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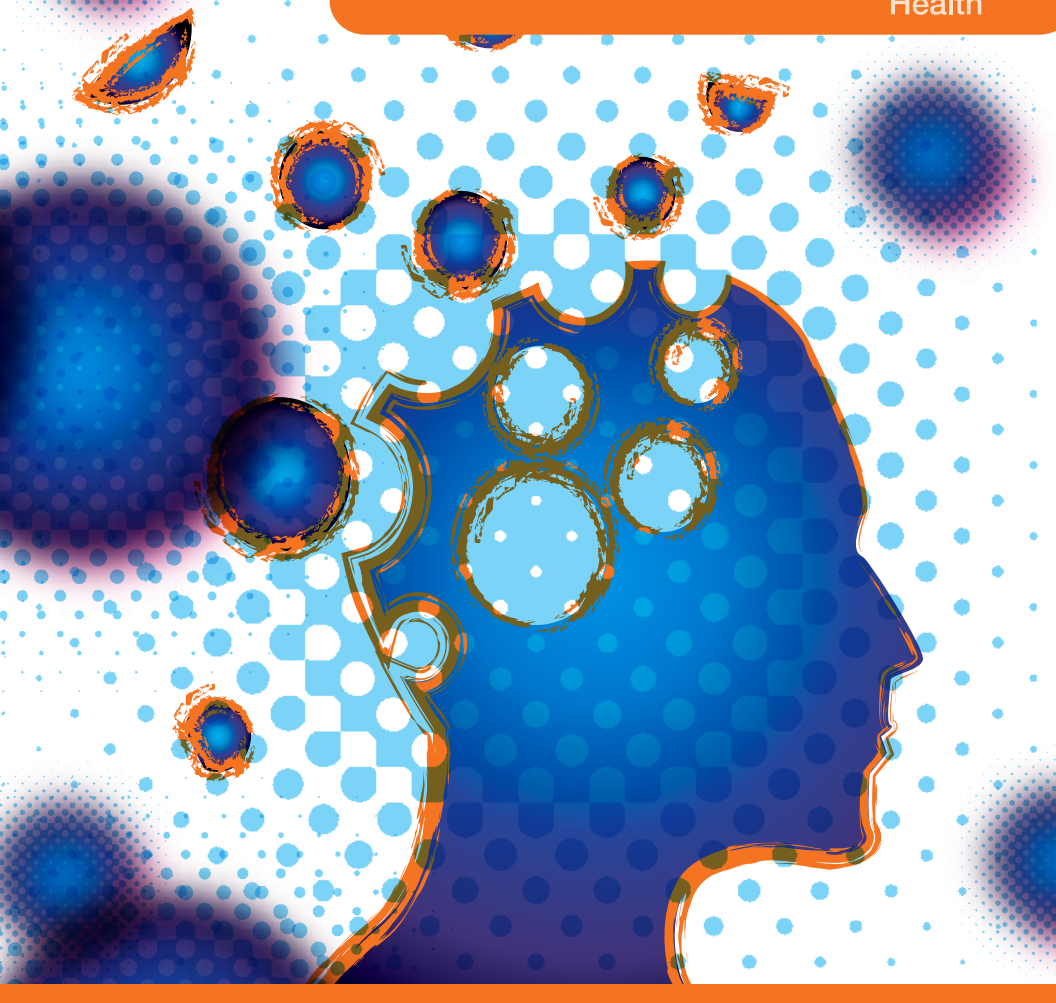

Treating Parkinson's Disease Psychosis with Cognitive Behavioral Therapy

Henry A. Montero

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Treating Parkinson's Disease Psychosis with Cognitive Behavioral Therapy

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This publication is the result of the author's participation in the Fellows Program between February and May 2014.

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Treating Parkinson's Disease Psychosis with Cognitive Behavioral Therapy

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Foreword

The Global Foundation for Democracy and Development (GFDD) in the United States of America and the Fundación Global Democracia and Desarrollo (Funglode), headquartered in Santo Domingo, Dominican Republic, are dedicated to promoting research and awareness in areas crucial to the democratic, social and economic, sustainable development of the Dominican Republic and the world. The two think tanks organize meetings and educational programs as well as generate studies and publications that contribute to the development of new perspectives, searching for innovative solutions and creating transformative initiatives.

GFDD and Funglode are honored to present the publication series Research and Ideas. The series includes research papers, articles, speeches, and keynote addresses that discuss critical issues of the contemporary world from national, regional, and global points of view.

The series features this time the book *Cognitive Behavioral Therapy in Patients with Parkinson's Psychosis*, the research of Henry Montero which shows how the cognitive behavioral therapy (CBT) is effective in the treatment of patients diagnosed with psychosis as a result of Parkinson's disease and, at the same time, contributes to the development of mental health in the Caribbean and Latin America.

These selected works present scrupulous analysis, introduce innovative ideas, and transmit inspiration. We hope they will contribute to a better understanding of the world, empowering readers to act in more informed, efficient, and harmonious ways.

Natasha Despotovic
Executive Director
GFDD

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Preface

Parkinson's is a disease which remains shrouded in mystery. From the onset and progression of the disease to the presence of its varied symptoms, much remains unknown about the disease's behavior and a cure is yet to be found. In the Dominican Republic, the ambiguity of the disease is further complicated by a lack of reliable data surrounding its prevalence and treatment. This study performed by Henry Montero, PhD candidate in psychology at Capella University, helps fill an important information gap and contributes to the body of research on Parkinson's in Latin America and the Caribbean. More than just providing data on the disease, this report presents a treatment plan which increases the positive quality of life of patients suffering from the disease and its related mental condition, psychosis. In this way, this research makes an important contribution to the GFDD's vision to bring new perspectives and innovative approaches and solutions to the challenges of contemporary society in the Dominican Republic and the world.

It is for this reason that GFDD established the Fellows Program in 2009. The initiative provides opportunities for Master's and doctoral candidates, professors and other scholars to conduct high-level research in the Dominican Republic on issues related to development and democracy. For the duration of their studies, researchers work in close coordination with GFDD officials and national academic advisors to guide their search for information and data. In this study, Mr. Montero works closely with Dr. Marcia Castillo, a neurologist and Parkinson's specialist at Hospital Abreu and co-founder of Fundación Dominicana Contra el Mal de Parkinson. Dr. Olga B. Soto-Moise, American Board certified psychiatrist, also played a crucial role in the development of the study.

Mr. Montero's research was conducted during a 4-month span between February and May 2014. Dr. Castillo immediately facilitated a connection with the medical center at Fundación Activo 20-30 Inc., where diagnosed Parkinson's psychosis patients were recruited for the study. During the time that patients underwent CBT treatment, Mr. Montero monitored them and their caretakers closely, providing recommendations in the end that go beyond improving just the quality of life of the patients, but impacting that of their caretakers as well. But it wasn't just in this aspect that Mr. Montero went above and beyond. He made it a personal mission to cultivate awareness and knowledge of Parkinson's disease throughout the Dominican Republic. During his time in the country, he participated in numerous radio and television interviews designed to inform the public that is largely unaware of the disease, its symptoms and its effects, including a spot on radio Z101's medical show *La receta médica*, and three television interviews on the programs *Metro por metro*, *Con punto y coma*, and *Al día* con Nelson González.

A critical part of the mission of GFDD and its sister organization in the Dominican Republic, la Fundación Global Democracia y Desarrollo, is to produce research and implement initiatives which contribute to the improvement of lives in the Dominican Republic and the Western Hemisphere. Mr. Montero's use of the cognitive behavioral therapy (CBT) treatment on Parkinson's patients proves to do just that, and it is our hope that this study will be widely distributed throughout Latin America so that CBT becomes a prevalent recognized treatment for Parkinson's disease psychosis and improves the quality of life of patients and caregivers around the globe.

Mandy Sciacchitano
Programs Manager
InteRDom, Fellows and GDAE

Acknowledgements

I would like to thank everyone who made this project possible. First among these are the patients, without whom this work would not have been possible, and the Active 20-30 Foundation, its director, Dr. Moreno, and Dr. Castillo and his team, and finally, our team at the Global Foundation for Democracy and Development.

I would like to express my deep appreciation to my lawyer friend, Gedeón Santos, who is a firm believer in the potential of youth, research, and scientific development. Thank you for your unconditional friendship. In addition, I would like to thank Dr. Miguel Melenciano for his advice and for his unconditional belief in this project. And, to my son Dominic Alquimedez Montero Hunsinger, I would like to remind that science develops knowledge for all humanity.

I've always thought that I am a blessed person and that God, without a doubt, has always manifested his grace in every step I take through life. His inspiration has allowed me to complete this project. Words cannot express how thankful I am for his support, the confidence and the words of advice given to me, and the wonderful moments that I will remember for my lifetime.

May the well-deserved reward come from above! President Dr. Leonel Fernández Reyna, I will be forever grateful.

Henry Montero
Author

Treating Parkinson's Disease Psychosis with Cognitive Behavioral Therapy

Henry A. Montero

Objectives of the Study

1. Contribute to the body of scientific research on Parkinson's disease and mental health development in Latin American and Caribbean countries.

2. Research and report on the application of Cognitive Behavioral Therapy (CBT) for psychosis dueto Parkinson's disease, a common medical condition in the Dominican Republic.

3. Identify CBT as a potential form of treatment, and formulate recommendations for its use.

4. Provide information on the impact of CBT within a studied neurodegenerative community.

5. Formulate recommendations to advance and strengthen the Parkinson's disease Psychosis community for those who have not had pharmacological treatment for this condition.

6. Raise awareness about Parkinson's disease in the Dominican Republic through news and radio advocacy.

7. Establish the Dominican Foundation against Parkinson's disease.

Subject:
Cognitive Behavioral Therapy, an Evidence-Based Treatment for Patients Diagnosed With Parkinson's Disease Psychosis.

Summary

Rationale for the study Parkinson's Disease Psychosis (PDP) is a non-movement symptom (NMS) present in 60% of the PD population, and it is characterized by hallucinations and delusions, which are difficult to treat. For example, dopamine agonist interacts with typical and Atypical Antipsychotics (AA) (Weintraub & Stern, 2005). There is a high likelihood of a severe life-threatening interaction between dopaminergic agonist and typical antipsychotic (Clozapine) medication (Rabey, et al., 1995). These interactions may cause psychotic symptoms. Cognitive Behavioral Therapy (CBT) has proved an effective treatment for patients diagnosed with psychotic symptoms.

Methodology

This study uses case study approach to evaluate the impact of CBT in treating PDP patients.

Results

This study shows that CBT is effective in treating patients diagnosed with PDP.

Conclusion

CBT has clearly established methods and goals; it allows for the treatment to be defined as a technique and to be implemented as a scientific treatment for the condition.

Keywords: Parkinson's Disease Psychosis, Cognitive Behavioral Therapy

1. Introduction and Background

1.1 Diagnosis and Epidemiology of Parkinson's Disease

Parkinson's disease (PD) is a neurodegenerative movement disorder affecting over six million people worldwide (Parkinson's Disease Foundation Inc., 2014). According to an extrapolation by Castillo (2014), the Dominican Republic has approximately six thousand people living with PD or other neurodegenerative conditions.

The pathological finding associated with PD is the degeneration of dopaminergic neurons of the pars compacta of the substantia nigra, which leads to the depletion of dopamine in the striatum (Factor & Weiner, 2007). According to Wirdefeldtet al. (2011), symptoms for PD do not appear until 50-60% of the nigral neurons are depleted and about 80-85% of the dopamine substance of the stratum has been lost. The major symptom of PD is motor dysfunction, which includes resting tremors, bradykinesia, rigidity, and postural reflex impairment. There is no official clinical definition of PD, but the universally accepted description is the presence of two or more cardinal motor symptoms (including bradykinesia) and a positive response to Levodopa medication, which provide a partial diagnosis of PD. There is an error rate of approximately 25% of misdiagnosing PD as other diseases with similar characteristics, and a PD diagnosis can only be proven postmortem (Macphee & Stewart, 2007). Other symptoms associated with PD include non-motor indicators that are common in early PD. Recognition of the combination of non-motor and motor symptoms aid in early detection, and thus early intervention, which often results in a better quality of life. A critical issue in PD is how to know the problem exists given that diagnosis is such a huge challenge. According to Braak et al. (2004), there are no biomarkers or specific neuroimaging findings for the diagnosis of PD. PD is determined based on the criteria of Parkinson's symptoms through a hypothetic-deductive process. The idiopathic condition of PD is the presence of two or more of the common symptoms: resting tremors, rigidity, hypokinesia, and impaired postural reflexes.

1.2 Parkinson's Disease Psychosis

Parkinson's Disease Psychosis (PDP) is a common symptom of PD, but is difficult to treat; currently there are no medications to treat PDP specifically (Factor & Weiner, 2007). The challenge of treating PDP is to control Parkinsonism and psychosis. Although PDP can occur at any stage of the disease, it is a particularly salient issue for patients who are in the late stages of PD and have been unremittingly treated with dopaminergic medication. The exact pathophysiology of PDP remains unknown. Symptoms measured are neuro-chemical imbalances, visual processing abnormalities, and sleep disturbances, which all have been implicated in its pathogenesis (Wint, Okun, & Fernandez, 2004). Close evaluation of PDP patients is necessary because certain symptoms may be confused with psychotic symptoms. To illustrate this point, Freidman (2011) stated that PDP should be diagnosed only after medical and environmental causes of delirium/dementia have been eliminated or addressed. Treatment with pharmacologic and psychotropic medication should be considered since implications exacerbate PD (Fujimoto, 2009).

1.3 Cognitive Behavioral Therapy

According to Bechdolf et al., (2004), CBT is a psychotherapeutic approach that addresses dysfunctional emotions, maladaptive behaviors, and cognitive processes through a number of goal-oriented, explicit, systematic procedures founded on evidence-based treatments. CBT has proven effective for individuals with different mental and physical conditions, including depression, Obsessive Compulsive Disorder (OCD), anxiety disorders, chronic pain, drug and alcohol abuse, psychotic symptoms, health issues, and even relationship problems. The more specific an identified problem is, the more beneficial the outcomes of CBT. It is sometimes used alone, and in other instances it is combined with medication, depending on the severity of the condition (Burdekin et al., 1993).

CBT is one of the most extensively researched evidence-based psychotherapy treatments in use today (Psych INFO, 2014). It has

been applied to a broad range of psychiatric disorders in the United States and United Kingdom over the past 20 years, and derives some of its theoretical frameworks from the stress-vulnerability models of psychosis (Beck et al., 1979). Cognitive behavioral therapists seek to help patients overcome difficulties by identifying and changing dysfunctional thinking, behavior, and emotional responses (Beck et al., 2008). The application of CBT involves helping patients develop skills for modifying sensation of presence, identifying distorted thinking, relating to others in different ways, and changing behaviors. Addington and Lecomte (2012) reported that there have been over 30 CBT research studies, which demonstrated positive results in trial stages for psychotic symptoms as a primary disease.

CBT has been proven during clinical trials to help with symptoms of different health issues. The National Institute of Mental Health (NIMH) (2013) stated that when dual treatment of CBT and medication are used for treating depression, psychotic symptoms, and anxiety disorders, patients are more likely to respond to treatment. There are also long-term advantages for using CBT. Treatment can be used for the rest of the patient's life to maintain or eliminate mental health symptoms.

1.4 Psychotic Symptoms

When PDP patients develop psychotic symptoms, it is completely different from a patient who is diagnosed with primary psychosis. The PDP patient is ego syntonic with the attributions of the developed symptoms. According to several patients surveyed, they are usually able to recognize their hallucinatory and delusional state (Friedman, 2011). In contrast, the populations of primary psychotic ego dystonic patients have no sense of perceptual disturbance and are usually not in agreement with treatment (Okai et al., 2013). PDP visual hallucinations are the most vivid and prominent symptoms of the disease. An eruption of these psychotic symptoms is often what brings a person to treatment. These symptoms are classified as both positive and negative symptoms.

Positive symptoms are viewed as an excess or distortion of perception of the individual's normal functioning. They include: delu-

sions, hallucinations, disorganized speech (tangentially, incoherence), and disorganized behavior. Negative symptoms are described as a decrease or loss of normal functions. They are difficult to evaluate because they occur on a continuum of mental stability, are nonspecific, and may be caused by a variety of other factors (e.g. medication side effects, mood disorders). Negative symptoms involve restrictions in the following ways: the range and intensity of emotional expression, fluency and productivity of thought and speech, and initiation of goal-directed behavior. The aforementioned symptoms are pervasive and persistent and have a hindering impact on a patient's quality of life, as well as on their caregivers. Moreover, psychotic illnesses have a substantial economic burden on the patient, caregiver, and society in general.

1.5 Cognitive Behavioral Therapy for Parkinson's Disease Psychosis

The focus of this research is on how CBT, an evidence-based treatment, can be used to enhance and produce stability within patients diagnosed with PDP. The theoretical basis of CBT, within a biological-psychosocial stress-vulnerability framework, is used to challenge discrepancies of perceptual thinking (Beck et al., 2008). This model is used to reduce the distress and disability caused by psychosis, to provide the patient with support for emotional disturbance, and finally to help the person arrive at an understanding of the mental illness for a continuation of relapse prevention.

Psychotic symptoms in a patient diagnosed with PD, particularly visual hallucinations and paranoid delusions, occur in up to 60% of patients who receive dopamine (DA) replacement therapy (Meltzer et al., 2010). Psychotic symptoms in PD are a significant cause of distress to patients and their caregivers, and are associated with greater functional impairment, caregiver burden, nursing home placement, and increased mortality (Weintraub & Stern, 2005; Factor et al., 2003). As a result, antipsychotic drug treatment is often used to manage persistent and troublesome psychotic symptoms in PD patients (Weintraub et al., 2011). Different investigations have suggested that psychotic symptoms in PD result from stimulation of limbic system DA and D2

receptors (Romrell et al., 2003). Meltzer and Stahl (1976) hypothesized that psychosis in PD may be the factor that causes schizophrenia.

There is no FDA pharmacological treatment approved for PDP in the United States of America or anywhere else in the world. The doses needed to block limbic D2 receptors and dorsal striatal D2 receptors reduce the ameliorative effects of L-dopa or direct-acting DA agonist treatment on motor symptoms (Chou et al., 2007; Romrell et al., 2003). According to Friedman (2013), Clozapine is considered the gold treatment for PDP; while low doses of risperidone and olanzapine, two atypical antipsychotic drugs with diminished liability to cause EPS, worsen motor symptoms in PDP patients (Meltzer et al., 2010).

1.6 Biological Psychosocial Stress Vulnerability Model

After the patient is stabilized with psychotropic medication for the alleviation of positive symptoms, CBT is recommended for developing discrepancies to challenge hallucinatory and delusional beliefs in the patient (Addington and Lecomte, 2012). The susceptibility to psychotic symptoms will target three factors: biological, social, and psychological. Patients have been known to use pharmacological treatment to alleviate the experience of minor symptoms such as "non-bothersome illusions or delusional symptoms." Such treatments can trigger stress that leads to problems of distressing hallucinatory or delusional perceptions. In order to treat these destructive thoughts and behaviors, CBT identifies the problematic beliefs. This is known as functional analysis, which is essential for learning how thoughts, feelings, and situations can contribute to maladaptive individual adjustment. The process can be difficult, especially for patients who struggle with psychosis, but it can ultimately lead to self-discovery and insights that are an essential part of the treatment process.

CBT is a renowned non-invasive treatment that can be used to help subjects change cognitive and behavioral process. CBT can help patients make sense of overwhelming problems by breaking them down into smaller parts. In this study, patient 1A exhibited persistent

delusional ideas that were crystallized and did not interfere with his thinking or social relations. His delusion included the belief that one million mosquitoes were biting him and his body was heating up (client did not present corporal temperature change or fever). The theory behind CBT is to break down this belief in four different realms: thoughts, emotions, physical feelings, and actions. Each of these areas can affect the scope of well-being.

How one thinks about a problem affects how one feels physically and emotionally. CBT focuses more on the actual thoughts and behaviors of the PDP patients, than on the manifested symptoms. The patient is taught to practice new skills that are then applied in real life situations. A common technique for CBT treatment is to first establish a good rapport with the patient. Working together in a collaborative manner benefits both the patient and the therapist in developing a trusting therapeutic relationship whereby the therapist can understand the patient, specifically how the patient presents his or her thoughts, emotions, and behaviors. Collaboration creates authentic exploration and discovery of negative thoughts, which subsequently creates an increase in the patient's motivation towards recovery (Beck et al., 1979). Another approach is assigning the patient some additional tasks (homework) after a psychotherapeutic session, so patients can put into practice strategies learned. Homework usually consists of details explored in the counseling session and serves as the basis for future assessment if the patient adheres to treatment.

2. Literature Review

Parkinson's neuropsychiatric disease affects 5-HT behavioral receptors (Hout & Fox, 2011). Neuropsychiatric symptoms commonly present in PD patients are 20% to 40% manifested by hallucinations (Weintraub & Stern, 2005). In recent years, in recognition of NMS, the Movement Disorder Society has begun to update the Unified Parkinson's Disease Rating Scale (UPDRS), which is a standard assessment that measures motor disability (The Movement Disorder Society, 2008). According to Armstrong (2011), visual symptoms in PD patients include the complaint of poor vision, which may be caused by the lack of dopamine in the retina. Another recognized complication is delusion, which is still poorly understood by practitioners. Although it can occur at any stage of the illness, it is an extremely salient issue for patients who are in late stages of PD and have been continuously treated with dopaminergic medication.

The exact pathophysiology of PDP remains unknown. Symptoms measured include: neuro-chemical imbalances, visual processing abnormalities, and sleep disturbances, which are seen in its pathogenesis (Wint et al., 2004). Visual hallucination is common in PD with 30% of auditory hallucinations being seen in patients who already have present visual hallucination. Close evaluation of PDP patients is necessary because certain features may be confused with Primary Psychotic Symptoms (PPS). Freidman (2011) stated that PDP should be diagnosed only after medical and environmental causes of delirium have been eliminated or addressed. PPS is distinguished from PDP by signs and duration.

The predictive part and pathophysiology of psychosis reported in PD may be attributed to anti-parkinson's medications (Fenelon et al.. 2000). According to a study by Factor and Weiner (2007), patients not on any psychopharmacological treatment showed signs of psychosis. Nevertheless, dopaminergic agents and other treatments have been closely related to PDP (Friedman, 2011). First, side effects have been commonly recorded at the onset of Levodopa treatment. Second, there have been a greater number of incidences reported with dopamine receptor agonists than with Levodopa (Fenelon et al., 2000). Fenelon et al. (2000) reported the absence of hallucination after suspension of drug treatment with no further recurrence of psychosis.

3. Significance of Study and Research Question

3.1 Significance of Study

CBT takes as its central focus the experiences of psychosis; that is, the symptoms the patient attempts to understand. The main goal of this study was to help the subject arrive at an understanding of the psychosis in a way that is less distressing, and to assist the patient in preventing reoccurrences or in managing any unwanted experiences in order to live the most satisfying life possible. Although there has been an apparent reduction in symptoms, there is limited evidence that CBT treatment altogether changes factors that are thought to cause psychosis (Messari & Hallam, 2003).

As a result of the distinction that is made between neurosis and psychosis during the twentieth century, the role of emotions that patients go through in psychosis has been entirely ignored. CBT is a social scientific model for investigating the ethogenic thought of a person. This approach attempts to understand the systems of belief or means through which individuals attach emotional significance to their actions and form their identities (Chadwick, Lees, & Birchwood, 2000). According to Beck et al. (2008), CBT has become prominent in the field of psychology in the past 15 years. Initial enthusiasm has resulted in assessments that are realistic about the effectiveness of the process. Empirical findings have shown clinicians and therapists various interventions and procedures, many which closely resemble the ones already developed for anxiety disorders, whereas others focus more on providing maintenance strategy for patients with psychosis and mental illnesses.

The CBT approach for psychotic symptoms enables therapists and patients to successfully explore voices and beliefs that are associated with PDP. This paper explores malevolence of voices, omnipotence, patient beliefs, and the way to respond to them. In the case of hallucinations, the intricacies of the delusional network of patients and how they are interrelated with the identity of the patients are important factors (Kuipers et al., 2006). CBT is mainly performed using inquisitive neutrality whereby the therapist uncovers the networks that link emotions, beliefs and behaviors. The ultimate goal is to provide both parties with a complete understanding of how the patient experiences the real world.

The stress vulnerability model holds that individuals have unique biological, psychological and social perceptions (Bleijenberg et al., 2003). These perceptions include strengths and vulnerabilities associated with stress management. CBT takes as its primary focus the dysfunctional experiences of the person that is causing stress and attempts to treat them through goal-oriented methods (Beck et al., 1979). These procedures are undertaken using behavioral modification techniques. The proposed idea behind the stress vulnerability model is to improve an individual's quality of life by arriving at an understanding of the psychosis, and assist the patient in preventing a re-occurrence or in managing any unpleasant experiences. This allows the patient to develop and achieve a satisfying and fulfilling life.

3.2 Research Question

Can CBT increase the positive quality of life for PDP patients?

3.3 Scientific Impact

The scientific impact of this research may be measured heterogeneously. CBT for PDP is the first of its type conducted in the Dominican Republic and no reference has been found in another country. The World Health Organization (WHO) approved its Quality of Life assessment tool, which is a new thing in the study of PDP. Novelty is an essential feature of this research, but the building blocks of this proposal are embedded in existing knowledge from past studies. The novelty of this study is that it establishes precedence in CBT as an identifiable method of treatment for psychosis that can be used by therapists in the Dominican Republic and other Latin American countries. In addition, this research will serve as an important basis for comparing conventional PDP treatments and the use of CBT. The observed patterns in this study will not only help uncover basic mechanisms that can offer a method of care for patients that are not currently undergoing a Federal Drug Administration (FDA) treatment, but it will also quantify reliable measures of influence that may have potential policy implications in treating patients diagnosed with PDP.

3.4 Background on Psychopharmacological Treatment

Despite the demonstrated effectiveness of Clozapine in PDP treatment, its use is limited because of several reported side effects, in-

cluding sedation, hypotension, hyper-salivation, and the possibility of agranulocytosis (Weintraub, et al. 2011). Quetiapine is another atypical antipsychotic medication, which has been reported to reduce psychosis in PD patients without worsening motor symptoms. However, sedative and hypertensive effects have limited its tolerability (Zahodne & Fernandez, 2011). Furthermore, in three placebo-controlled double-blind randomized trials, Quetiapine failed to show superiority to placebo in terms of reduced psychosis in PD patients (Ondo et al., 2005; Rabey et al., 2006; Shotbolt et al., 2009).

According to the American Academy of Neurology Practice Parameters Task Force on the treatment of PD (Zahodne & Fernandez, 2011), Quetiapine remains widely used as the initial drug treatment for PDP, while Clozapine, the drug of choice for PDP, is recommended if Quetiapine fails to control psychotic symptoms (Factor & Weiner, 2007). In recent years, there have been incidences of increased mortality in elderly demented patients who have been treated with various antipsychotic drugs (Friedman, 2013). The question of safety of these drugs in patients with PDP supports the need for the development of safer treatments of CBT.

4. Assessments and Measures

There are several PDP assessment measures including:

1. Positive and Negative Syndrome Scale (panss) Spanish version.
2. Symptom Checklist-90-Revised (scl-90-r) Spanish version.
3. World Health Organization Quality of Life Instruments (whoqol-bref) Spanish.
4. Diagnostic Statistical Manual 5 (dms-5) Spanish Edition

4.1 Measuring Tool: Positive and Negative Syndrome Scale (PANSS)

The Positive and Negative Syndrome Scale (PANSS) is used as a tool for a preliminary diagnosis of symptoms. This measure was developed and standardized for typological and dimensional assessment of psychosis spectrum (Kay et al., 2006). The PANSS is not diagnosis specific, but its primary use is for psychotic disorders. PANSS 7-point rating instrument was conceived as a carefully defined and operationalized method that evaluates positive, negative, and other clinical sources.

According to Psych Info's (2014) database, PANSS has been used for research purposes 633 times in the past year (2013) and in 5,822 studies since the year 1994. PANSS clinical application has shown its usefulness in several researches and in comparing results with other similar studies. In addition, other studies have demonstrated that PANSS is also suitable for medical and pharmaceutical trials. The reason PANSS was selected as a key instrument for this investigation is that syndrome scores can be used to reflect the severity and predominance of positive and negative symptoms. In addition, it was recommended by the Movement for Mental Disorder Society as a useful measurement for this kind of study. ACADIA Pharmaceutical used PANSS to conduct its Pimavanserin study as a chemical entity with potential to become the first drug approved in the United States for the treatment of PDP. Pimavanserin selectively blocks the activity of the 5-HT2A receptor, a drug target that plays an important role in psychosis (ACADIA Pharmaceuticals Inc 2013). The PANSS questionnaire lends itself for assessment of severity of symptoms; scores indi-

cate the patient's functionality and an understanding of the patient's remission.

4.2 Measuring Tool: Mini Mental Status Exam (MMSE)

The Mini Mental Status Examination (MMSE) is a commonly used measure for preliminary prognosis testing of memory problems. In this study, MMSE was used to help create a differential diagnosis and establish an accurate diagnosis. The Folstein et al. (1975), Lobo et al. (1979) Mini Mental Status Exam (MMSE) was applied on a weekly basis during the ten- week investigation, and no cognitive impairment was recognized as a risk factor for dementia.

4.3 Measuring Tool: WHO Quality of Life-BREF (WHOQOL-BREF)

The WHOQOL-BREF instrument comprises 26 items that measure the following broad domains: physical health, psychological health, social relationships, and environment (World Health Organization, 2009). WHOQOL context validity and reliability are strong and reliable, as the WHOQOL was developed in collaboration with fifteen international field centers simultaneously, in an attempt to increase a quality of life assessment that would be applicable cross-culturally.

4.4 Focused Treatment

Focused Treatment was established to recognize and target symptoms that are part of belief systems about voices and thoughts that constantly interfere with the goals and quality of life patients (Chadwick, 2006). A collective formulation was derived by connecting vulnerability of individuals and stressors. Thinking patterns and attitudes that maintain dysfunctional parts of symptom's profiles were identified. These were then targeted using cognitive therapy, coping training skills, and behavioral experiments to weaken beliefs that undermine the wellbeing and condition of patients (Bleijenberget al., 2003). All these techniques are useful in enhancing the condition of the patient especially when they are all combined and implemented at the same time.

However, numerous adjustments have to be made when implementing CBT principles. These adjustments are necessary, and clinicians should contribute to areas that have been neglected for long

(e.g. negative symptoms); working these areas can be rewarding. Many patients who undergo CBT have explained that they felt that this was the first time they were listened to, treated in a humane and serious manner, and as a result were filled with hope (Kuipers et al., 2006). CBT provides a lot more to patients than just decreasing the negative symptoms.

Even though CBT is effective, clinicians and therapists have to expand their target range of intervention to consist of various elements that might not be considered standard components of CBT approaches. The patient's active participation develops rapport and teaches patients how to cope with symptoms in the long term (Lars et al., 2006). One of the main expectations is continuity between psychosis and normality. Therapists will use techniques of rational restructuring to overcome delusional explanations of events, and instead replace them with interpretations that are more functional (Butler et al., 2006). The importance of a trustworthy and collaborative relationship between patients cannot be overlooked. The modification process of delusions is considered a collaborative empiricism; a process whereby patients are helped with gentle discussions so that they are able to reach conclusions themselves about the accuracy of their views.

5. Methodology

CBT is an emerging model with its interest lying in over 30 years of effective evidence based treatment. Therapists use CBT strategies and techniques designed to help patients function with their mental illness and correct distorted views about themselves and others. The base of CBT is to identify how people behave as a reflection of their feelings and thoughts. This psychotherapeutic model has demonstrated to help clients identify and modify psychotic (hallucination and delusional) distortions and reinforce behaviors that were more adoptive for the clients.

Beck (2008) explained that when a patient has assumptions about themselves and others (schemata and underlying predispositions), they interpret new experiences, govern, and evaluate their behavior differently (Smith et al., 2003). This study documented patterns of frequent negative thought that developed into vicious cycles leading to perceptual incongruence. Beck et al. (2008) claim that cognitive distortions are due to thoughts disqualifying the positive, over generalizing, and 'catastrophizing'. This research allowed the PDP subject group to learn how to disrupt the psychotic cycle by questioning negative thoughts and then to challenge the assumptions on which they are based.

5.1 Research Approach

Participants in this study were recruited from the medical center Fundacion Activo 20-30 Inc. in Santo Domingo Este in the Dominican Republic. The subjects recruited were outpatients at the center. These patients were on psychotherapeutic treatment and were identified by a Dominican Board's certified neurologist Marcia Castillo, M.D., staff member of the medical center, and psychiatrist Olga B. Soto-Moise, M.D., American Board certified, who were responsible for supervising these cases. The primary research and treatment was provided by a licensed mental health counselor and researcher. Patients were informed of all research conditions before participating in the scientific investigation. Patients were provided with an informed written consent to ensure that they understood and agreed to be part of this study.

5.2 Results and Discussion

The study was conducted with a total of five patients (n=5) who had PDP. The aim was to have multicenter study of a wider range of subjects in different geographic locations to allow for comparison of results among centers so as to increase the generalizability of the study. All the subjects were diagnosed with psychosis due to the medical condition of idiopathic PD. Four patients were male and one female, and all were over 65 years of age. All (five) patients were on atypical psychiatric and dopaminergic pharmacological treatments. Each subject was assessed with PANSS in the screening process and a diagnosis was formulated with DSM-5 to determine their mental health condition. Four subjects claimed visual and auditory hallucination; one patient was diagnosed as delusional with no apparent hallucination.

In terms of visual and auditory hallucinations, the subjects attributed their own words to their perception. They maintained at all times ego-congruence and distinguished reality monitoring between self-generated mental images and insight. According to the account of the subjects and family members, hallucinations had been present for over six months in all patients. The subjects' symptoms were classified in three categories: sensation of presence (person), peripheral vision of shadows (person and animals), and illusions and auditory hallucination.

The findings of this study suggest that psychosis is an essential feature of PD. It was determined that diagnosis was due to the direct physiological effects of PD as a general medical condition. The study revealed that the Parkinson's patients had an intact visual imagery and spatial perception. Subjects explained that visual hallucinations (VH) are frequent and disturbing, and further complicating their condition. PANSS intensity measure on the patients were as follows: absent; 2- minimal; 3- mild; 4- moderate; 5- moderate severe; 6- severe; 7- extreme. All subjects on their first evaluation using the PANSS showed a 5.8% on the intensity symptoms magnitude.

The subjects' distribution of Quality of Life (QoL) psychological domain was measured on the first encounter of the research. The psy-

chological domain measured 55% moderate and 45% unsatisfactory. Patients diagnosed with PDP had affected functional ability that hindered their self-esteem, ability to start or complete activities, and establish personal relationships. According to the American Psychiatric Association (2013), aforementioned prevalence of mental problems is the essential criterion for anxiety and depression.

The subjects were evaluated ten weeks after the initial assessment using PANSS, and scores decreased by 3.4%, an equivalent of a moderate rating on the intensity symptoms scale. Indicators of change for the subjects are equated to the CBT model of psychotherapeutic construct using strategies and techniques designed to help subjects diagnosed with psychosis. The paradigm used was the interaction of feeling and behavior based on the stress-vulnerability model (SVM). The model helped in understanding the causes of psychiatric disorders, how psychiatric disorders and PD can influence each other, and how PDP can be managed and treated at the same time.

The rationale for treating PDP with CBT is not only motivated by the limitations of approved pharmacological treatment, but also by the need to provide a manageable solution to the patient and caregivers. The conceptualizations of psychosis within an SVM offer a positive rationale for the subject's behavior. The vulnerability factors include emotional difficulties, such as low self-esteem and social anxiety, cognitive biases or deficits, and biological factors of genetic and neurodevelopmental origin (Meltzer et al., 2010). The stressors, such as an incurable neurodegenerative disease, existential end of life thinking, affect both the cognitive and emotional processes of the vulnerable patient, causing anxiety or depression, and information processing difficulties resulting in anomalous experiences (e.g. hallucinatory experiences) (Freidman, 2013). These changes are disturbing and are actively interpreted by the patient, resulting in interpretations of meaning and of changes of the self that trigger events leading to the fully formed psychotic symptoms.

This study focused on the essentials of CBT, building on social relationships, social learning, rapport and trust. The study reinforced

the CBT model by helping the patient identify and modify cognitive distortion. In the third week, Patient 2A reported seeing the vision of a little girl early in the morning after rising from bed. Using SVM, this study explored the psychotic symptoms and evaluated the biological consequences of developing a distraction method. Furthermore, the study summarized three dimensions of Beck's theory (2008) of schemata, automatic thoughts 'challenge client's thoughts', and cognitive distortion. This approach disrupts the vicious cycle of psychosis through the processes of teaching the patients to question negative automatic thoughts and then to challenge assumptions upon which they are based.

Distribution of psychological symptoms of quality of life
First week

Variables	Frequency	Percentage
Not very much	9	45,0
Moderate	11	55,0
Total	20	100,0

Table 1.1 Source: Forms applied to patients enrolled in the health center

Table 1.2 shows the QoL tool reported at 10 weeks follow-up measurement after CBT treatment, compared to the first week observation (table 1.1). Tenth week description indicated a 45.0% progress, which has been classified as 'not very much' progress in psychotic symptoms. In addition, a 42.9% moderate improvement in the psychological treatment was observed.

At the tenth week marker, the subjects scored higher level of satisfaction on the psychological and physical domains. Specifically, in the sleep indicator, ability to continue daily activities, socialize, provide support around the house, and perform sexually. Improvement in psychological health led to an increase of QoL in terms of self-care and management of other multiple medical problems. The application of optimistic characteristics of mental and emotional health allows the patients to live a productive and meaningful life capable of performing various activities and maintaining strong relationships. These positive features also helped patients cope with life challenges

and stresses. This ability called resilience is the ability to emotionally and mentally have the tools for coping with difficult situations and maintaining a positive outlook (Liggy, 2013). CBT technique allowed the patients to keep focused, and become flexible and creative during both the bad times as well as the good times.

Distribution of psychological symptoms of quality of life
Tenth week

Variables	Frequency	Percentage
Not very much	12	57,1
Moderate	9	42.9
Total	21	100,0

Table 1.2 Source: Forms applied to patients enrolled in the health center

5.3 Quality of Life Physical Health Improvement

The study found that it was difficult to identify any health improvement given that there was no established research protocol to demonstrate health development. WHO QoL measures reported improvement in Rapid Eye Movement (REM) during sleep. The diagnosis of REM sleep behavior disorder that is a parasomnia was manifested by vivid dreams associated with dream enactment behavior during REM sleep symptoms (Boeve, 2013). Subjects described having complication with their sleep, difficulty falling asleep, waking up more than twice in one night, and having vivid dreams. After ten weeks of CBT sessions, subjects reported sleeping through the night up to 90% of the time without interruption. This study echoes the findings of Nofzinger et al., (1994) which reported that the effects of REM sleep measured by the sum of positive and negative effects in depressed men correlated significantly and positively with phasic REM sleep measures at both pre- and post-treatment.

In the first evaluation of QoL, subjects scored a less moderate mark on lower sex drive. According to Burns (2008), this observation often has more to do with the psychological and emotional impact of diagnosis than a direct result of PD. Moreover, sexual arousal according to both Everaerd et al. (2005) is not affected by Levodopa. However, the drug increased T reflex magnitude in response to sexual

stimulation in men, but not in women. These results support the view that dopamine is involved in the energetic aspects of appetitive sexual behavior in men.

Clinical interventions that involved sexual counseling offered a relief to the men in the study who used the study to voice their limitation of sexual performance. They spoke to their spouses about their stress at the time of sexual intercourse and their embarrassment to request this help in person. Psychotherapeutic treatment was particularly well suited for patients who discussed sexual difficulty, as CBT removes the anxiety and embarrassment about discussing sexual problems in the company of a clinician. This study recognized the benefits of the treatment for addressing sexual health concerns. Following treatment, subjects experienced improvements in sexual function. In addition, the participants also reported improvements in self-awareness, awareness of partner, achievement of an understanding relationship, and sexual knowledge.

Distribution of symptoms of physical quality of life
(as described by the QoL Physical Health Assessment)

Variables	Frequency	Percentage
Not at all	4	14.8
A little	14	51.9
A moderate amount	3	33.3
Total	21	100.0

Table 2.0 Source: Forms applied to patients enrolled in the health center

Improvement of over all general health
Tenth week

Variables	Frequency	Percentage
Not at all	1	4.0
A little	3	12.00
A moderate amount	17	84.0
Total	21	100.0

Table 3.0 Source: Forms applied to patients enrolled in the health center

5.4 Dominican Cultural Practice

The study also recognized that Dominicans value their families and identify their families as a source of identity and support in times of crisis. The four wives of the patients who participated in the investigation assisted their spouses diligently and with responsibility in their role as caregivers. In the case of one female patient in this study who did not have family support, no significant improvement was reported. The family ("la familia") has a sense of responsibility that leads to volunteerism that the house ("la casa") is the center of care. The integration and emphasis on the importance of the families created a social support system, which proved to be an important element in improving patient resilience.

Caregivers to individuals with Parkinson's are familiar with how challenging the disease can become. Their responsibilities may include helping a loved one with daily activities, managing medications, and making financial decisions for them. When assessed, the differences in QoL and emotional adjustment for current caregivers who have been caring for PD patients for a long time, it was observed that patients scored positively higher on the psychological QoL indicator and their spouse also indicated improvement in their QoL score.

The analysis of this study demonstrates that the improvement in QoL scores alleviated emotional problems and improved the health condition of patients. Subjects claimed to have attained a stable mood, and felt relieved of stress. Understanding QoL is particularly important in health care, where monetary measures do not readily apply. The idea of having La Casa under control is closely related to the patient's improvement in quality of life.

6. Conclusion and Recommendations

In this study, the researchers took several measures to ensure the most accurate results were obtained and the objectives of the study were achieved. In a country where are no available statistics that can be used to quantify the PD population, the prevalence PD is hard to know. This study found that hallucinatory phenomena in PD are more frequent than have been described in previous studies. This study dismisses the multifactorial views of pathophysiology of hallucinations in PD in which hallucinations are considered as side-effects of dopaminergic treatment or other organic conditions of the genesis of PD. This study concludes that CBT based treatments contribute to the alleviation of most psychotic symptoms.

Appendices

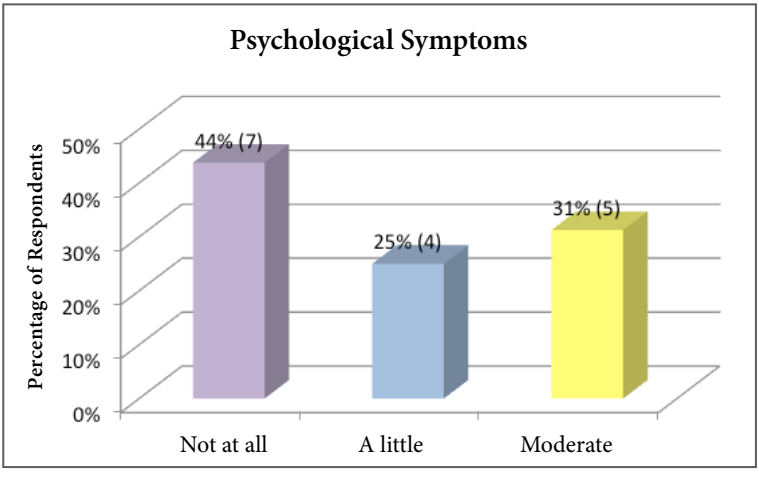
Appendix A: Psychological Framework

Distribution of Psychological Symptoms/Quality of Life Symptoms
Caregivers of People who Develop Psychosis

First Week

Variables	Frequency	Percentage
Not at all	7	44
A little	4	25
Moderate	5	31
Total	16	100.0

Source: Forms applied to patients enrolled in the health center

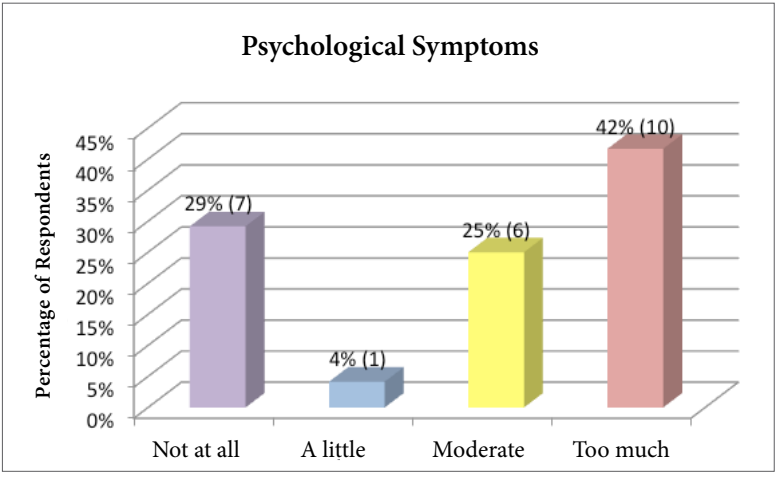


Distribution of Psychological Symptoms/Quality of Life Symptoms
Caregivers of People who Develop Psychosis

Tenth Week

Variables	Frequency	Percentage
Not at all	7	29
A little	1	4
Moderate	6	25
Too much	10	42
Total	24	100.0

Source: Forms applied to patients enrolled in the health center



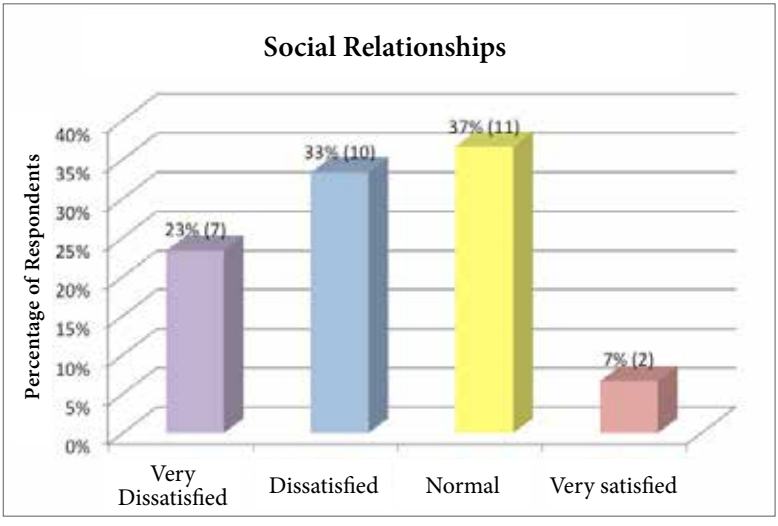
Appendix B: Social Relationships

Distribution of Psychological Symptoms/Quality of Life Symptoms
Caregivers of People who Develop Psychosis

First Week

Variables	Frequency	Percentage
Very dissatisfied	7	23
Dissatisfied	10	33
Neutral	11	37
Very satisfied	2	7
Total	30	100.0

Source: Forms applied to patients enrolled in the health center

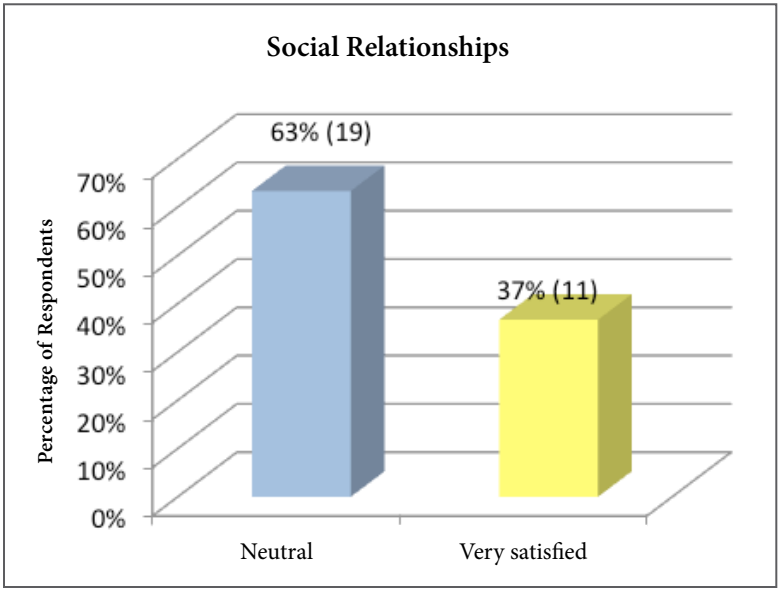


Distribution of Psychological Symptoms/Quality of Life Symptoms
Caregivers of People who Develop Psychosis

Tenth Week

Variables	Frequency
Neutral	19
Very satisfied	11
Total	30

Source: Forms applied to patients enrolled in the health center



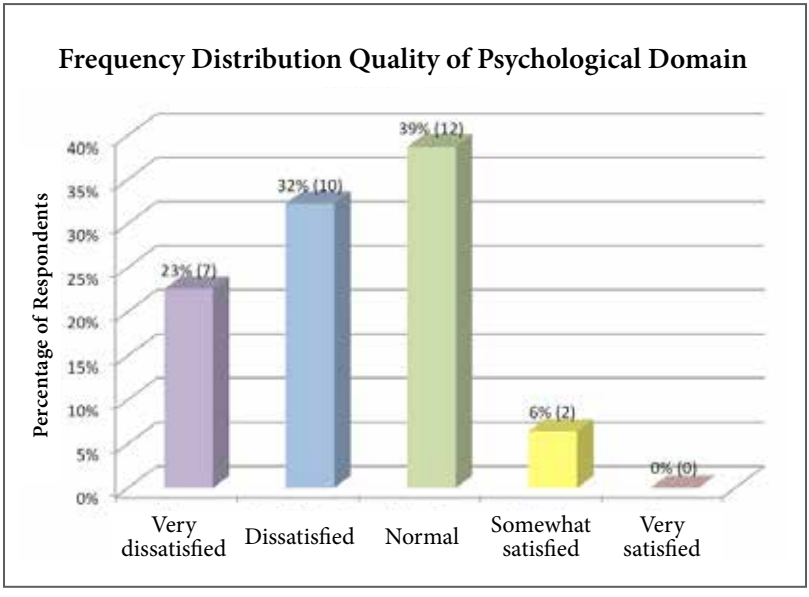
Appendix C: Psychological Domain

Frequency Distribution Quality of Psychological Domain
Relatives of Patients who Develop Secondary Psychosis Due to Parkinson's Diseases

Tenth Week

Variables	Frequency	Percentage
Very dissatisfied	7	23
Dissatisfied	10	32
Normal	12	39
Somewhat satisfied	2	6
Very satisfied	0	0
Total	31	100.0

Source: Forms applied to patients enrolled in the health center



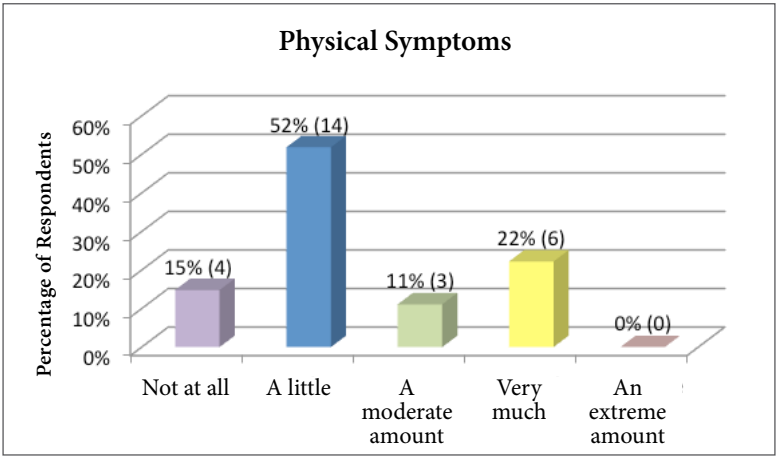
Appendix D: Physical Health

Distribution of Symptoms of Physical Quality of Life

First Week

Variables	Frequency	Percentage
Not at all	4	15
A little	14	52
A moderate amount	3	11
Very much	6	22
A extreme amount	0	0
Total	27	100.0

Source: Forms applied to patients enrolled in the health center

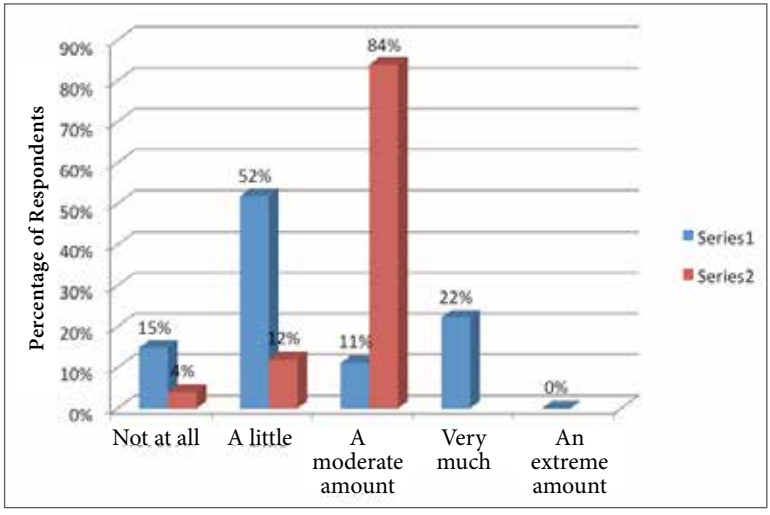


Distribution of Symptoms of Physical Quality of Life

Tenth Week

Variables	Frequency	Percentage
Not at all	1	4
A little	3	12
A moderate amount	21	84
Total	25	100.0

Source: Forms applied to patients enrolled in the health center



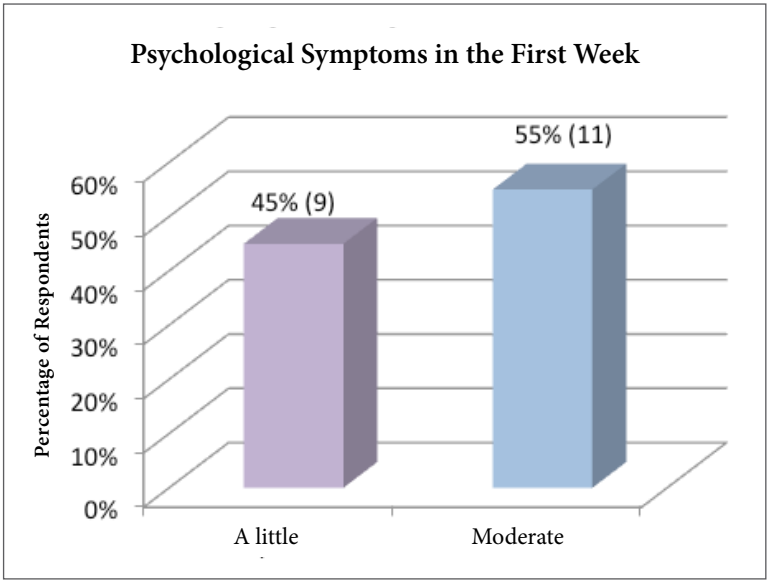
Appendix E: Psychological Health

Distribution of Symptoms of Psychological Quality of Life

First Week

Variables	Frequency	Percentage
A little	9	45
Moderate	11	55
Total	20	100.0

Source: Forms applied to patients enrolled in the health center

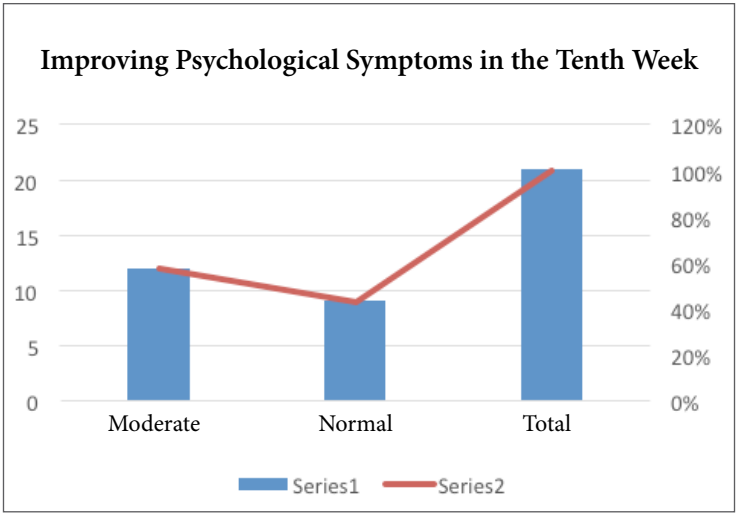


Distribution of Symptoms of Psychological Quality of Life

Tenth Week

Variables	Frequency	Percentage
Moderate	12	57
Normal	9	43
Total	21	100.0

Source: Forms applied to patients enrolled in the health center



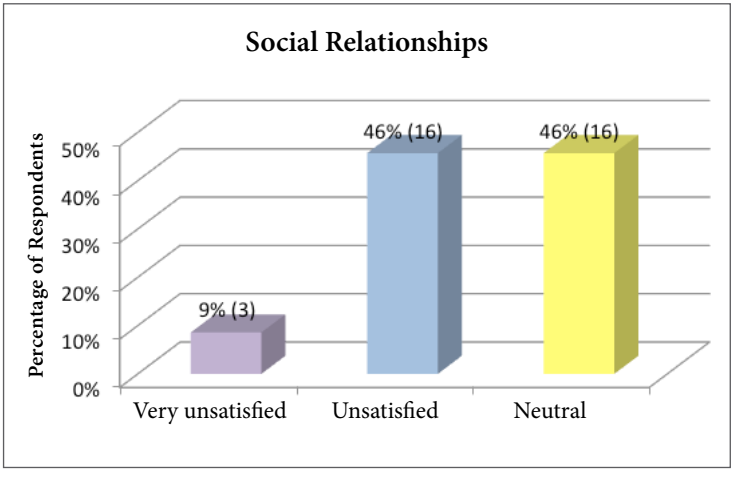
Appendix F: Social Relationships in Patients

Distribution of Quality of Life -Social Relationships

First Week

Variables	Frequency	Percentage
Very unsatisfied	3	9
Unsatisfied	16	46
Neutral	16	46
Total	35	100.0

Source: Forms applied to patients enrolled in the health center

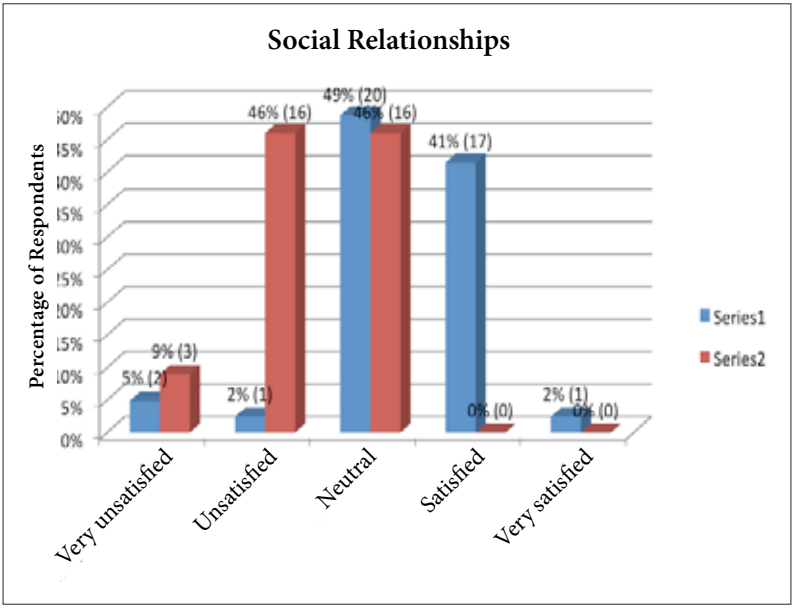


Distribution of Quality of Life -Social Relationships

Tenth Week

Variables	Frequency	Percentage
Very unsatisfied	2	5
Unsatisfied	1	2
Neutral	20	49
Satisfied	17	41
Very satisfied	1	2
Total	41	100.0

Source: Forms applied to patients enrolled in the health center



Appendix G

Positive and Negative Symptoms of Psychosis
Patients Diagnosed with Secondary Psychosis due to Parkinson Disease

First Week

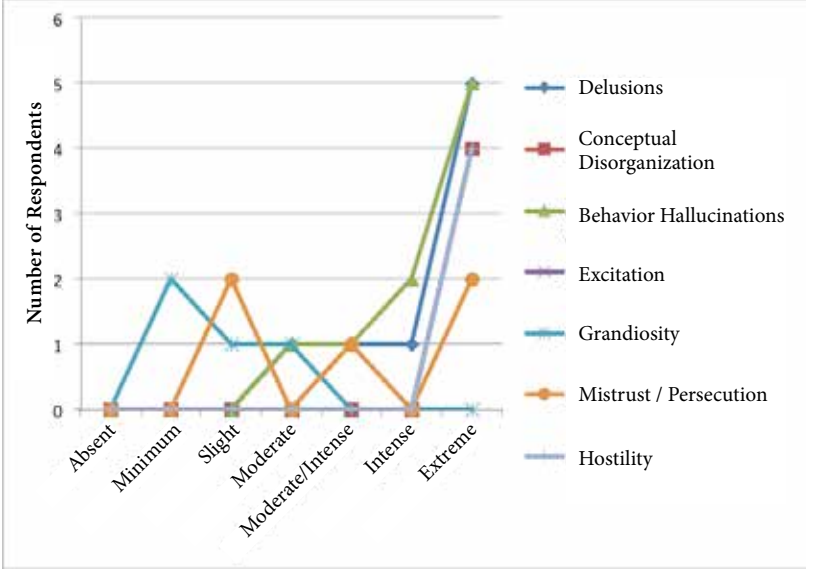
Positive Symptoms	**Absent**	**Minimum**	**Slight**	**Moderate**	**Moderate/ Intense**	**Intense**	**Extreme**
Delusions				1	1	1	5
Conceptual disorganization							4
Hallucinatory behavior				1	1	2	5
Excitement							4
Grandiosity		2	1	1			
Suspiciousness/ persecution			2		1		2
Hostility							4
Total		2	3	3	3	3	24

Negative symptom	**Absent**	**Minimum**	**Slight**	**Moderate**	**Moderate/ Intense**	**Intense**	**Extreme**
Blunted affect	5						
Emotional withdrawal	5						
Poor rapport	5						

Passive / Apathetic Social Withdrawal	5						
Difficulty in abstract thinking					1	4	
Lack of spontaneity and flow of conversation	5						
Stereotyped thinking	5						
Somatic concern	5						
Anxiety							
Unusual thought content	5						
Tension	5						
Gestures and Postures	5						
Depression		3	2				
Motor retardation	5						
Uncooperativeness	5						
Unusual thought content	5						
Disorientation	5						
Poor attention	5						
Lack of judgment and insight	5						
Disturbance of volition	5						
Poor impulse control	5						
Preoccupation		2	3				
Active Social Avoidance	5						

Anger	5						
Difficulty Delaying Gratification	5						
Affective Instability	5						
R.E.M. Sleep (Rapid Eye Movement Sleep)						5	

Source: Forms applied to patients enrolled in the health center



Appendix H

Positive and Negative Symptoms of Psychosis
Patients Diagnosed with Secondary Psychosis due to Parkinson Disease

Tenth Week

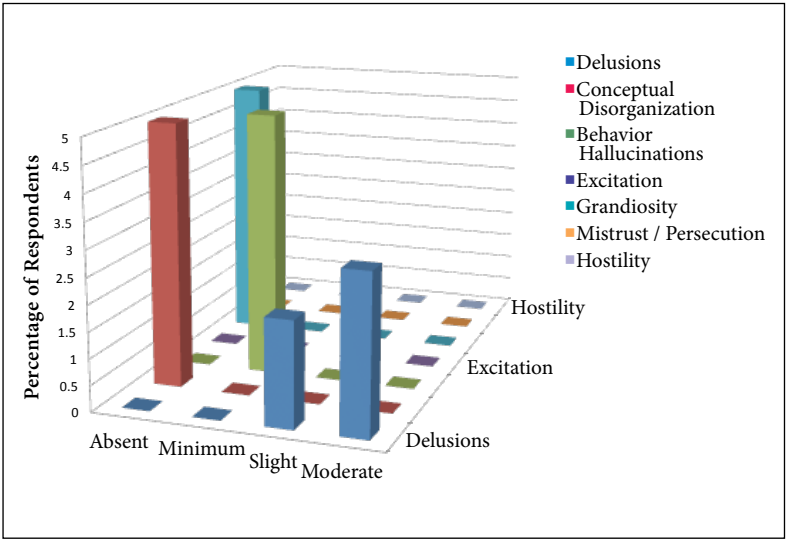
Positive Symptoms	**Absent**	**Minimum**	**Slight**	**Moderate**	**Moderate/ Intense**	**Intense**	**Extreme**
Delusions			2	3			
Conceptual disorganization	5						
Hallucinatory behavior			5				
Excitement	5						
Grandiosity	5						
Suspiciousness/ persecution		4					
Hostility	4						
Total	19	4	7	3	0	0	0

Negative symptom	**Absent**	**Minimum**	**Slight**	**Moderate**	**Moderate/ Intense**	**Intense**	**Extreme**
Blunted affect	5						
Emotional withdrawal	5						
Poor rapport			2	3			

Passive / Apathetic Social Withdrawal		5					
Difficulty in abstract thinking		4		1			
Lack of spontaneity and flow of conversation							
Stereotyped thinking	2	3					
Somatic concern		5					
Anxiety		3	2				
Unusual thought content		5					
Tension	2	3					
Gestures and Postures							
Depression	4	1					
Motor retardation		5					
Uncooperativeness		5					
Unusual thought content		3	2				
Disorientation	5						
Poor attention	5						
Lack of judgment and insight	5						
Disturbance of volition	5						
Poor impulse control		2	2	1			
Preoccupation		5					
Active Social Avoidance	5						

Anger		5					
Difficulty Delaying Gratification		5					
Affective Instability		5					
R.E.M. Sleep (Rapid Eye Movement Sleep)			5			5	

Source: Forms applied to patients enrolled in the health center



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GFDD

www.globalfoundationdd.org

GFDD is a non-profit, non-partisan, organization dedicated to the advancement of global collaboration and exchange relevant to Dominican professionals, general audiences and institutions in the homeland and abroad by implementing projects that conduct research, enhance public understanding, design public policies, devise strategies, and offer capacity building in areas crucial to social, economic, democratic and cultural sustainable development.

GFDD promotes a better understanding and appreciation of the Dominican culture, values and heritage, as well as its richness and diversity, in the Dominican Republic, United States and worldwide.

GFDD creates, facilitates, and implements wider scope international human development projects, building on its own experience, expertise and strong national and international networks.

Funglode

www.funglode.org

Fundación Global Democracia y Desarrollo (Funglode) is a private, nonprofit, and pluralistic organization devoted to conducting high-level research, and committed to academic excellence and the promotion of culture and art.

The organization formulates public policies aimed at strengthening democracy, and fostering respect for human rights, sustainable development, creativity and the modernization of the Dominican Republic. Through the design of policy proposals and strategic action plans aimed at creating interdisciplinary solutions to national problems, Funglode seeks to become a knowledge center with a large range of world-class academic programs and exchanges with internationally renowned universities and research centers.

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www.drfellowsprogram.org

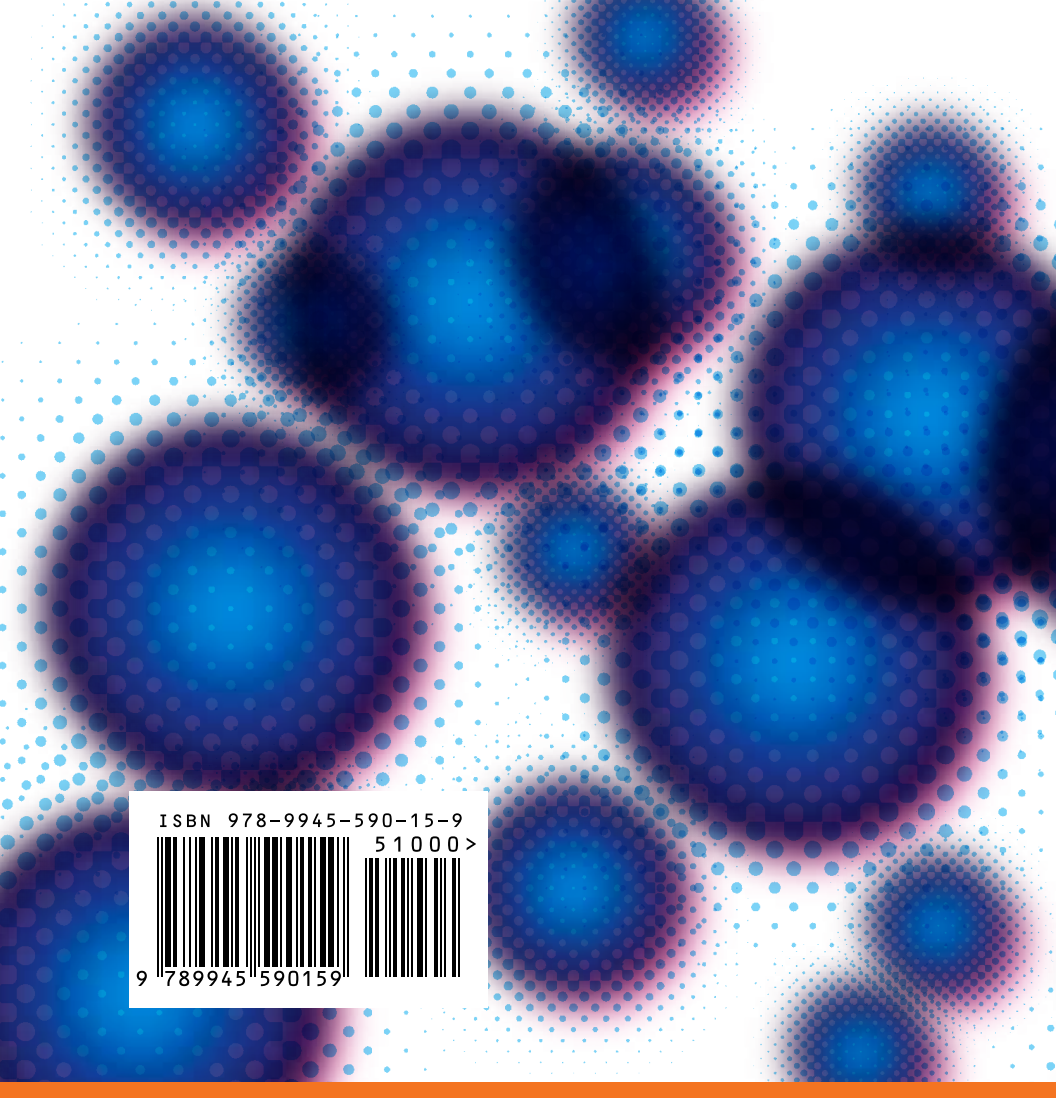
The Fellows Program, an extension of the internship and academic exchange program InteRDom, was developed in 2009 to respond to the desire of GFDD and Funglode to develop a community of scholars that contributes to the Foundations' growing body of research on matters of international concern that directly impact the Dominican Republic. The Program complements the overall mission of GFDD and Funglode to promote academic exchange, generate scholarship, and influence the creation of public policy related to economic and social development both at the national and international levels.

Through the Fellows Program, GFDD and Funglode seek to generate scholarship on issues at the forefront of the United Nations' agenda in order to give voice to national and regional concerns and offer viable solutions to domestic and international challenges.

The Fellows Program provides opportunities for MS., MA., and PHD. candidates interested in conducting high-level research in the Dominican Republic on issues related to sustainable development. The final output of the investigation is a comprehensive report, which includes empirical data. Fellows do their research in coordination with GFDD and Funglode staff, National Academic Advisors, and their university professors.

Fellows who produce exemplary work have the opportunity to present their findings before the United Nations community on behalf of GFDD and Funglode.

Fellows program



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