

7-27-2024

The Benefits and Effects of Long-Acting Injectable Psychotropic Medication Education to Improve Provider Knowledge and Outcomes

Priscilla M. Juncadella
FIU, pjunc001@fiu.edu

Follow this and additional works at: <https://digitalcommons.fiu.edu/cnhs-studentprojects>

Recommended Citation

Juncadella, Priscilla M., "The Benefits and Effects of Long-Acting Injectable Psychotropic Medication Education to Improve Provider Knowledge and Outcomes" (2024). *Nicole Wertheim College of Nursing Student Projects*. 262.

<https://digitalcommons.fiu.edu/cnhs-studentprojects/262>

This work is brought to you for free and open access by the Nicole Wertheim College of Nursing and Health Sciences at FIU Digital Commons. It has been accepted for inclusion in Nicole Wertheim College of Nursing Student Projects by an authorized administrator of FIU Digital Commons. For more information, please contact dcc@fiu.edu.

The Benefits and Effects of Long-Acting Injectable Psychotropic Medication Education to
Improve Provider Knowledge and Outcomes

A Scholarly Project Presented to the Faculty of the
Nicole Wertheim College of Nursing and Health Sciences

Florida International University

In partial fulfillment of the requirements
For the Degree of Doctor of Nursing Practice

By

Priscilla M. Juncadella, MSN, APRN, PMHNP-BC

Lead Professor

Victor Delgado DNP, APRN, ANP-BC, NP-C

Clinical Mentor

Nelson D. Hernandez, MD

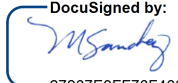
Approval Acknowledged:  _____, DNP Program Director Date:
7/26/2024

Table of Contents

Florida International University	1
In partial fulfillment of the requirements.....	1
Approval Acknowledged: _Dr. Michael Sanchez, DNP Program Director	1
Abstract.....	3
Introduction.....	4
Summary of the Literature.....	5
Methods and Results of Literature Search.....	5
Adherence and Effectiveness of LAIs.....	6
Patient Attitudes Towards LAIs.....	7
Health Care Provider (HCP) Perceptions of LAIs Education.....	9
Barriers to the Implementation of LAIs.....	10
Impact of HCPs' Education about LAIs on Clinical Outcomes.....	11
Purpose of the Study.....	12
SMART Goals and Outcomes of the DNP Project.....	12
Definition of Terms.....	12
Conceptual Underpinning and Theoretical Framework of the Project.....	13
Methodology.....	13
Setting and Participants.....	14
Sample.....	14
Project Procedures.....	14
Protection of Human Subjects.....	15
Data Collection.....	15
Data management and analysis plan.....	15
Results.....	16
Participant Demographic Information	16
Pretest Results	17
Posttest Results.....	18
Comments.....	20
Discussion.....	21
Implications for Advanced Practice Nursing.....	22
Conclusions.....	23
Appendix A.....	25
Appendix B.....	26
Appendix C.....	27
Appendix D.....	28
Appendix E	31
Appendix F	36
Appendix G.....	37
References.....	39

Abstract

People with mental health problems face challenges trying to manage their condition and symptoms. The stigma of mental illness impacts significantly on how patients view treatment approaches and medication. The underutilization of long acting injectables (LAIs) in mental healthcare persists despite their potential to improve treatment outcomes, particularly for severe mental illnesses like schizophrenia and bipolar disorder. Patient's perceptions and attitudes towards treatment have a compounding influence on drug adherence and healthcare providers (HCPs) must be aware of these perceptions when addressing the patient's concerns. This literature review synthesizes recent research examining the benefits of educating HCPs about LAIs. It explores five key themes: adherence and effectiveness of LAIs, patient attitudes towards LAIs, HCP perceptions of LAIs education, barriers to LAI implementation, and the impact of HCPs' education on clinical outcomes. Findings indicate that LAIs enhance medication adherence and reduce relapse rates compared to oral psychotropic medications. Patient attitudes towards LAIs improve with education, highlighting the importance of the HCPs' role in providing information. Barriers such as lack of HCP knowledge and training hinder LAI implementation. Strategies to address these barriers include comprehensive education initiatives targeting HCPs to improve confidence and competence in LAI implementation. The literature emphasizes the urgent need for educational interventions to promote wider acceptance and utilization of LAIs in mental healthcare, aiming to benefit patient outcomes and quality of life. For practice change and research recommendations, future studies should focus on HCPs refresher education leading to a higher understanding, deeper knowledge, and positive attitudes towards LAIs.

Keywords: Mental health, long acting injectables, education, quality of life

Introduction

The field of psychiatry covers various disorders, such as depression, schizophrenia, bipolar disorder, and others, affecting many people. Usually, individuals deal with these conditions using oral psychotropic medications, often prescribed. Although oral medicines work well, they have difficulties (Robinson et al., 2020). Long-acting injectables (LAIs) offer a promising alternative. LAIs involve using psychotropic medications in injectable forms, typically given monthly or quarterly. This method ensures a steady drug release (NAMI, 2023). This approach can improve treatment results by addressing adherence issues and reducing the chances of relapses, hospitalizations, and other adverse events due to non-adherence. Despite their many advantages, healthcare providers often don't use LAIs.

Healthcare providers across various healthcare settings, including primary care, psychiatry, and emergency medicine, frequently fail to leverage Long-Acting Injectables (LAIs) fully. A notable study reveals that a mere 15% to 28% of eligible patients diagnosed with schizophrenia receive LAIs (Sajatovic et al., 2018). This issue predominantly affects individuals with severe mental illnesses (SMI), encompassing schizophrenia and bipolar disorder. Notably, patients afflicted by SMI confront substantial risks of relapse, and LAIs offer a potent means of mitigating this risk. Despite the apparent potential benefits, many SMI patients remain deprived of the advantages of LAIs. This situation raises concerns about the underutilization of LAIs within the healthcare system, as these individuals stand to gain significantly from their use.

Neglecting the critical issue of underutilizing long-acting injectables (LAIs) can affect individual patients and society. For patients, the stakes are undeniably high. Insufficient use of LAIs can heighten the vulnerability to relapse, as oral psychotropic medications may grapple with maintaining consistent medication levels in the bloodstream. Consequently, this could

trigger a decline in symptoms, an escalated probability of hospitalization, a diminishing quality of life, and even an increased risk of suicide (Stolzenburg et al., 2018). Moreover, individuals grappling with adherence challenges in adhering to their prescribed treatment regimen might encounter intensified symptoms, potentially leading to social isolation, unemployment, and an overall diminished quality of life. Furthermore, the financial strain linked with relapses, including hospitalization expenses and other costly therapies, exerts additional pressure on patients and their families.

Summary of Literature

Recent studies have focused on evaluating the effectiveness, efficiency, and efficacy of long-acting injections (LAIs). The current study contributes to these broad objectives and contributes crucial insights to strengthen the existing literature on this topic. The primary purpose of this literature review was to examine previous research on the benefits of educating healthcare providers about LAIs as a treatment option for psychotropic medications. As such, knowledge, insights, and conclusions derived from the previous studies were integrated to build a robust literature on educating healthcare providers about LAIs and to identify the existing research gap. Specifically, five themes are discussed in this literature review, including 1) Adherence and Effectiveness of LAIs, 2) Patient Attitudes towards LAIs, 3) Prescriber Practices and Perceptions of LAI education, 4) Barriers to Implementation of LAIs, and 5) Impact of HCPs Education on LAIs and Clinical Outcomes.

Methods and Results of Literature Search

PubMed, CINAHL, and PsycINFO were the primary databases to identify literature materials. The search terms and phrases included "long injectable antipsychotic medication," "effectiveness of LAIs," "prescriber perceptions of LAIs," "barriers to LAIs implementation,"

and "importance of HCPs education about LAIs." The search limitations included articles written in English and published in academic journal entries between 2018 and 2023. The review presented below outlines some of the articles selected from the search themes. Eight peer-reviewed journals have been presented as follows.

Adherence and Effectiveness of LAIs

Treating a psychiatric disorder can be a challenging process because multiple factors contribute to the person's recovery and functional ability. The treatment always focuses on medication effectiveness. However, when working with patients with psychiatric diagnoses, medication adherence is one of the challenges. Lack of adherence can exacerbate symptoms, including reoccurrence of symptoms. Therefore, LAIs have been identified to enhance adherence where oral antipsychotics have failed. Haider et al. (2023) surveyed 35 participants, in which they investigated the impact of the COVID-19 pandemic on medication adherence in telepsychiatry. The results of their study indicated that medication adherence was higher among patients using LAIs compared to those under orally administered antipsychotics. Therefore, Haider et al. (2023) confirmed the need for more education and awareness for HCPs to implement LAIs in their patients' treatment plans. However, these findings were limited in generalizability due to the small number of sites and population surveyed. Also, data collected from HCPs were subject, and thus, there is a need for other studies to capture more objective data on the same topic.

Greene et al. (2017) investigated medication adherence and discontinuation in two groups, one who received LAI and the other who underwent oral antipsychotic monotherapy. The study, which investigated 5638 participants from the Medicaid database, utilized Linear and Cox regression analyses to calculate participants' medication adherence in each group. The

results indicated that patients with schizophrenia who received LAIs had a higher medication adherence by 5% and were 20% less likely to discontinue medication during the entire intervention and follow-up period than the oral antipsychotic monotherapy group. These results confirm the fact that LAIs are effective and efficacious medication options for psychotic patients. However, Greene et al. (2017) observed that even though LAIs have great potential for improving clinical outcomes in psychotic patients, they are still underutilized due to a lack of knowledge and awareness of their potential among the HCPs. The current study emphasizes that educating HCPs about the effectiveness of LAIs could improve their implementation as therapeutic options for psychotic patients.

Patient Attitudes Towards LAIs

People with mental health problems face challenges trying to manage their symptoms. The stigma of mental illness impacts significantly on how patients view treatment approaches and medication. Patient perceptions and attitudes towards treatment also have a compounding influence on drug adherence, and thus, HCPs must be aware of these perceptions when addressing the patients' concerns.

Grover et al. (2019) investigated patients' attitudes and perceptions of LAIs using a self-designed semi-structured survey questionnaire. Their results indicated that LAI remains significantly underused in patients with severe mental health illness due to a lack of awareness about its effectiveness. However, when these benefits are explained to the patients, their preference for LAIs increases, indicating a significant level of acceptance of LAIs. The findings further indicated that 78.8% of participants preferred taking tablets before patient awareness, while 5% preferred LAIs. After explaining the benefits of LAIs, patients' preference for LAIs increased from 5% to 24.5%. As such, patients perceived education about LAIs positively in

promoting awareness and knowledge of the clinical benefits. Furthermore, the results demonstrated that patients lacked awareness of the effectiveness of LAIs because their HCPs failed to give them this vital information, which is why their attitude towards LAIs was low at the beginning of the study. It implies that HCPs should be educated about using LAIs to transfer this information conveniently to patients.

The results from Grover et al. (2019) conformed to those of Robinson et al. (2023), who indicated that HCPs should provide patients with a range of treatment options from which to choose. The researchers explained that patients' attitudes toward drug treatment changed after receiving education or awareness of the treatment modality. After awareness creation, patients perceived LAIs as more convenient than oral administration. Patients also reported increased perception of control, dosage consistency, improved symptom management, and reduced side effects. However, many patients reported that the greatest challenge of using LAIs is increased hospital visits. Patients who had not received awareness education about LAIs and also had no experience with LAIs viewed them as a punishment for not adhering to the oral medication. These results show varying perceptions and attitudes towards LAIs and whether they were willing to use them. The majority, however, suggested that LAIs were more beneficial by improving personal quality of life and reducing clinical symptoms. The studies also noted that a lack of knowledge about LAIs contributes to negative patient perceptions, which education can best address.

Health Care Provider (HCP) Perceptions of LAIs Education

Training is effective in improving healthcare professionals' knowledge, confidence, and skills in advanced clinical care planning. However, the importance of training and its application in real clinical settings has not been fully explored. In the study "Association between Training

Experience and Readiness for Advance Care Planning among Healthcare Professionals," Chan et al. (2020) examined how training or education can improve clinical practice among HCPs. After employing an online survey to investigate HCPs, including physicians, nurses, social workers, and other care professionals, the researchers noted the significant relevance of HCP training to positive clinical outcomes. The researchers noted that even though clinicians perceived education positively for improving clinical outcomes, HCPs lacked the knowledge, skills, and self-confidence to implement LAIs. The current research borrows these insights and considers education as professional training to improve the HCP's knowledge, skills, and confidence to implement LAIs in treating psychiatric disorders.

In a qualitative study of patient's and caregiver's perceptions of educating HCPs, Adam et al. (2021) invited patients and caregivers to participate in one-on-one semi-structured interviews. The researchers identified key findings, such as HCP education should begin early to realize better results in implementing evidence-based clinical interventions. Second, patient-clinician education programs can improve partnership, which is crucial for implementing clinical interventions successfully. Additionally, the researchers noted that HCPs should be educated on the patients' expectations, experiences, and perspectives for them to understand how patients respond to the interventions and how to adjust the therapeutic plans to maximize benefits. Adam et al. (2021) provides some crucial insights into the role of patient and clinician education in implementing nursing care interventions. These insights are borrowed from the current research, whereby educating HCPs would improve their knowledge and capacity to implement LAI intervention for treating psychiatric disorders such as schizophrenia.

Barriers to the Implementation of LAIs

Schizophrenia remains a chronic and serious mental health problem, causing severe thought disturbances, poor perceptions, behavioral problems, and functional impairments. Previous researchers have noted that LAIs could improve long-term disease outcomes over oral medications. However, LAIs are only considered by HCPs as last-resort medications in the disease course. Therefore, clinical practice patterns, HCPs' attitudes, barriers to implementation of LAI, and unfulfilled educational needs for clinicians have contributed to poor management of mental health conditions like schizophrenia. A study by Citrome et al. (2022) examined the current clinical practice patterns, clinicians' attitudes, and barriers to the use of LAI antipsychotic medication, together with the unmet educational needs of psychiatric clinicians in managing patients with schizophrenia. The researchers surveyed 79 participants, with five patient case-based scenarios and a seven-point decision.

The results showed that clinicians were least confident in transitioning to LAI therapy and administering LAI treatment. The results suggested that clinicians were reluctant and unwilling to discuss or recommend switching patients to LAI antipsychotic therapies even when they were not doing well on the current oral antipsychotic medication. The results show that a lack of knowledge or awareness of the benefits of LAIs was a huge barrier to implementing LAI interventions. As such, Citrome et al. (2022) pointed out that future studies should focus on continuous education for the HCPs about LAIs to improve their knowledge, confidence, and competence in implementing LAI interventions for treating chronic psychotic conditions. Among the crucial limitations of the study by Citrome et al. (2022) is the failure to provide the mechanisms to improve clinicians' education about LAIs. This current study will bridge the literature gap by outlining the strategies to be adopted by HCPs to enhance education and awareness of LAIs and willingness to implement these practice modalities.

Implementing LAI demands that nurses have the appropriate knowledge to identify the most suitable injection sites and techniques to prevent patient harm. Without such knowledge, nurses would feel less confident and unprepared to implement LAI interventions. Lin et al. (2023) employed a mixed research approach in which they studied 269 nurses from three hospitals in Taiwan. Using self-reported questionnaires, the participants demonstrated their knowledge of using LAIs in managing mental health disorders. Their study showed a huge gap between the nurses' knowledge of LAI administration and actual practice. Therefore, Lin et al. (2023) showed that education is a significant barrier impeding the implementation of LAI for mental health treatment. Therefore, continued education and training are vital for HCPs to improve LAI practice among psychiatric nurses.

Impact of HCPs' Education about LAIs on Clinical Outcomes

A comprehensive treatment plan for mental health disorders involves psychoeducation, psychotherapy, medication treatment, and disease management support from nurses. The HCPs need more knowledge about LAI to determine the right therapeutic plan for their patients. Besides, HCPs must be educated on LAIs to have meaningful conversations about treatment options with patients. A study by Citrome et al. (2022) shows that HCPs who are educated feel more empowered and can take bold steps to recommend or develop more informed treatment options. Education can help HCPs evaluate new evidence guidelines, destigmatize LAIs, and design new paradigms for specific patients that support positive outcomes. Therefore, educating HCPs would break negative stereotypes and poor attitudes towards LAIs, which, in turn, benefits patients with mental health problems.

A study by Kauff et al. (2023) investigated the importance of teaching interprofessional collaboration among future HCPs. The researchers argued that education health to create

interprofessional teams through effective communication and collaboration. This way, interprofessional education can improve the success of implementing healthcare programs such as LAIs. When HCPs in mental health facilities are educated on LAIs, for example, they share knowledge and expertise that can be used to design and implement effective interventions through a team approach. Therefore, the current study supports the importance of HCPs' education about LAIs to enhance their capacity to create sustainable solutions.

Purpose of the Study

The goal of the current DNP project was to educate healthcare providers (HCPs) about the benefits of long-acting injections (LAIs) as a treatment option for psychotropic medications. Increasing the HCP's knowledge about LAIs would improve confidence to implement these interventions. There is underutilization of LAIs, highlighting the need for an educational intervention to address the barriers to implementation and promote their broader acceptance and utilization in mental Healthcare (Robinson et al., 2020; Sajatovic et al., 2018).

SMART Goals and Outcomes of the DNP Project

- i. In 2 months, to train and improve knowledge of at least 10 HCPs about LAI as a viable therapeutic intervention for mentally ill patients.
- ii. To increase the number of HCPs implementing LAIs by 5% percent within six months

Definition of Terms

Long-acting injectable antipsychotics (LAIs): These are pharmacologic approaches used to overcome non-compliance in psychoses.

Advanced care practitioners: These are health care providers who are not physicians but can perform physician duties.

Medication adherence: The degree to which patients take medicine as prescribed.

Schizophrenia: A serious mental health illness where one may fail to interpret reality.

SAD: Substance abuse disorder.

Conceptual Underpinning and Theoretical Framework of the Project

This DNP project borrowed from Kurt Lewin's Change Management Model, a theoretical approach to change based on three stages: freezing, change, and refreezing (Hussain et al., 2018). Freezing is the first stage, which entails preparing the organization to embrace a change. The existing status quo is broken at this stage to build a new one. The change stage is when the organization begins to resolve the uncertainty caused by the change by following the new ways of doing things. Refreezing is the last stage when people have embraced change and new ways of working by creating consistent ways of working. The implementation of LAI intervention is regarded as a change process in Healthcare for quality improvement. Therefore, the implementation of this project will follow the three stages outlined by Lewin's theory. The theoretical framework has been used to conceptually describe education intervention for HCP as the means to improve the utilization of LAIs in the clinical treatment of mental health illnesses.

Methodology

The current DNP project utilized an observational-descriptive research design, employing pre-and-post educational tests. An internet-based LAI education program was provided, comprising PowerPoint presentations, case studies, handouts, and additional resources for successfully utilizing LAI antipsychotic drugs. The effectiveness of LAIs as evidence-based interventions was assessed through a 25-item questionnaire to examine knowledge, attitude, and practice modifications about LAIs. Each participant also reviewed a potential patient.

Setting and Participants

This project was conducted in a large not-for-profit community-based mental health clinic in Miami, Florida.

Sample

A purposeful sampling procedure was used to identify a total of 10 advanced care providers, including nurse practitioners and psychiatrists, all working at the facility. Only board-certified advanced care providers were included in the study.

Project Procedures

The pre-test, post-test questionnaires, and LAI education presentation were uploaded to the Qualtrics Survey earlier than the actual study date. Participants were encouraged to participate throughout the presentation. In addition, the survey questionnaire was also sent through emails. Participants were allowed at least two months to create their online account at Qualtrics Survey to familiarize themselves with the platform. Participants created pseudo-accounts for privacy and confidentiality. The pre-test questionnaire is to be completed, and then the education presentation will be given to each provider. Immediately after completing the presentation, participants would complete the post-test questionnaire via the Qualtrics Survey website. During the education presentation, participants were asked to record in the patient chart if the provider prescribed LAI for schizophrenia or SAD patients.

Protection of Human Subjects

Participants were notified about the study, and informed consent issued explaining the purpose of the study and the participant's role, benefits, and consequences. The participants were

assigned a unique two-letter code. Potential risks of the study could be data breach. However, these risks had an extremely low probability of occurrence. Even though there would be no monetary reward, participants benefited by actively contributing to healthcare quality improvement in their community.

Data Collection

Data was gathered using a 25-item questionnaire issued before and immediately after the education presentation and an interval of two months. The measures included the total scores in pre-and-post-test tests.

Data management and analysis plan

The participant's names were entered into a password-protected computer using the unique codes. The computer was kept in the room, accessible to only the primary researcher. Online participant information was pulled down by the website manager immediately at the end of the study for data safety.

Qualtrics were used to analyze the data collected. To answer the question of whether advanced care providers' training and knowledge acquisition about LAI is a viable therapeutic intervention for mentally ill patients, a prospective patient chart review of prescribing behaviors two months after the presentation was compared to a prospective chart review one month before the presentation. The prescribing behavior was determined by the number of times a provider prescribed LAI for schizophrenia or SAD patients. Subsequently, both tests were used to analyze the total questionnaires and subsection scores before and two months after the education presentation. Descriptive statistics and Qualtrics survey were used to analyze prospective patient chart reviews.

Results

Participant Demographic Information

Not all survey attempts were included in the analysis. Two attempts were removed as the participants only answered less than 50% of the pre-test survey. A total of 10 staff members completed the educational presentation. As seen in Table 1, five participants were males (50%) with an average age of 44.4 years, and the other five were females (50%) with an average age of 42.5. The participants had an average of 10.2 years of practice experience in psychiatry. Among the participants, two were Caucasian, one was African American, and seven were Hispanic. Overall, 40% of the participants had between 1 and 3 years of experience in psychiatry, 30% had between 3 and 10, 20% had between 10 and 20, and 10% had between 20 and above. Furthermore, 90% of the participants reported undergoing learning on LAI psychotropic medication at most twice, either in person or online.

Table 1

<i>Demographics</i>	
Characteristics	Frequency
Gender	
• Male	5 (50%)
• Female	5 (50%)
• Other	0 (0)
Age (years)	
• Average	36.2
Ethnicity	

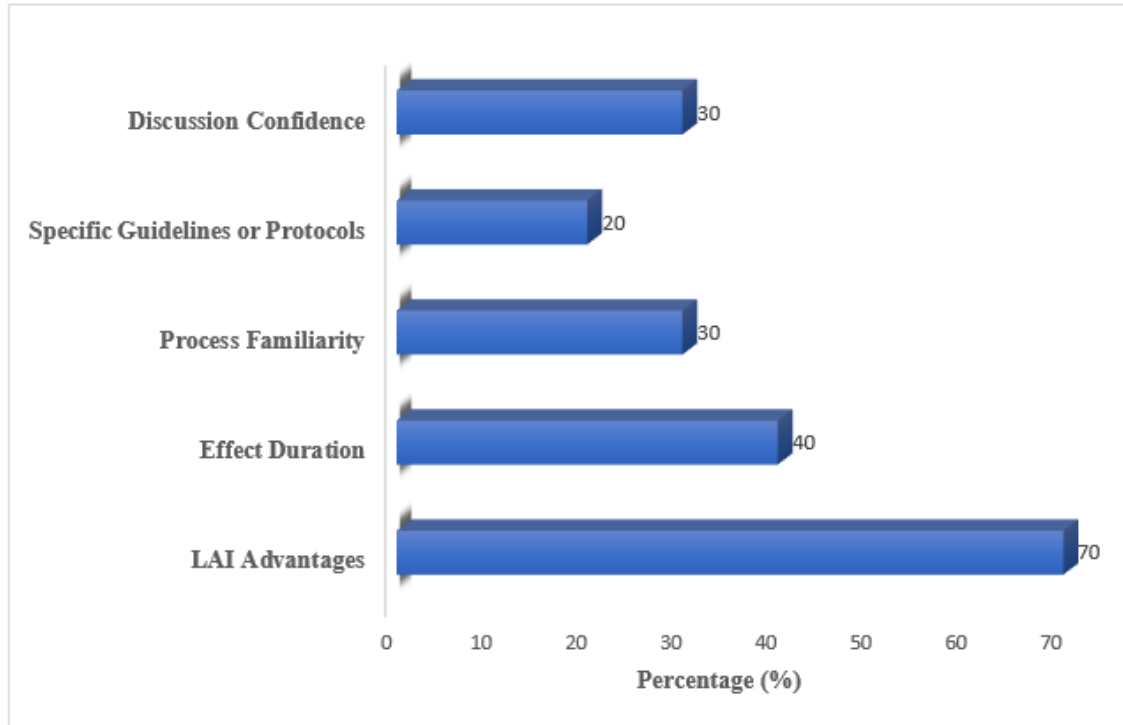
• Hispanic	7 (70%)
• Caucasian	2 (20%)
• African American	1 (10%)
• Asian	0 (0)
• Other	0 (0)
Experience (years)	
• 1-3	4 (40%)
• 3-10	3 (30%)
• 10-20	2 (20%)
• 20-more	1 (10%)

Pretest Results

After analyzing the pre-test data, all participants (100%) reported knowledge of LAI psychotropic medications before the educational program and the type of conditions treated by the approach. The knowledge scores were lower regarding an in-depth understanding of LAI medications. 70% did not perceive the advantage of LAIs over oral medication, while only 40% reported knowing how long the effects lasted, as seen in Figure 1. Also, there was a significant difference in knowledge scores between the age groups. The comparisons found that only providers aged 60 and above had more knowledge than those between 30 and 59.

Figure 1

Pre-test results



Moreover, the pre-test results helped analyze providers' LAI administration practices. Only 30% of participants reported familiarity with the transitioning process from oral medications to LAI psychotropic medication, as illustrated in Figure 1. Two participants reported knowing a specific guideline or protocol for prescribing the drug. 30% were confident in discussing LAI with other healthcare providers. Gender identity and practice setting did not significantly influence the application of LAI in clinical settings.

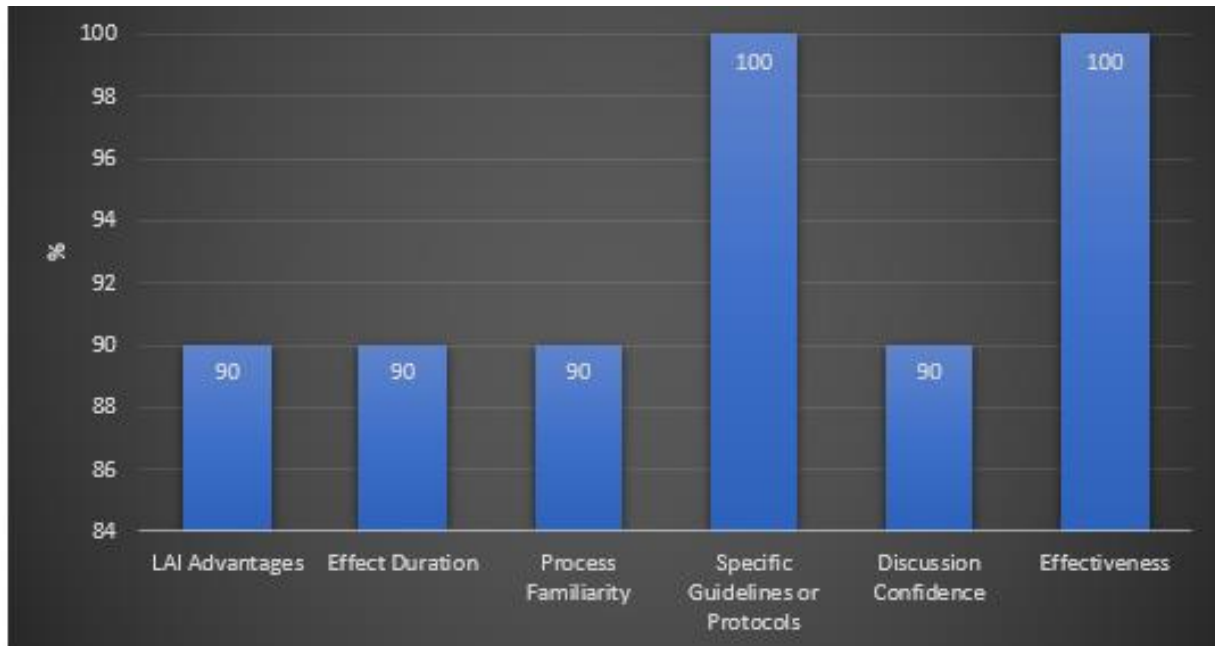
Posttest Results

Analysis of post-test data indicated that knowledge of conditions for which the drug is used remained at 100%. The results revealed an increase in providers' understanding regarding the effectiveness of LAI in managing symptoms to 90% and how long its effects could last to 90%, as seen in Figure 2. Most participants reported increased awareness of LAI benefits over oral medicines increased by 90%. All participants showed a very positive attitude toward the

effectiveness of LAI in managing psychiatric symptoms. The educational presentation significantly reduced the knowledge gap between the age groups.

Figure 2

Post-test results



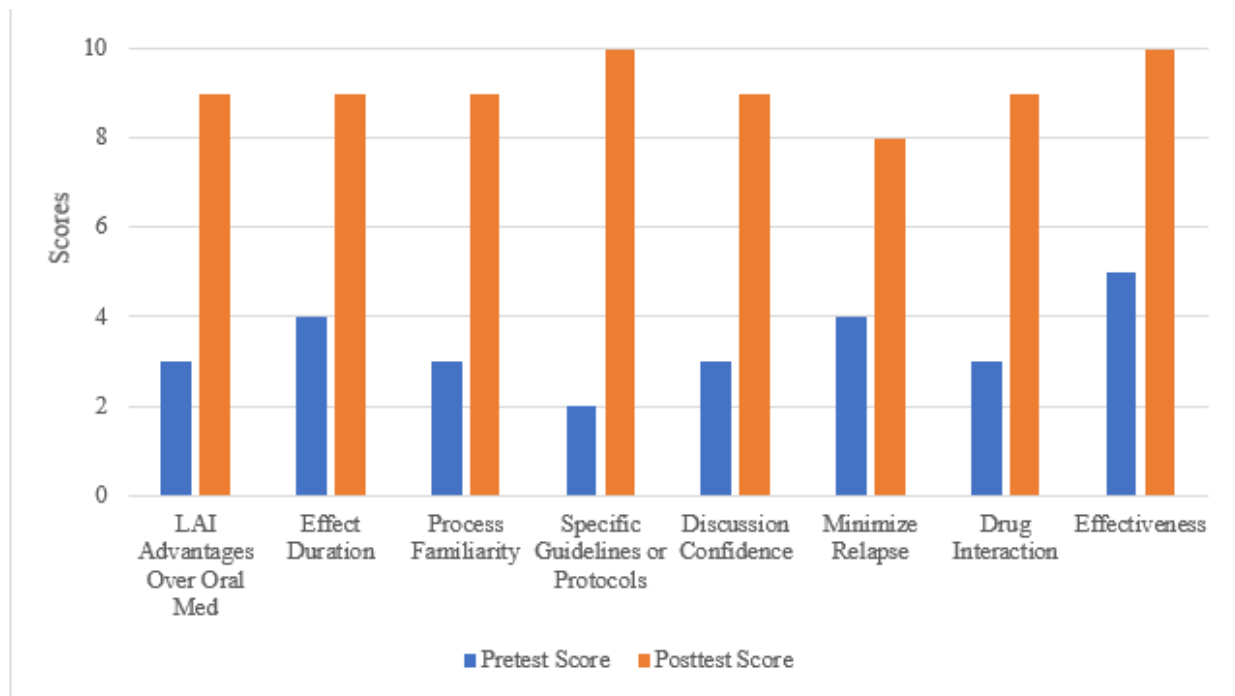
For the administrative practice, nine respondents were aware of the LAI transition process (90%), all of the providers investigated or asked about the drug (100%), and nine providers were confident to discuss LAI medicine with a medical professional (90%). As seen in Figure 2, all respondents in the survey used a specific guideline or protocol in LAI medicine administration. It established a positive correlation association between LAI providers' knowledge or application and educational presentations.

Comparing the after and before test scores, the education presentation elicited an increase of three LAI prescriptions (1%). 60% enhanced perception of the advantage of LAI over oral medication, familiarity with how to administer it, and confidence levels to discuss the drug with colleagues. 50% improved knowledge on how long the effects of LAI usually lasted. 80% are

more aware of any guidelines or protocols on prescribing and believe in a possible reduction in psychiatric disorder relapse rates by 40%. Also seen is an improvement of 60% knowledge about the potential drug-to-drug interaction and 50% knowledge on its effectiveness in the management of psychiatric symptoms.

Figure 3

Comparing pretest and posttest scores



Comments

There were comments to clarify the thought process that providers had while using LAIs, and from this analysis, one central subtheme emerged: knowledge versus practice. Though participants knew about most LAI medications, they were unable or hesitated to use them in practice because of a lack of training. Participant 3, with two years of experience and having had the chance to work with several patients, shared, “I know LAI medication for schizophrenia in my training, but nobody guided me on how to do it properly in the clinical setting.” Participant 9

said, “While I am familiar with some conditions that can be managed with it, I never really tried researching the guidelines on using LAI.” Besides this, half of the providers stated the reason for not trying LAI administration as they did not see the benefits associated. “I don't use LAI medication because I have not seen much significant positive effect on giving the medication to patients with psychiatric illness,” said Participant 2. Participant 5, who has the most experience, answered in this way, “I know how to administer LAI, but some schizophrenic patients I have encountered do not want to reveal some of their body parts like buttocks for injection due to their delusions. Since I do not want to force it upon them, I prefer not to use it.” Thus, some providers are aware of LAI medication and its usage. Still, they might be limited by a lack of awareness regarding the specific guidelines on administering or having a knowledge gap in LAI effectiveness in handling mental health issues (Wolfangel, 2022).

Discussion

The current investigated the concerning underutilization of a safe and effective treatment option for psychotropic medications, the long-acting injectables (LAIs). Despite the potential benefits of LAIs in improving medication adherence and treatment outcomes for patients with psychiatric disorders, healthcare providers often hesitate to incorporate them into their treatment strategies. The results show that many HCPs are reluctant to use LAIs, especially when providing prescriptions for schizophrenia and SAD. These results are corroborated by Robinson et al. (2020) who noted that several factors contribute to this reluctance of HCPs to use LAIs, including a lack of comprehensive knowledge, concerns about potential side effects, and lingering stigma associated with injectable psychiatric medications.

The underutilization of LAIs signifies a significant gap in optimizing treatment approaches for psychiatric patients, highlighting the need for an educational intervention to

address these barriers and promote their broader acceptance and utilization in mental Healthcare. Wolfangel (2022) also reported that the knowledge gap discouraged the optimal utilization of LAIs for various mental health conditions. Therefore, the researchers called for future studies to focus on determining the efficacy of LAIs in treating specific needs, such as schizophrenia or bipolar disorder.

The results also indicated that despite the underutilization of LAIs, educating HCPs on their potential improved the prescription by 1%. This indicates that a lack of knowledge partly contributed to the underutilization of long-acting injectables (LAIs) in mental health treatment. The education program enhanced healthcare providers' understanding, confidence, and openness in considering LAIs as a viable therapeutic option for their patients and thus led to a significant improvement in LAI prescriptions after the intervention. The study by Citrome et al. (2022) strongly supported the effectiveness of educational interventions in augmenting healthcare providers' comprehension and utilization of LAIs. As noted from the results, a brief education on LAIs significantly improved healthcare providers' knowledge of LAIs and willingness to prescribe them.

Implications for Advanced Practice Nursing

The results of this study indicate that despite the underutilization of LAIs in the treatment of mental illness, additional training, refresher training, and other interactive activities could significantly improve and sustain LAI prescription behavior among HCPs. Another observation in this DNP project to clinical practice was made from the scores in the questionnaires and subsection, indicating high scores in awareness of LAIs before the education presentation. This observation implies that many HCPs have a basic idea about LAIs and thus refresher education can lead to a higher understanding, deeper knowledge, and positive attitudes towards LAIs. This

observation further suggests that even though the hospital's advanced care practitioners have the basic knowledge and attitudes toward LAI use, there could be some unidentified barriers, or those known barriers to LAI use are inadequately addressed, as reported by Lindenmayer et al. (2020). Some of these problems could be as technical as improving insurance coverage or decreasing pharmaceutical costs to enhance access and affordability.

Conclusions

This research is significant as it focuses on the unique needs of healthcare providers within the mental healthcare environment. This tailored approach ensures that the educational intervention directly addresses healthcare professionals' knowledge gaps and concerns about LAIs within practice. By imparting knowledge about the benefits of LAIs and the safe and effective methods for their administration, the study endeavored to boost the adoption of LAIs in mental health treatment, ultimately enhancing the quality of life for individuals grappling with severe mental illnesses. Beyond lack of education, there could be some unknown barriers to the use of LAIs even in cases where the HCPs have knowledge and awareness but still do not use this intervention in clinical practice. It is also possible that the known barriers to the implementation of LAIs are being inadequately addressed by responsible people and thus contributing to underutilization among the mainstream clinical interventions.

A potential limitation of this study was the use of a small sample size which means the study could not yield the data diversity required to improve reliability and transferability. Future quality improvement projects should use a larger sample size to increase participants' proportions for more diversified insights. Also, the study's scope was narrowed toward nurse practitioners,

which could have swayed the study's outcome. A more diversified population of physicians, psychiatrists, and other providers should be prioritized in the future.

Appendix A

Florida International University Institutional Review Board Approval Letter

**MEMORANDUM**

To: Dr. Victor Delgado

CC: Priscilla Juncadella

From: Carrie Bassols, BA, IRB Coordinator *ceb*

Date: May 13, 2024

Proposal Title: "The Benefits and Effects of Long-Acting Injectable Psychotropic Medication Education to Improve Provider Knowledge and Outcomes- A Quality Improvement Project"

The Florida International University Office of Research Integrity has reviewed your research study for the use of human subjects and deemed it Exempt via the **Exempt Review** process.

IRB Protocol Exemption #: IRB-24-0241 **IRB Exemption Date:** 05/13/24
TOPAZ Reference #: 113998

As a requirement of IRB Exemption you are required to:

- 1) Submit an IRB Exempt Amendment Form for all proposed additions or changes in the procedures involving human subjects. All additions and changes must be reviewed and approved prior to implementation.
- 2) Promptly submit an IRB Exempt Event Report Form for every serious or unusual or unanticipated adverse event, problems with the rights or welfare of the human subjects, and/or deviations from the approved protocol.
- 1) Submit an IRB Exempt Project Completion Report Form when the study is finished or discontinued.

Special Conditions: N/A

For further information, you may visit the IRB website at <http://research.fiu.edu/irb>.

Appendix B

Support Letter from Facility



Date: 2/28/2024

Victor Delgado DNP, APRN, ANP-BC
Clinical Assistant Professor
Nicole Wertheim College of Nursing & Health Sciences
Florida International University

Dear Dr. Victor Delgado,

Thank you for inviting Banyan Community Health Center to participate in the Doctoral Capstone Project of Priscilla M. Juncadella. I understand that she will be conducting this project as part of the requirements for the Doctor in Nursing Practice program at Florida International University. After reviewing the proposal titled "The Benefit and Effect of Long-Acting Injectable Psychotropic Medication Provider Education on Provider Knowledge and Outcomes. A quality improvement project." I have warranted her permission to conduct the project in this company.

We understand that the project will be developed in our setting and will occur in two separate sessions in an eight-week time frame and will probably be implemented at a later date. We are also aware of our staff participation in supporting the student to complete this project, including warrant the student access to our facilities, obtain patient consent, deliver the pre-test questionnaire, provide the educational intervention and four weeks after providing the post-test to the recruited participants. We will provide a peaceful environment to safeguard our participant privacy as well as adequate area to conduct the educational activity.

This project intends to evaluate if a structured education targeting providers and staff will increase the use of psychotropic long-acting injectable in behavioral health patient's medication regime. The project will be conducted with the previous consent of potential participants receiving services in our facility. Prior to the implementation of this project, the Florida International University Review Board will evaluate and approve the procedures to conduct this project. Evidence suggests that a strong patient-provider relationship and providers attitude influence patient's perceptions and medication regime. Furthermore, increasing providers and staff awareness of psychotropic long-acting injectable benefits.

This educational intervention will be in a pre-test and post-test format, including a presentation from the student to the providers who will be participating. All data collect on any patient will not consist of any identifying personal information and only be identified by an assign study identifier. Any data collected by Priscilla M. Juncadella will be kept confidential and will be stored in a locked filing cabinet at our office.

We expect that Priscilla M. Juncadella will not interfere with the normal office performance, having in a professional manner and following the office standards of care. As Executive Director of Banyan Community Foundation/Banyan Research and Innovation Center, I support the participation of our providers and staff in this project and look forward to working with you.

Sincerely,  Ileana Ruiz Garcia, MSHSA

Executive Director Banyan Community Foundation/Banyan Research and Innovation Center

Appendix C

Recruitment Email Letter

Priscilla M. Juncadella

8600 S.W. 21 Street ♦ Miami, FL 33155 ♦ (305) 216-0148 ♦ pjuncadella@gmail.com

Date: 5/1/2024

Dear Provider,

My name is Priscilla M. Juncadella, and I am a student in the Graduate Nursing Department at Florida International University. I am currently working on my doctoral capstone project which will involve Banyan Health Systems providers. I am writing to invite you to participate in my quality improvement project. The goal of this project is to improve the provider's knowledge in the use of psychotropic long-acting injections for the patients You are eligible to take part in this project because you are a provider at Banyan Health Systems, and you provide or may provide care to behavioral health patients. I am contacting you with the permission of your CMO Moraima Trujillo, MD at Banyan Health Systems.

If you decide to participate in this project, you will be asked to complete and sign a consent form for participation. You will complete a pre-test questionnaire, which is expected to take approximately 15-20 minutes. Then, you will then be asked to view an approximately 20-30-minute-long educational presentation. You will be provided with handouts and additional information resources about LAI utilization among psychiatric patients. Approximately eight weeks after viewing the educational presentation, you will be asked to complete the post-test questionnaire, which is expected to take approximately 15-20 minutes. This will allow to evaluate any modifications in prescription LAI usage and approach towards LAI implementation. The total duration time of all research related activities, including pre- and post- tests, educational presentation and patient case studies will take approximately 70 minutes. No compensation will be provided.

Remember, this is completely voluntary. You can choose to be in the study or not. If you'd like to participate, please click on the link provided (link for Qualtrics questionnaire). If you have any questions about the study, please email or contact me at pjuncadella@gmail.com or call me at (305) 216-0148. The consent form is attached to this letter. Please return the signed consent form.

Thank you very much.

Sincerely,

Priscilla M. Juncadella, APRN, PMHNP-BC

Appendix D

Participant Informed Consent Document



CONSENT TO PARTICIPATE IN A QUALITY IMPROVEMENT PROJECT

“The Benefits and Effects of Long-Acting Injectable Psychotropic Medication Education to Improve Provider Knowledge and Outcomes”

PURPOSE OF THE PROJECT

You have been asked to participate in a quality improvement initiative aimed at enhancing provider knowledge and outcomes concerning long-acting injectable psychotropic medications in the care of patients. This project involves providing education to providers with the goal of identifying tools and guidelines that can be implemented to enhance patient care and medication management.

NUMBER OF PROJECT PARTICIPANTS

If you decide to be in this project, you will be one of ten people participating in this research project.

DURATION OF THE PROJECT

Your participation will require you to complete a pre-test, an educational presentation that will take 20 minutes and a post-test that will occur eight weeks after the presentation.

PROCEDURES

If you agree to be in the project, we will ask you to do the following things:

1. At the presentation, you will complete a demographic questionnaire, which includes general information such as age, gender, position in practice; and a pre-test with long-acting injectable medication management guideline knowledge.
2. At the education presentation, you will receive a 20–30-minute educational PowerPoint presentation about long-acting injectable psychotropic medication guidelines, medication adherence, and patient centered care.
3. Eight weeks later, you will be asked to complete the post-test.

RISKS AND/OR DISCOMFORTS

This project involves minimal risk for several reasons:

- **Physical Risk:** The questionnaire does not involve any physical procedures or interventions. Participants are not exposed to any physical harm or discomfort as a result of their involvement in the project.
- **Psychological Risk:** The questions in the questionnaire primarily pertain to the participant's knowledge, perceptions, and attitudes towards long-acting injectable psychotropic medications. While some questions may touch upon sensitive topics related to mental health treatment, they are designed to be non-invasive and respectful. Participants have the option to decline answering any questions they feel uncomfortable with.

- **Social Risk:** Participation in the questionnaire does not pose any social risks to the participants. Their responses are anonymized, ensuring confidentiality. There are no social consequences or stigma associated with participating in this project.
- **Legal Risk:** The questionnaire does not involve any legal implications for the participants. There are no legal obligations associated with their participation, and their responses are used solely for research purposes.
- **Economic Risk:** Participation in the questionnaire does not incur any costs for the participants. There are no financial risks or burdens associated with their involvement in the project.

Overall, the nature of the project, which involves completing a questionnaire about long-acting injectable psychotropic medications, presents minimal risk to participants across physical, psychological, social, legal, and economic domains.

BENEFITS

Participating in this project may yield several benefits, including a rise in the utilization of long-acting injectable psychotropic medications. This increase can facilitate improved assessment of medication adherence and the implementation of guidelines to use long-acting injectable psychotropic medications. The principal aim of this quality improvement project is to enhance the quality of healthcare delivery, increase usage and medication adherence among our patients, and foster increased patient engagement.

ALTERNATIVES

There are no known alternatives available to you other than not taking part in this project. However, if you would like to receive the educational material given to the participants in this project, it will be provided to you at no cost.

CONFIDENTIALITY

The records of this project will be kept private and will be protected to the fullest extent provided by law. If, in any sort of report, we might publish, we will not include any information that will make it possible to identify you as a participant. Records will be stored securely, and only the project team will have access to the records.

COMPENSATION & COSTS

There is no cost or payment to you for receiving the health education and/or participating in this project.

RIGHT TO DECLINE OR WITHDRAW

Your participation in this project is voluntary. You are free to participate in the project or withdraw your consent at any time during the project. Your withdrawal or lack of participation will not affect any benefits to which you are otherwise entitled. The investigator reserves the right to remove you without your consent at such time that they feel it is in the best interest.

RESEARCHER CONTACT INFORMATION

If you have any questions about the purpose, procedures, or any other issues relating to this research project, you may contact Priscilla M. Juncadella (305)216-0148 or Dr. Nelson Hernandez (786)255-1250

IRB CONTACT INFORMATION

If you would like to talk with someone about your rights of being a subject in this project or about ethical issues with this project, you may contact the FIU Office of Research Integrity by phone at 305-348-2494 or by email at ori@fiu.edu.

PARTICIPANT AGREEMENT

I have read the information in this consent form and agree to participate in this project. I have had a chance to ask any questions I have about this project, and they have been answered for me. I understand that I will be given a copy of this form for my records.

Signature of Participant

Date

Printed Name of Participant

Signature of Person Obtaining Consent

Date

Appendix E

Pretest and Posttest Questionnaire



Pretest and Posttest Questionnaire: Long-Acting Psychotropic Injection Medication

INTRODUCTION

The primary aim of this QI project is to improve the knowledge of long-acting psychotropic medications among healthcare providers to improve patient care and utilizations in the medication management of prescribed long-acting injectable on psychiatric patients.

Please answer the question below to the best of your ability. The questions are either in multiple choice or yes/no answer. These questions are meant to measure knowledge and perceptions on identification, referral, management and patient education on long-acting injectable psychotropic medications.

PERSONAL INFORMATION

1. **Gender:**
 - a. Male
 - b. Female
 - c. Other
2. **Age:** _____
3. **Ethnicity:**
 - a. Hispanic
 - b. Caucasian
 - c. African American
 - d. Asian
 - e. Other
4. **Position/Title:** _____
5. **How many years of practice in specialty (Psychiatry)?**
 - a. 1-3 years
 - b. 3-10 years
 - c. 10-20 years
 - d. 20-30 or more years
6. **How many trainings (in any format: in person or online) have you attended in the past year that focused on Long-Acting injectable psychotropic medications?**
 - a. None
 - b. 1-2
 - c. 2-3
 - d. 4 or more
 - e. I don't know/I don't remember.

Questions:

1. Have you heard of long-acting injectable psychotropic medications before?
 - a. Yes
 - b. No
2. Do you know what conditions long-acting injectable psychotropic medications are typically used to treat?
 - a. Yes
 - b. NoComments:

3. Have you or anyone you know ever been prescribed a long-acting injectable psychotropic medication?
 - a. Yes
 - b. NoComments:

4. How familiar are you with the administration process of long-acting injectable psychotropic medications?
 - a. Very familiar
 - b. Somewhat familiar
 - c. Not very familiar
 - d. Not at all familiar
5. Do you know how long the effects of long-acting injectable psychotropic medications typically last?
 - a. Yes
 - b. NoComments: _____
6. What is your perception of the advantages of long-acting injectable psychotropic medications compared to oral medications?
 - a. There is no advantage.
 - b. Some advantages
7. Are you aware of any potential disadvantages or side effects associated with long-acting injectable psychotropic medications?
 - a. Yes
 - b. No

Comments: _____

8. Do you know the differences between various types of long-acting injectable psychotropic medications?

- a. Yes
- b. No

Comments: _____

9. How confident are you in discussing long-acting injectable psychotropic medications with a healthcare professional?

- a. Very Confident
- b. Somewhat confident
- c. Not at all confident

10. Have you ever researched or sought information about long-acting injectable psychotropic medications on your own?

- a. Yes
- b. No

Comments: _____

11. Do you think long-acting injectable psychotropic medications are underutilized in psychiatric treatment?

- a. Yes
- b. No

Comments: _____

12. What factors do you think contribute to the underutilization of long-acting injectable psychotropic medications?

- a. Side effects
- b. High cost
- c. Insurance
- d. Appointment Compliance/Medication adherence

13. Are you aware of any stigma associated with long-acting injectable psychotropic medications?

- a. Side effects
- b. High cost
- c. Insurance
- d. Compliance/Medication adherence

Comments: _____

14. Do you believe long-acting injectable psychotropic medications are effective in managing psychiatric symptoms?

- a. Yes

b. No

Comments: _____

15. How knowledgeable are you about the potential interactions between long-acting injectable psychotropic medications and other drugs or substances?

- a. Very knowledgeable
- b. Somewhat knowledgeable
- c. Not at all knowledgeable

16. Have you ever discussed long-acting injectable psychotropic medications with another mental health professional?

- a. Yes
- b. No

Comments: _____

17. Are you familiar with the process of transitioning from oral medications to long-acting injectable psychotropic medications?

- a. Very familiar
- b. Somewhat familiar
- c. Not very familiar
- d. Not at all familiar

18. How comfortable are you with the idea of using long-acting injectable psychotropic medications for psychiatric treatment?

- a. Very comfortable
- b. Somewhat comfortable
- c. Not very comfortable
- d. Not at all comfortable

19. Do you think long-acting injectable psychotropic medications offer better adherence compared to oral medications?

- a. Yes
- b. No

Comments: _____

20. Are you aware of any specific guidelines or protocols for prescribing long-acting injectable psychotropic medications?

- a. Yes
- b. No

Comments: _____

21. Do you believe long-acting injectable psychotropic medications have the potential to reduce relapse rates in psychiatric disorders?

- a. Yes

b. No

Comments: _____

22. Do you think the cost of long-acting injectable psychotropic medications compares preferably to oral medications?

a. Yes

b. No

Comments: _____

23. Have you ever discussed the option of long-acting injectable psychotropic medications with a loved one who has a psychiatric condition?

a. Yes

b. No

Comments: _____

24. Do you think there is enough information available to the public about long-acting injectable psychotropic medications?

a. Yes

b. No

Comments: _____

25. Would you consider discussing the option of long-acting injectable psychotropic medications with another healthcare professional for yourself or someone you know?

a. Yes

b. No

Comments: _____

Appendix F
CITI Ethics Certification



Completion Date 18-Sep-2021
Expiration Date 17-Sep-2024
Record ID 45151685

This is to certify that:

Priscilla Juncadella

Has completed the following CITI Program course:

Not valid for renewal of certification through CME.

Basic/Refresher Course - Human Subjects Research
(Curriculum Group)
Biomedical Human Research Course
(Course Learner Group)
1 - Basic Course
(Stage)

Under requirements set by:

Florida International University



101 NE 3rd Avenue, Suite 320
Fort Lauderdale, FL 33301 US
www.citiprogram.org

Generated on 24-Jan-2024. Verify at www.citiprogram.org/verify/?w9e39331c-d667-42a5-9bcb-ebfe589d9e17-45151685

Appendix G

Educational Handout for Providers

Exploring Long-Acting Injectable Psychotropic Medications

Welcome to our guide on Long-Acting Injectable Psychotropic Medications. This pamphlet aims to provide information about different types of LAI medications and their uses in the treatment of various psychiatric conditions. Understanding these medications can empower individuals and their caregivers to make informed decisions about their mental health care.

Types of Long-Acting Injectable Psychotropic Medications

Long-acting injectable (LAI) psychotropic medications offer a unique approach to managing psychiatric conditions. Here are some common types and their uses:

1. Aripiprazole (Abilify Maintena, Aristada):
 - Usage: Aripiprazole is used to treat schizophrenia and bipolar disorder. It helps to stabilize mood and reduce symptoms of psychosis.
2. Risperidone (Risperdal Consta):
 - Usage: Risperidone is primarily used to treat schizophrenia and bipolar disorder. It helps manage symptoms such as hallucinations, delusions, and mood swings.
3. Paliperidone (Invega Sustenna, Invega Trinza):
 - Usage: Paliperidone is indicated for the treatment of schizophrenia and schizoaffective disorder. It works by blocking certain neurotransmitters to alleviate symptoms.
4. Olanzapine (Zyprexa Relprevv):
 - Usage: Olanzapine is used to treat schizophrenia and bipolar disorder. It helps control symptoms such as agitation, hallucinations, and disorganized thinking.
5. Haloperidol (Haldol Decanoate):
 - Usage: Haloperidol is primarily used to manage symptoms of schizophrenia and other psychotic disorders. It helps reduce agitation, aggression, and hallucinations.

Choosing the Right Medication

Selecting the appropriate long-acting injectable psychotropic medication is a collaborative decision between the individual, their healthcare provider, and their support network.

Considerations include:

- **Diagnosis:** The specific psychiatric condition being treated.
- **Symptom Profile:** The individual's symptoms and their severity.

- **Medical History:** Any underlying medical conditions or allergies.
- **Medication History:** Previous response to medications and any side effects experienced.
- **Preferences:** Individual preferences regarding frequency of administration and potential side effects.

Benefits of Long-Acting Injectable Medications

Long-acting injectable psychotropic medications offer several advantages over oral medications:

- **Improved Adherence:** Ensures consistent medication levels in the body.
- **Reduced Relapse Rates:** Helps maintain stability and prevent symptom recurrence.
- **Decreased Risk of Overdose:** Eliminates the risk of accidental or intentional overdose.
- **Less Daily Burden:** Reduces the need for daily medication management.

Considerations and Side Effects

While long-acting injectable psychotropic medications have many benefits, it's essential to be aware of potential side effects and considerations:

- **Injection Site Reactions:** Mild pain, redness, or swelling at the injection site.
- **Monitoring:** Regular monitoring by a healthcare provider is necessary.
- **Individual Response:** Response to medications may vary, and finding the right dosage is crucial.
- **Discontinuation:** Should be done under the guidance of a healthcare provider.

Thank you for exploring Long-Acting Injectable Psychotropic Medications with us. Remember, this pamphlet is for informational purposes only and should not replace medical advice. Consult with your healthcare provider to discuss treatment options that are right for you.

References

- Adam, H. L., Giroux, C. M., Eady, K., & Moreau, K. A. (2021). A qualitative study of patients' and caregivers' perspectives on educating healthcare providers. *Canadian Medical Education Journal*, 12(4), 7–16. <https://doi.org/10.36834/cmej.71541>
- Chan, H. Y. I., Kwok, A. O. I., Yuen, K. Au, D. K., & Yuen, J. K. (2020). Association between training experience and readiness for advance care planning among healthcare professionals: a cross-sectional study. *BMC Medical Education*, 20, 451. <https://doi.org/10.1186/s12909-020-02347-3>
- Citrome L, Belcher E, Stacy S, Suett M, Mychaskiw M, Salinas GD. Management of Schizophrenia with Long-Acting Injectable Antipsychotic Medications: An Assessment of the Educational Needs of Clinicians. *Neuropsychiatr Dis Treat*. 2022;18:111-123 <https://doi.org/10.2147/NDT.S326299>
- Greene, M., Yan, T., Chang, E., Hartry, A., Touya, M., & Broder, M. S. (2018). Medication adherence and discontinuation of long-acting injectable versus oral antipsychotics in patients with schizophrenia or bipolar disorder. *Journal of Medical Economics*, 21(2), 127-134. <https://doi.org/10.1080/13696998.2017.1379412>
- Grover, S., Sahoo, S., Subodh, B. N., Malhotra, N., Dua, D., & Avasthi, A. (2019). Attitude and perceptions of patients towards long-acting depot injections (LAIs). *Asian Journal of Psychiatry*, 44, 200-208. <https://doi.org/10.1016/j.ajp.2019.07.052>
- Haider, B., O'Sullivan, A. K., Bessonova, L., Keane, E., Achtyes, E., Harvey, P. D., Kane, J. M., Saklad, S. R., Trotter, J. P., Claxton, A., Polak, T., McGrory, J., Noori, W., Kessler, A. S., Yaras, A., & Velligan, D. (2023). Changes in clinical management of patients with schizophrenia treated with Long-Acting Injectable Antipsychotics (LAIs), including

- telepsychiatry use, during the COVID-19 pandemic. *Neuropsychiatric Disease and Treatment*, 19, 623-634. <https://doi.org/10.2147/NDT.S394220>
- Hussain, S. T., Lei, S., Akram, T., Haider, M. J., Hussain, S. H., & Ali, M. (2018). Kurt Lewin's model: A critical review of the role of leadership and employee involvement in organizational change. *Journal of Innovation and Knowledge*, 3(3), 123-127. <https://doi.org/10.1016/j.jik.2016.07.002>
- Kane, J. M., Schooler, N. R., Marcy, P., Achtyes, E. D., Correll, C. U., & Robinson, D. G. (2019). Patients with early-phase schizophrenia will accept treatment with sustained-release medication (long-acting injectable antipsychotics). *The Journal of Clinical Psychiatry*, 80(3). <https://doi.org/10.4088/jcp.18m12546>
- Kauff, M., Burrmann, T., Golz, F., Simon, L., Luers, G., van Kampen, S., de Camargo, O. K., Snyman, S., & Wulfhorst, B. (2023). Teaching interprofessional collaboration among future healthcare professionals. *Frontiers in Psychology*, 14. <https://doi.org/10.3389/fpsyg.2023.1185730>
- Lin, Y.-Y., Hou, W.-L., & Lin, M.-L. (2023). Psychiatric nurses' knowledge and practice barriers to administering Long-Acting Injectable (LAI) Antipsychotics in Taiwan: A mixed-methods study. *Healthcare*, 11(12), 1670. MDPI AG. Retrieved from <http://dx.doi.org/10.3390/healthcare11121670>
- Lindenmayer, J.-P., Glick, I. D., Talreja, H., & Underriner, M. (2020). Persistent barriers to the use of long-acting injectable antipsychotics for the treatment of schizophrenia. *Journal of Clinical Psychopharmacology*, 40(4), 346–349.

<https://doi.org/10.1097/jcp.0000000000001225>

NAMI. (2023). *Mental health medications*. Nami.org. [https://www.nami.org/About-Mental-Illness/Treatment/Mental-Health-Medications/Long-Acting-Injectables-\(LAIs\)#:~:text=Long%2Dacting%20injectables%20\(LAIs\)%20are%20Injectable%20medications%20used%20for](https://www.nami.org/About-Mental-Illness/Treatment/Mental-Health-Medications/Long-Acting-Injectables-(LAIs)#:~:text=Long%2Dacting%20injectables%20(LAIs)%20are%20Injectable%20medications%20used%20for)

Robinson, D. G., Subramaniam, A., Fearis, P. J., Shi, R., Walsh, M., Hanna, L. A., & Kane, J. M. (2020). Focused ethnographic examination of barriers to the use of long-acting injectable antipsychotics. *Psychiatric Services, 71*(4), 337–342.

<https://doi.org/10.1176/appi.ps.201900236>

Sajatovic, M., Ross, R., Legacy, S. N., Correll, C. U., Kane, J. M., DiBiasi, F., Fitzgerald, H., & Byerly, M. (2018). Identifying patients and clinical scenarios for use of long-acting injectable antipsychotics – expert consensus survey part 1. *Neuropsychiatric Disease and Treatment, Volume 14*, 1463–1474. <https://doi.org/10.2147/ndt.s167394>

Stolzenburg, S., Freitag, S., Evans-Lacko, S., Speerforck, S., Schmidt, S., & Schomerus, G. (2018). Individuals with currently untreated mental illness: Causal beliefs and readiness to seek help. *Epidemiology and Psychiatric Sciences, 28*(4), 446–457.

<https://doi.org/10.1017/S2045796017000828>

Wolfangel, T. D. (2022). *Education to improve long-acting injectable antipsychotic use* [Unpublished dissertation]. University of Missouri-St. Louis.

<https://irl.umsl.edu/cgi/viewcontent.cgi?article=2305&context=dissertation>