as those conducted with PP3M and PP1M, have highlighted the importance of patient satisfaction in optimizing the management of chronic conditions, demonstrating that satisfaction is linked to better adherence and overall treatment success. Nonetheless, there was no data available with patients treated with paliperidone 6-month (PP6M). Therefore, we aimed to evaluate the perspectives, including the perceived effectiveness and satisfaction of patients, their relatives and mental health professionals on the twice-yearly treatment with PP6M in usual clinical practice.

Methods: The cohort of patients derived from the P2Y study. This is a multicenter, prospective study across different sites in Europe. Patients, relatives and psychiatrists were asked for satisfaction, by using the Medication Satisfaction Questionnaire (MSQ), and perceived effectiveness. We included all patients who were initiated or switched to PP6M and completed one year of treatment.

Results: A total of 233 patients were included in this study, of which 9 (4%) discontinued PP6M at 12 months. Most patients were male (69%, 160 participants), 66% (156 patients) carried a diagnosis of schizophrenia and 16% (38 patients) of comorbid substance use disorder. Furthermore, 22% (51 patients), 70% (164 patients) and 8% (19 patients) were treated with PP1M, PP3M and other oral/LAIs antipsychotics, respectively. The majority of patients (81.5%, n = 190/233), relatives/carers (81.1%, n = 189/233) and clinicians (90.9%, n = 212/233) were extremely satisfied, very satisfied or satisfied 1 year after switching from PP1M, PP3M and other antipsychotic to PP6M with similar findings between patients diagnosed with schizophrenia and other diagnoses. Last, 42% of patients,

Received: 23 January 2025
Accepted: 18 April 2025
Published: 28 May 2025

45% of their relatives and 40% of clinicians perceived PP6M as more effective compared to the previous treatment. In contrast, only 3% of patients, relatives and clinicians perceived PP6M as less effective.

Conclusion: Patients, their carers and relatives as well as mental health professionals reported a high satisfaction rate with PP6M, and equally good or even better perceived effectiveness compared to PP1M, PP3M or other oral or LAIs antipsychotics in the majority of cases. Improved patient experience with PP6M could improve treatment continuity and reduce hospitalization rates.

Keywords: paliperidone-palmitate 6-monthly, schizophrenia, long-acting injectable antipsychotics, patient satisfaction, psychiatrists and family perspectives, effectiveness

Introduction

Treatment adherence is a critical component of positive therapeutic outcomes, significantly influencing the prognosis of severe and enduring mental disorders, such as schizophrenia and other psychotic disorders. To this end, the World Health Organization (WHO) has identified non-adherence as one of the most challenging aspects of the management of schizophrenia.[1] One major factor contributing to non-compliance in patients with schizophrenia is the complexity of the treatment regimen, which may include multiple daily medications and varying dosages.[2,3] Poor adherence to these medications remains a challenge, with studies indicating that retention rates can be as low as 50%.[4,5] Non-adherence can lead to increased relapses and hospitalizations, premature mortality, higher risk of suicide and increased healthcare costs, thereby highlighting the need to better understand and improve adherence among patients with a mental health illness.[6]

Other factors impairing treatment adherence are side effects, psychosocial support or lack thereof, perceived stigma, necessity of medication and the quality of the therapeutic relationship.[7,8] Interventions aimed at improving adherence, such as motivational interviewing and cognitive-behavioral strategies, have been effective in enhancing treatment persistence in these patients.[9] Furthermore, the use of long-acting injectable (LAIs) antipsychotics has been associated with improved adherence rates, as these formulations reduce the frequency of dosing and the burden of daily medication management.[10] LAIs offer additional advantages such as 1) sustained clinical stability leading to improved level of daily functioning, thus allowing more time for psychosocial and other recovery-oriented interventions, 2) patients who may struggle with memory problems and cognitive dysfunction do not have to remember to take daily medication and 3) the injectables are administered during visits by a mental health professional ensuring persistence and continuity as well as assertive follow up when and as needed.[11,12] As shown, with paliperidone 3-monthly (PP3), the first longer than one month acting antipsychotic that was made available, long dosage intervals mean less frequent injections and consequently less pain or fear of administration, less dependence on contacts with clinicians and a decreased necessity to travel for receiving an injection.[13] More recently, a paliperidone palmitate formulation with stable therapeutic plasma levels for 6 months is the only LAI available to be administered twice a year. PP6M was approved for the treatment of adult patients with schizophrenia who previously were treated with either at least one injection of PP3M or with four consecutive injections of PP1M.[14]

The shared decision-making (SDM) process involves patients, their relatives, and clinicians working together to make informed decisions about treatment options, thereby fostering a sense of ownership, self-agency and responsibility in patients regarding their own care and enhancing treatment adherence.[15] Given the stigma attached to antipsychotic injectable treatments, patients' perspectives are vital in the discussion of LAIs and their incorporation into general treatment strategies.[16] PP6M is introduced as a novel solution to address the need for longer-acting treatments in patients with chronic conditions. Nonetheless, to date research with PP6M is limited to clinical trials[17–19] and only two real world studies at 6[20] and 12 months.[21] While data from clinical trials excluded patients with schizophrenia and comorbid psychiatric conditions such as substance misuse, real-world studies provide more diverse and representative data, capturing a wider range of patient characteristics, including comorbidities, age groups, and treatment adherence. This study aims to fill the gap in knowledge regarding patient preferences for treatment frequency, specifically exploring how PP6M compares to other long-acting injectable options in terms of convenience and satisfaction. We hypothesized that PP6M would show high satisfaction rates and perceived effectiveness compared to prior treatments of patients, their relatives and mental health professionals on the twice-yearly treatment with PP6M in usual clinical practice.

Methods

The cohort of patients derived from the P2Y study. This is a multicenter, prospective study across different urban sites in Europe. The protocol, inclusion and exclusion criteria were previously published.[20] Briefly, adults carrying a diagnosis of schizophrenia, schizoaffective, psychotic, delusional, bipolar or personality disorders, intellectual disability and autism spectrum disorders initiating PP6M treatment were included. Patients <18, pregnant women and those without medical records in the past 2 years were excluded. There were no exclusion criteria regarding comorbid substance use, treatment-resistant schizophrenia, comorbid affective disorders or other concomitant pharmacological treatments. Data collected extend from 2021 to 2024. Patients, relatives and psychiatrists were asked for satisfaction, by using the Medication Satisfaction Questionnaire (MSQ), and perceived effectiveness after completing one year of treatment with PP6M. The MSQ rates satisfaction on a 7-point Likert scale (1 = extremely dissatisfied; 7 = extremely satisfied), and has been validated for patients with psychotic disorders.[22] Patients were also asked for their perceived effectiveness of PP6M compared to the previous treatment (1 = PP6M is inferior to previous treatment; 2 = PP6M is similar to previous treatment; 3 = PP6M is superior to previous treatment).

The sample size of the study (n = 233) was determined based on the characteristics of the real-world study, where the aim was to gather sufficient data to assess patient preferences and treatment outcomes. This sample size is comparable to the clinical trial for PP6M, which similarly had a robust cohort size to ensure statistical reliability and generalizability of the findings. Given the nature of the study, which aims to reflect real-world conditions rather than a controlled clinical trial environment, we believe this sample size provides an adequate representation of the patient population to achieve meaningful insights.

The study is conducted in accordance with International Conference on Harmonization Good Clinical Practice guidelines, the Declaration of Helsinki and approved by the corresponding Ethics Committee (ref. CEI.23–11_PY2_2022). Before study initiation, written informed consent covering retrospective, screening and prospective collecting data was obtained from participants (or their legal representatives, if appropriate). The protocol and consent forms were approved by the respective institutional ethics committee at each site.

Descriptive analyses (ie, frequencies, means and standard deviations) were used to describe the demographic characteristics and evaluate the outcomes of the questionnaires. Group analysis was performed using ANOVA or Mann–Whitney *U*-tests while Student's *t*-test or Chi-square test were used for qualitative variables. All data were analyzed using IBM SPSS 22.0.

Results

In total, 233 patients were included in this study, of which 9 (4%) discontinued PP6M at 12 months. The patient characteristics are summarized in Table 1. Most patients were male (69%, 160 participants), with an average age of 41.7 years (±1.3) ranging between 18 and 78 years old. 66% (156 patients) carried a diagnosis of schizophrenia and 16% (38 patients) of comorbid substance use disorder. Furthermore, 22% (51 patients), 70% (164 patients) and 8% (19 patients)

Table 1 Demographic and Clinical Data

	Cohort N=233	Schizophrenia n=156	Other Diagnoses n=77	*p*
Sex (%)				0.078
Women	73 (31)	43 (28)	30 (39)	
Men	160 (69)	113 (72)	47 (61)	
Age (y±SEM)	41.7±.1.3	42.8±.1.4	40.1±.0.9	0.148
Race				0.683
Caucasian	200 (86)	135 (87)	65 (85)	
Black	12 (5)	8 (5)	4 (5)	
Latin	13 (6)	9 (6)	4 (5)	
Asiatic	3 (1)	3 (2)	0	
Arabic	5 (2)	1 (1)	4 (5)	

(*Continued*)

Table 1 (Continued).

	Cohort N=233	Schizophrenia n=156	Other Diagnoses n=77	*p*
Employed (%)	39 (17)	21 (14)	18 (23)	0.057
Tobacco & Drugs (%)				0.729
Tobacco	99 (42)	64 (41)	35 (45)	
Alcohol	42 (18)	24 (15)	18 (23)	
Cocaine	22 (9)	13 (8)	9 (12)	
Cannabis	41 (18)	25 (16)	16 (21)	
Heroin/opiates	5 (2)	3 (2)	2 (3)	
Amphetamines	4 (2)	2 (1)	2 (3)	
SUD	38 (16)	26 (17)	12 (16)	0.834
Mental disorder				
Schizophrenia	156 (66)	156 (100)	–	
Other diagnosis	77 (33)	–	77 (100)	
Psychosis	16 (7)		16 (21)	
Schizoaffective dis.	26 (12)		26 (34)	
Delusional dis.	13 (6)		13 (17)	
Bipolar dis.	5 (2)		5 (6)	
Autistic spectrum dis.	1 (0.4)		1 (1)	
Mental retardation	8 (3)		8 (10)	
Personality dis.	7 (3)		7 (9)	
Other	1 (0.4)		1 (1)	
Previous AP treatment				0.739
PP1M	51 (22)	34 (22)	17 (22)	
PP3M	164 (70)	114 (73)	50 (65)	
A1M	5 (2)	3 (2)	2 (3)	
Other LAIs	5 (2)	3 (2)	2 (3)	
Oral AP	9 (4)	2 (1)	7 (9)	
Duration previous treatment (y±SEM)	3.3±0.07	3.4±0.06	3.0±0.15	0.006
Reasons for discontinue previous treatment				0.0892
Side effects	2 (1)	0	2 (3)	
No adherence	15 (6)	5 (3)	10 (13)	
Ineffective	7 (3)	3 (2)	4 (5)	
Patient prefer PP6M	110 (47)	71 (46)	39 (51)	
Family prefer PP6M	1 (0.4)	1 (1)	0	
Psychiatrist prefer PP6M	98 (42)	76 (49)	22 (29)	

Abbreviations: dis, disorder; y, years; SUD, substance use disorder; AP, antipsychotic; LAI, long acting-injectable antipsychotic; PP1M, paliperidone 1-month; PP3M, paliperidone 3-month; PP6M, paliperidone 6-month; A1M, aripiprazole 1-mont.

were treated with PP1M, PP3M and other oral/LAIs antipsychotics, respectively. It is worth noting that most 47% patients (110/233) preferred to be treated with PP6M as the main reason to discontinue the previous treatment.

PP6M Satisfaction

The majority of patients (81.5%, n = 190/233), relatives/carers (81.1%, n = 189/233) and clinicians (90.9%, n = 212/233) were extremely satisfied, very satisfied or satisfied 1 year after switching from PP1M, PP3M and other antipsychotic to

Table 2 Evaluation of PP6M Satisfaction by Participants Groups

	Patients	Relatives	Clinicians	*p*
Schizophrenia group n=156				0.293
Extremely satisfied	20 (13)	19 (12)	16 (10)	
Very satisfied	55 (35)	56 (36)	63 (40)	
Somewhat satisfied	50 (32)	47 (30)	62 (40)	
Indifferent	27 (17)	30 (19)	12 (8)	
Somewhat unsatisfied	4 (3)	4 (3)	3 (2)	
Very unsatisfied	0	0	0	
Extremely unsatisfied	0	0	0	
Other diagnosis group n=77				0.149
Extremely satisfied	11 (14)	13 (17)	12 (16)	
Very satisfied	37 (48)	28 (36)	29 (38)	
Somewhat satisfied	17 (22)	26 (34)	30 (39)	
Indifferent	10 (13)	10 (13)	5 (6)	
Somewhat unsatisfied	2 (3)	0	1 (1)	
Very unsatisfied	0	0	0	
Extremely unsatisfied	0	0	0	

Abbreviation: PP6M, paliperidone 6-month.

PP6M as demonstrated in Table 2 and Figure 1A. Between 7% and 21% of all three parties (37 patients, 40 relatives and 17 clinicians) stated they are neutral when comparing PP6M with the previous treatment. Only 2.6% of patients (n = 6), 1.7% of relatives (n = 4) and 1.7% of clinicians (n = 4) reported being somewhat unsatisfied with PP6M. No statistical

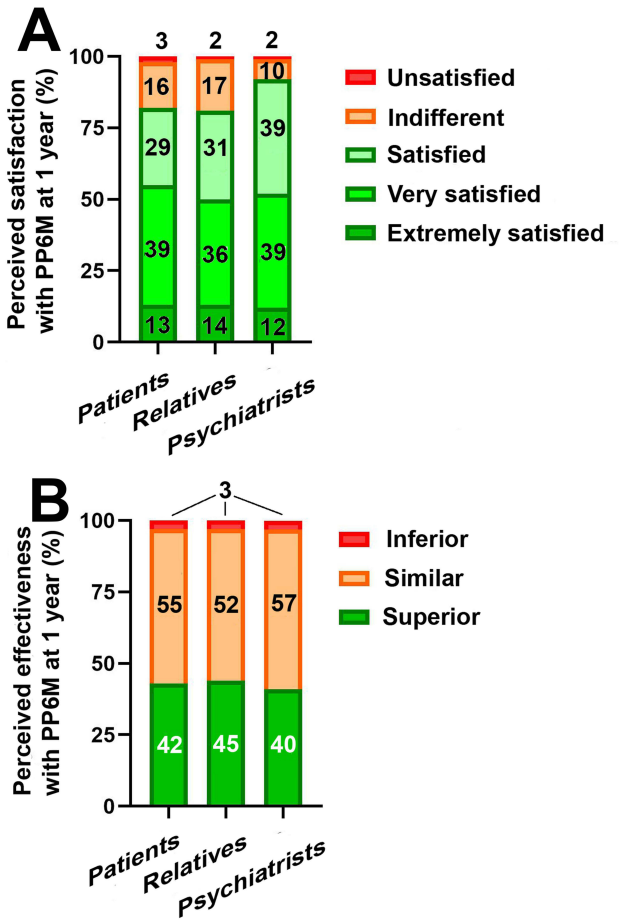

Figure 1 Perceived satisfaction (**A**) and effectiveness (**B**) by patients, relatives and clinicians in patients treated with PP6M up to 12 months.

https://doi.org/10.2147/PPA.S517038

differences were found in treatment satisfaction between patients, relatives and clinicians in both schizophrenia (p = 0.293) and no-schizophrenia (p = 0.149) subgroups. As outlined in Table 2, similar findings were reported between patients diagnosed with schizophrenia and other diagnoses with no differences when comparing both subgroups of patients (p = 0.150), relatives (p = 0.122) and clinicians (p = 0.388).

Perceived Effectiveness

As shown in Figure 1B, 42% of patients, 45% of their relatives and 40% of clinicians perceived PP6M as more effective compared to the previous treatment. In contrast, only 3% of patients, relatives and clinicians perceived PP6M as less effective. As shown in Table 3, the perceived effectiveness is higher, but not significant, in patients diagnosed with other diagnoses different from schizophrenia (40% vs 47%, p = 0.325) and their relatives/carers (43 vs 48%, p = 0.320) and similar proportion

Table 3 Evaluation of PP6M Perceived Effectiveness by Participants Groups

	Patients	Relatives	Clinicians	*p*
Perceived overall effectiveness of PP6M				
Schizophrenia group n=156				0.837
PP6M>previous treatment	63 (40)	67 (43)	62 (40)	
PP6M=previous treatment	87 (56)	83 (53)	88 (56)	
PP6M<previous treatment	6 (4)	6 (4)	6 (4)	
Other diagnosis group n=77				0.686
PP6M>previous treatment	36 (47)	37 (48)	32 (42)	
PP6M=previous treatment	39 (51)	39 (51)	43 (56)	
PP6M<previous treatment	2 (2)	1 (1)	2 (2)	
Perceived effectiveness of PP6M vs PP3M				
Schizophrenia group n=114				0.793
PP6M>PP3M	52 (46)	49 (43)	50 (44)	
PP6M=PP3M	58 (51)	61 (54)	60 (53)	
PP6M<PP3M	4 (3)	4 (3)	4 (3)	
Other diagnosis group n=50				0.608
PP6M>PP3M	21 (42)	25 (50)	22 (44)	
PP6M=PP3M	27 (54)	24 (49)	27 (55)	
PP6M<PP3M	2 (4)	1 (1)	1 (1)	
Perceived effectiveness of PP6M vs PP1M				
Schizophrenia group n=34				0.374
PP6M>PP1M	8 (24)	14 (41)	8 (24)	
PP6M=PP1M	24 (71)	18 (53)	24 (71)	
PP6M<PP1M	2 (5)	2 (5)	2 (5)	
Other diagnosis group n=17				0.954
PP6M>PP1M	12 (70)	11 (65)	9 (53)	
PP6M=PP1M	5 (30)	6 (35)	8 (47)	
PP6M<PP1M	0	0	0	
Perceived effectiveness of PP6M vs other AP				
Schizophrenia group n=8				0.993
PP6M>other AP	3 (37)	4 (50)	4 (50)	
PP6M=other AP	5 (63)	4 (50)	4 (50)	
PP6M<other AP	0	0	0	
Other diagnosis group n=11				0.711
PP6M>other AP	4 (36)	2 (18)	3 (27)	
PP6M=other AP	7 (64)	9 (82)	8 (73)	
PP6M<other AP	0	0	0	

Abbreviations: PP6M, paliperidone 6-month; PP3M, paliperidone 3-month; PP1M, paliperidone 6-month; Apm, antipsychotics.

among their clinicians (40% vs 42%, p = 0.690). PP6M was perceived as more effective than PP3M in both patients with schizophrenia and other mental disorders (46% vs 42%). It is noteworthy that patients with schizophrenia previously treated with PP1M perceived PP6M as equally effective (71%) while most patients diagnosed with other mental disorders reported PP6M as superior (70%). Finally, the group of patients previously treated with other oral or LAIs antipsychotics perceived PP6M as equally effective compared to the previous treatment (63% and 64%). As outlined in Table 3, no statistical differences were found in perceived treatment effectiveness between patients, relatives and clinicians in the different subgroups.

Discussion

To the best of our knowledge, this is the first study evaluating the patients' and their relatives/carers and clinicians perspectives and preferences with PP6M. The overall experience of patients was that PP6M is preferable and confers advantages compared to the previous treatment, PP1M, PP3M and other oral and LAIs antipsychotics; these findings were mirrored by their carers/relatives and psychiatrists.

Specifically, our results demonstrated a high patient satisfaction rate (81%) with PP6M compared to previous treatments, although most patients switched over from PP3M or PP1M. Previous studies demonstrated high patient satisfaction with PP3M performing better across most studies following a switch from PP1M.[12,23,24] A recent study for example with PP3M showed that 10% of patients evaluated PP3M as being better than PP1M while higher rates were found for relatives and clinicians (15 and 26%).[12] In our study, almost half (41–44%) of patients, relatives and clinicians perceived PP6M to be superior to the previous treatment which is a considerable proportion considering that most patients are already stabilised on long acting treatments.

Perhaps the "less is more" principle can be applied in this case as the ultra-long-acting antipsychotic treatment may be associated with improved social functioning and less stigma.[25] Infact, a number of potential benefits and advantages have been recorded including the convenience and ease of access particularly in rural, under-resourced or deprived areas. Regardless, some patients with busy schedules prefer to visit their healthcare professionals or specialized nursing staff less frequently and often view frequent injections as a burden. Nonetheless, regular contact between patients and clinicians is crucial for maintaining treatment adherence and to assess patient symptoms and other needs. Thus, the time saved in administering injections can be dedicated to other therapeutic activities, such as rehabilitation and psychotherapy. Additionally, the PP6M administration schedule offers greater flexibility in dosing compared to PP3M and PP1M, helping to prevent missed maintenance doses up to 3 weeks later than the programmed administration. Greater flexibility and protection helps mitigate against partial adherence which has been shown to also affect patient outcomes adversely in the form of delays, treatment gaps and missed doses.[26] Therefore, long-acting treatments can significantly reduce the burden for patients, their families, caregivers, and healthcare providers.[27]

In the past, studies have reported lower rates of patients choosing LAI treatment (3–12%)[28] though novel therapeutic options and shared decision making may aid choice and uptake. In this regard, different studies showed no differences in satisfaction between antipsychotics treatments or formulation but they found that patients who chose the treatment decided by consultation with physicians or matched their preferences had significantly higher satisfaction levels.[29,30]

For instance, a study highlighted that patients and relatives who participated in SDM reported increased satisfaction with their treatment and a greater understanding of the risks and benefits associated with their medications.[31] However, it is essential to balance family involvement with respect for the patient's autonomy and preferences. Clinicians' perspectives on shared decision-making are equally important. A systematic review has shown that when clinicians adopt a shared decision-making approach, it not only enhances patient satisfaction but also fosters a stronger therapeutic alliance, which is crucial for adherence.[32] Overall, positive attitudes and experience of patients, relatives and clinicians with PP6M can help expand the use of long acting antipsychotic treatments and potentially improve the clinical outcomes. In this regard, recent data demonstrated that PP6M improved adherence and reduced hospital admissions compared to previous treatments.[21] The main advantage of PP6M is that by reducing the number of administrations, it can also contribute to minimise the attached stigma as well as the dependency on health services whilst improving access to care particularly in rural or deprived areas. Previous studies with PP3M demonstrated that concerns that less frequent administrations could lead to increased relapse or discontinuation rates did not actually materialise in clinical practice.[13] Conversely, less frequent treatments may be associated with higher treatment persistence and greater social acceptance,

inclusion and promotion of rehabilitation which in turn can improve the overall patient experience and the collaborative process.[11,16] Future studies with a follow-up period of two years or longer are needed to assess whether patient satisfaction levels and perceptions of the treatment remain stable over time. Long-term evaluations could provide valuable insights into the durability of treatment preference, potential changes in patient experience, and factors influencing sustained adherence to PP6M.

Strengths and Limitations

To our knowledge, the present study is the first to evaluate the subjective perceptions from patients, relatives and clinicians after 1 year of treatment with PP6M in real world clinical practice. The study was independent from external funding and prospective to minimise bias but its cross-sectional design provides only a snapshot of patients' perspectives and change in opinion overtime cannot be captured. The questionnaire was only administered to patients after 1 year, therefore patients who discontinued PP6M after 6 months may have had a different experience and are therefore not included. Furthermore, other potential confounding factors such as duration of illness, level of functioning and accommodation have not been accounted for. What is more, a significant drawback of this study is that widely employed validated scales were not employed for the evaluation of satisfaction which may reduce its generalisability and comparability with future research. Moreover, the potential for social desirability bias cannot be completely ruled out, as patient-reported satisfaction may be influenced by the tendency to provide favorable responses. To mitigate this, data were collected anonymously, and no incentives were provided to participants. Last, our study exclusively included patients from urban areas, limiting the generalizability of our findings to rural populations. Differences in healthcare access, treatment perception, and socioeconomic factors could influence satisfaction levels in rural settings.

Conclusions

Patients, their carers and relatives as well as mental health professionals reported a high satisfaction rate with PP6M, and equally good or even better perceived effectiveness compared to PP1M, PP3M or other oral or LAIs antipsychotics in the majority of cases. By improving patient satisfaction and experience, PP6M may reduce treatment discontinuation rates or improve quality of life. Further prospective studies are needed to examine overall effectiveness, side effects and satisfaction with PP6M, and whether an improved subjective experience can reduce schizophrenia relapse rates by improving adherence and patients' quality of life.

Disclosure

Santiago Ovejero reports personal fees from Janssen, personal fees from Casen Recordati, personal fees from Otsuka, personal fees from Rovi, outside the submitted work. Laura Iturralde reports personal fees from Otsuka, personal fees from Janssen, personal fees from Angelini pharma, personal fees from Rovi, outside the submitted work. Enrique Baca-García reports grants from Janssen, during the conduct of the study. Alberto Platero reports collaborating medical advisor for Janssen company. Sergio Sánchez-Alonso reports providing scientific advice, participating in medical meetings, receiving payment for presentations and consultancy from Johnson & Johnson, provided scientific advice, participated in medical meetings, received payment for presentations and consultancy from Otsuka, provided scientific advice, participated in medical meetings, received payment for presentations and consultancy from Casen-Recordati, provided scientific advice, participated in medical meetings, received payment for presentations and consultancy from Angelini, participated in medical meetings, received payment for presentations and consultancy from Rovi, outside the submitted work. Sofia Pappa reports personal fees from Johnson&Johnson, personal fees from Recordati, personal fees from Otsuka, personal fees from Lundbeck, personal fees from Rovi, personal fees from Teva, personal fees from Gedeon Richter, outside the submitted work. The authors report no other conflicts of interest in this work.

References

1. World Health Organization. *Improving Access and Use of Psychotropic Medicines*. Geneva: World Health Organization, Mental Health Policy and Service Guidance Package; 2005.
2. Curto M, Fazio F, Ulivieri M, Navari S, Lionetto L, Baldessarini RJ. Improving adherence to pharmacological treatment for schizophrenia: a systematic assessment. *Expert Opin Pharmacother*. 2021;22(9):1143–1155. doi:10.1080/14656566.2021.1882996
3. Goff DC, Hill M, Freudenreich O. Strategies for improving treatment adherence in schizophrenia and schizoaffective disorder. *J Clin Psychiatry*. 2010;71(Suppl 2):20–26. doi:10.4088/JCP.9096su1cc.04

4. Jalbert JJ, Rossignol M, Astruc B, et al. Effect of an institutional medication adherence program for long-acting injectable risperidone on adherence and psychiatric hospitalizations: evidence from a prospective cohort study. *J Popul Ther Clin Pharmacol*. 2017;24(2):e61–e70. doi:10.22374/1710-6222.24.2.7
5. Velligan DI, Sajatovic M, Hatch A, Kramata P, Docherty JP. Why do psychiatric patients stop antipsychotic medication? A systematic review of reasons for nonadherence to medication in patients with serious mental illness. *Patient Prefer Adherence*. 2017;11:449–468. doi:10.2147/PPA
6. Borba LO, Capistrano FC, Ferreira ACZ, Kalinke LP, Mantovani MF, Maftum MA. Adaptation and validation of the measuring of treatment adherence for mental health. *Rev Bras Enferm*. 2018;71(suppl 5):2243–2250. English, Portuguese. doi:10.1590/0034-7167-2017-0796
7. Buckley PF, Wirshing DA, Bhushan P, Pierre JM, Resnick SA, Wirshing WC. Lack of insight in schizophrenia: impact on treatment adherence. *CNS Drugs*. 2007;21(2):129–141. doi:10.2165/00023210-200721020-00004
8. De Las Cuevas C, Baptista T, Motuca M, et al. Poor adherence to oral psychiatric medication in adults with schizophrenia may be influenced by pharmacophobia, high internal health locus of control and treatment duration. *Neuropsychopharmacol Hung*. 2021;23(4):388–404.
9. Harmanci P, Budak FK. The effect of psychoeducation based on motivational interview techniques on medication adherence, hope, and psychological well-being in schizophrenia patients. *Clin Nurs Res*. 2022;31(2):202–216. doi:10.1177/10547738211046438
10. García-Carmona JA, Simal-Aguado J, Campos-Navarro MP, Valdivia-Muñoz F, Galindo-Tovar A. Long-acting injectable antipsychotics: analysis of prescription patterns and patient characteristics in mental health from a Spanish real-world study. *Clin Drug Investig*. 2020;40(5):459–468. PMID: 32274654. doi:10.1007/s40261-020-00913-7
11. Pungor K, Sanchez P, Pappa S, et al. The Patient, Investigator, Nurse, Carer Questionnaire (PINC-Q): a cross-sectional, retrospective, non-interventional study exploring the impact of less frequent medication administration with paliperidone palmitate 3-monthly as maintenance treatment for schizophrenia. *BMC Psychiatry*. 2021;21(1):300. doi:10.1186/s12888-021-03305-z
12. Spoelstra SK, Bruins J, Bais L, Seerden P, Castelein S, Knegtering H. One-month versus three-month formulation of paliperidone palmitate treatment in psychotic disorders: patients', relatives', and mental health professionals' perspectives. *Patient Prefer Adherence*. 2022;16:615–624. doi:10.2147/PPA.S349460
13. García-Carmona JA, Pappa S. Cumulative clinical experience of the use of paliperidone palmitate 3-monthly long-acting injection in the treatment of schizophrenia: a critical appraisal. *Drug Healthc Patient Saf*. 2023;15:113–123. doi:10.2147/DHPS.S339170
14. Cirnigliaro G, Battini V, Castiglioni M, et al. Evaluating the 6-month formulation of paliperidone palmitate: a twice-yearly injectable treatment for schizophrenia in adults. *Expert Rev Neurother*. 2024;24(4):325–332. doi:10.1080/14737175.2024.2325655
15. Francis CJ, Johnson A, Wilson RL. Supported decision-making interventions in mental healthcare: a systematic review of current evidence and implementation barriers. *Health Expect*. 2024;27(2):e14001. doi:10.1111/hex.14001
16. Pappa S, Barnett J, Gomme S, et al. Shared and supported decision making in medication in a mental health setting: how far have we come? *Commun Ment Health J*. 2021;57(8):1566–1578. doi:10.1007/s10597-021-00780-2
17. Correll CU, Johnston K, Turkoz I, et al. Three-year outcomes of 6-month paliperidone palmitate in adults with schizophrenia: an open-label extension study of a randomized clinical trial. *JAMA Network Open*. 2024;7(7):e2421495. doi:10.1001/jamanetworkopen.2024.21495
18. Turkoz I, Wong J, Chee B, et al. Comparative effectiveness study of paliperidone palmitate 6-month with a real-world external comparator arm of paliperidone palmitate 1-month or 3-month in patients with schizophrenia. *Ther Adv Psychopharmacol*. 2023;13:20451253231200258. doi:10.1177/20451253231200258
19. Najarian D, Sanga P, Wang S, et al. A randomized, double-blind, multicenter, noninferiority study comparing paliperidone palmitate 6-month versus the 3-month long-acting injectable in patients with schizophrenia. *Int J Neuropsychopharmacol*. 2022;25(3):238–251. doi:10.1093/ijnp/pyab071
20. García-Carmona JA, García-Pérez A, Isidro García G, et al. Preliminary data from a 4-year mirror-image and multicentre study of patients initiating paliperidone palmitate 6-monthly long-acting injectable antipsychotic: the paliperidone 2 per year study. *Ther Adv Psychopharmacol*. 2023;13:20451253231220907. doi:10.1177/20451253231220907
21. Manchado Perero S, Rodríguez Lorente A, García-Pérez A, et al. Long-term effectiveness, adherence and safety of twice-yearly paliperidone-palmitate long acting-injectable in patients with schizophrenia in Europe: 2-year mirror-image data from the paliperidone-2 per year study (P2Y). *Front Psychiatry*. 2025;16:1540213. doi:10.3389/fpsyt.2025.1540213
22. Vernon M, Revicki D, Awad G, et al. Psychometric evaluation of the Medication Satisfaction Questionnaire (MSQ) to assess satisfaction with antipsychotic medication among schizophrenia patients. *Schizophr Res*. 2020;118:271–278. doi:10.1016/j.schres.2010.01.021
23. Fernández-Miranda JJ, Díaz-Fernández S, De Berardis D, López-Muñoz F. Paliperidone palmitate every three months (PP3M) 2-year treatment compliance, effectiveness and satisfaction compared with Paliperidone Palmitate-Monthly (PP1M) in people with severe schizophrenia. *J Clin Med*. 2021;10(7):1408. doi:10.3390/jcm10071408
24. Barnett J, Pappa S. Switching from monthly to three-monthly long-acting injectable paliperidone: a survey on subjective satisfaction and safety. *Patient Prefer Adherence*. 2023;17:1603–1610. doi:10.2147/PPA.S410028
25. Pietrini F, Albert U, Ballerini A, et al. The modern perspective for long-acting injectables antipsychotics in the patient-centered care of schizophrenia. *Neuropsychiatr Dis Treat*. 2018;15:1045–1060. doi:10.2147/NDT.S19904
26. Pappa S, Mason K. Partial compliance with long-acting paliperidone palmitate and impact on hospitalization: a 6-year mirror-image study. *Therap Adv Psychopharmacol*. 2020;10. doi:10.1177/2045125320924789
27. Milz R, Benson C, Knight K, et al. The effect of longer dosing intervals for long-acting injectable antipsychotics on outcomes in schizophrenia. *Neuropsychiatr Dis Treat*. 2023;19:531–545. doi:10.2147/NDT.S395383
28. Di Lorenzo R, Iorio A, Pinelli M, et al. Effectiveness and quality of life with paliperidone palmitate 3-monthly in comparison with other long-acting drugs. *Neuropsychiatr Dis Treat*. 2022;18:829–846. doi:10.2147/NDT.S356341
29. Hatano M, Takeuchi I, Yamashita K, et al. Satisfaction survey on antipsychotic formulations by schizophrenia patients in Japan. *Clin Psychopharmacol Neurosci*. 2021;19(4):610–617. doi:10.9758/cpn.2021.19.4.610
30. Roopun KR, Tomita A, Paruk S. Attitude and preferences towards oral and long-acting injectable antipsychotics in patients with psychosis in KwaZulu-Natal, South Africa. *S Afr J Psychiatr*. 2020;26:1509. doi:10.4102/sajpsychiatry.v26i0.1509
31. Fifer S, Keen B, newton R, Puig A, McGeachie M. Understanding the treatment preferences of people living with schizophrenia in Australia; A patient value mapping study. *Patient Prefer Adherence*. 2022;16:1687–1701. doi:10.2147/PPA.S366522
32. Stovell D, Morrison AP, Panayiotou M, Hutton P. Shared treatment decision-making and empowerment-related outcomes in psychosis: systematic review and meta-analysis. *Br J Psychiatry*. 2016;209(1):23–28. doi:10.1192/bjp.bp.114.158931