Sexual Disorders and Quality of Life in Parkinson's Disease

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ABSTRACT

Introduction: Sexual disorders are the most neglected nonmotor symptoms in Parkinson's disease (PD). Although doctors seek greater priority to motor manifestations, which are the basis for the diagnosis of PD, the nonmotor symptoms deserve to be highlighted as much as the motor problems because of their strong presence and discomfort in the patients, causing the important impairment in the quality of life (QoL) of the individual with PD.

Aim: Provide the prevalence of sexual disorders among patients with PD and alert the medical profession to investigate and be familiar with problems related to QoL and sexual disorders in PD.

Methods: This is a large literature review on sexual disorders in PD and impaired QoL.

Main Outcome Measures: Sexual disorders in PD and prevalence between genders have been described in epidemiological studies. Neuroanatomy, pathophysiology, risk factors, QoL, and etiologies were reviewed.

Results: The estimate of the prevalence of sexual dysfunction in the form of compulsive sexual behavior in PD is higher in men by 5.2% than in women by 0.5%. This diagnosis is a determinant of intense and persistent suffering and is related to several health problems of a social, economic, personal, family, psychological, and occupational nature, which can even culminate in sexual abuse. It is most commonly associated with the use of drugs commonly used in PD therapy in 98.1% of cases. In addition to this serious public health problem, another common condition of sexual dysfunction occur with the decreased libido by loss of the neurotransmitter dopamine proper of the pathophysiology of PD.

Conclusion: The presence of sexual disorders in PD should be tracked and monitored because of its harmful consequences, whether due to increased sexual behavior or associated psychological distress, as well as the impacts on QoL. Early recognition and adequate treatment of PD in its fullness and richness of associated symptoms are essential for improving QoL. **Santa Rosa Malcher CM, Roberto da Silva Gonçalves Oliveira K, Fernandes Caldato MC, et al. Sexual Disorders and Quality of Life in Parkinson's Disease. Sex Med 2021;9:100280.**

Key Words: Compulsive Sexual Behavior; Hypersexuality; Sexual Disorders; Quality of Life; Parkinson's Disease

INTRODUCTION

Regarding the variables that can affect the quality of life (QoL) and satisfaction of individuals with Parkinson's disease (PD), sexual disorders assume their importance because they are of nonmotor symptoms (NMSs), those that stand out are the most neglected NMSs in this disease[1,2] and that cause harm and distress in both men and women.[3–6]

According to the World Health Organization (WHO) (2006),[7] sexual health is a fundamental aspect of life, regardless of the presence of sexual dysfunction, and each individual has the right to conduct their relationships and have personal control over sexual and reproductive behavior with adequate information and treatment. For that, specialists in movement disorders should periodically ask about the sexual life of their patients[8] because an

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active sexual life can bring benefits and be associated with better motor and nonmotor results, especially in men with early PD.[9]

More than 6 million people in the world have PD, a clinical syndrome diagnosed and most commonly known for motor signs characterized by bradykinesia, cogwheel stiffness, tremor at rest, and postural instability.[10] As for sex, there is evidence of a higher risk of developing PD in men,[11] and this reason, although unknown, may be related to the protection of estrogens in women[12–15] because the incidence of PD becomes similar between genders in women in postmenopausal.[13,16] It is also noteworthy that age is the risk factor most correlated with PD,[17] showing a greater appearance between 55 and 65 years in the advance of PD,[18–20] the phase of life in which the individual wishes to feel productive but can be afflicted by great, economic,[21] social, personal, family, psychological, and sexual suffering due to PD.[22–25]

There is a gap for the comprehensive literature review addressing all the sexual issues related to PD. We hypothesize that there are data from several aspects regarding sexual regulation issues. Our goal is to raise the data on sexual disorders related to PD. This review may provide critical information for the humanization of health care in PD, aiming care and attention to sexuality by health professionals.

METHODS

This literature review was based on the following key question: "What are the main points of sexual disorders that can be improved in PD for quality of life?". Bibliographic searches by PubMed (2010–2020), Cochrane (May 2010–May 2020), and Google Scholar (2010–2020) with the following terms "Sexual disorders" and "Parkinson's disease" resulted in 24, 40, and 17,800 articles, respectively. These searches also used the keywords "Sexual disorders" and "Parkinson" and resulted in 25, 41, and 20,000 articles, respectively. Only English texts were selected. Inclusion criteria were sexual dysfunction and the prevalence of PD between genders, neuroanatomy, pathophysiology, risk factors, and QoL. In the research, the terms were identified as the title and summary. After removing duplicates, all articles were evaluated according to the title, abstract, and text. Posters and abstracts from presentations at congresses or scientific meetings were excluded. First, 53 studies were included and reviewed. After searching the reference lists for these articles, another 18 studies were reviewed, resulting in a total of 71 articles.

RESULTS

In this article, we will focus on the lesser known aspects of PD about decreasing and increasing sexual behavior, physiology, associated risk factors, and clinical management.

Neuroanatomy and Sexuality Physiology

It is indisputable that the pathophysiology of PD is related to the degradation of the dopaminergic pathway,[26–29] causing complex damage to sexual health related to sexual functioning and sexuality.[2] Moreover, the neuroanatomy and physiology show differences and similarities between the sexes to determine sexual behaviors, and for good sexual functioning, the roles of the autonomous, sensory, and motor systems must be interconnected, with an intrinsic interdependence between the neurological, vascular, and endocrine systems. Thus, sexual desire depends, among others, on neurotransmitters, steroid hormones, vasoactive agents, and molecules that act through specific receptors, at the peripheral and cerebral levels.[30] Chemoaffinities are also important to govern the rules of this game, contribuing to sexual attraction and selection of partners. In addition, the genotype is responsable to promote the modulation of hormonal environment, as well the reproduction, and sexual behavior.[31] On the other hand, also cultural[32] and psychological factors can influence sexual desire[33] and impact on the pituitary-gonadal axis.[30] Figure 1.

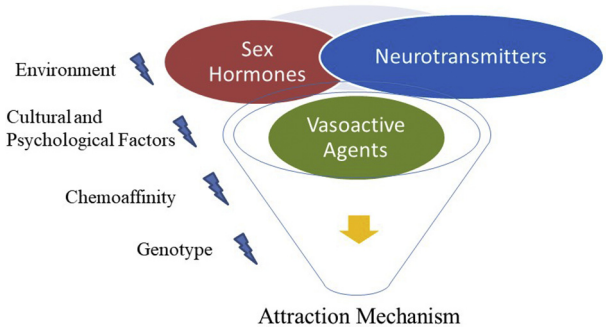

Figure 1. The factors that influence the mechanism of sexual attraction are shown.

Politis et al[34] demonstrated to PD the increased sexual behavior related to greater activation in the limbic, paralimbic, temporal, occipital, somatosensory, and prefrontal cortex, related to emotional, cognitive, autonomic, visual, and motivational processes. In addition, increased sexual desire was also seen in the group using levodopa,[34] although there are no significant increased levels of testosterone on the use of levodopa.[35,36] It was observed that dopaminergic drugs may also enhance sexual responses, increasing oxytocin release from the paraventricular nucleus of the hypothalamus.[37] In addition, the medial preoptic area of the hypothalamus is responsible for male sexual behavior.[38]

Regarding PD, low testosterone levels are involved with an increase in the progression of this disease[39] and precocity,[40] and also an advanced stage of the disease can lead to decreased sexual function.[41] Moreover, testosterone plays an important role in the control of sexual desire mainly in men, with a decrease after the age of 40 years and a decline of 1–2% per year.[42] Low levels of testosterone can cause apathy, fatigue, changes in mood, loss of libido, and increased mortality, especially when related to increasing age.[43] Physiologically, the testosterone levels decrease because of changes in the hypothalamic-pituitary axis, where the luteinizing hormonal pulses that induce testosterone production

Table 1. The main studies related to the development of sexual dysfunction in Parkinson's disease with decreased libido, deficiency, or absence of desire for sexual activity

Study	Population	Method	Results
Bronner et al[41]	75 PD	Cross-sectional study. U.K. brain bank criteria. Mini-Mental State Examination. Demographic and sexual function questionnaire. Israeli Sexual Behavior Inventory (ISBI). Hamilton depression rating scale	46.9% of females had hypoactive sexual desire dysfunction.
Azevedo et al[50]	83 PD/69 GC	International Index of Erectile Function (IIFE). Sexual Functioning Index Feminine (IFSF). Beck Depression Index (BDI). Brief Symptom Inventory (BSI). Hoehn-Yahr scale	Was found a significant correlation to hypoactive sexual desire in women and men.
Sakakibara et al[55]	115 PD/391 GC	Hoehn and Yahr scale. Magnetic resonance imaging. A nonstandardized instrument was used on pelvic organ function	84% of women had hypoactive sexual desire dysfunction 83% of the men had hypoactive sexual desire disorder
Koller et al[56]	50 PD	The nonstandardized instrument was used	44% men and 62% of women had decreased sexual desire
Wermuth and Stenager[57]	25 PD	Beck Depression Inventory (BDI) Hoehn-Yahr scale. Nonstandardized instrument was used	27% men and 70% of women had decreased sexual desire
Kummer et al[61]	90 PD	Cross-sectional study. Beck Depression Inventory (BDI). Psychiatric interview (MINI-Plus). Unified Parkinson's Disease Rating Scale (UPDRS). Hoehn—Yahr. Schwab—England Scale (SES). The Frontal Assessment Battery (FAB). Mini-Mental State Examination (MMSE). PD Fatigue Scale (PDFS)	The study showed that of loss of libido in men was 65.6%

CG = control; group; PD = Parkinson's disease.

become more frequent, but to a lesser extent.[39] But, a decrease in testosterone levels may also occur because of an increase in prolactin levels by comorbidities.[44]

Prolactin is a hormone that stands out in men and women for controlling sexual desire, exerting an inhibitory action on sexual functions.[30,38] In PD, due to the use of drug dopaminergic may occur the decreased secretion of prolactin, interfering with the inhibitory effect on sexual function and increasing sexual behavior.[45] On the other hand, Nitkowska et al[39] reported that in men with PD can be more susceptible to diseases if exposed to higher levels of prolactin and low levels of sex steroids, altering cognition, mood, and QoL. These changes in mental status can also influence sexual behavior in PD.[41]

Regarding estrogens, these seem to be important in protecting women in PD[13] because the greatest risk for developing PD is in men,[11] presenting a risk similar in both sexes in the postmenopause.[13] Estrogen acts as a neuroprotector in the nigrostriatal region of the brain avoiding the loss of dopaminergic neurons, increasing dopamine synthesis, and inhibiting its uptake, acting on the expression of dopamine receptors in the basal ganglia.[46] In addition, estrogen is involved in female sexual desire.[30]

Sexual Behavior in Parkinson's Disease

In 2001, Basson[47] introduced a new understanding of sexual response. Although Masters and Johnson,[48] since 1966, adopted for men and women the sequence of the phases of arousal, plateau, orgasm, and resolution, Kaplan[49] introduced the phase of desire, but, in turn, Basson[47] found that for women, desire is not exactly necessary to initiate the "sexual response cycle." However, other factors can act to start the cycle, such as greater affective proximity to the partner, bond, commitment, feeling attracted and attractive by the partner, and the investment to share and feel sexual pleasure. In the case of PD, it is common for these factors to be compromised, which can be directly or indirectly related to PD, and this influences sexual behavior. Azevedo et al[50] made an important contribution demonstrating the reduction of sexual desire in PD in both sexes.

Thus, in general, sexual dysfunctions dialog with 2 main trends of alterations reported in patients with PD, which are the decrease but also the increase in sexual behaviors.[38,50,51] These sexual problems can be treated effectively in most cases,[52,53] requiring a better understanding of the personality style and risk factors to define the appropriate therapy.[54] The nature of the disease, as well as the beginning, and progression must be registered, assessing the time of sexual activity and history before the onset of PD.[2]

Epidemiological data show that the decrease in libido, deficiency, or lack of desire for sexual activity in women with PD ranges from 46.9 to 84%,[41,55–57] as shown in Table 1, whereas difficulties in reaching orgasm occur in 75% of these patients.[41]

Table 2. The main studies on the most common risk factors related to the development of compulsive sexual behavior in Parkinson's disease in men and women

Risk factor	Study	Population	Location	Results
Gender	Weintraub et al[51]	3,090 PD	USA/Canada	CBS was found in 5.2% men and 0.5% in women
	Voon et al[66]	297 PD	Canada	The male gender was associated with CBS
	Giladi et al[67]	193 PD/190 CG	Israel	
	Solla et al[70]	349 PD	Italy	
	Joutsa et al[71]	575 PD	Finland	
Dopaminergic therapy	Fan et al[21]	312 PD/132 CG	China	DA is associated with a higher risk of CSB
	Pezzella et al[22]	202 PD	Italy	
	Politis et al[34]	12PD CSB/12PD without CSB	UK	DA can promote the development of CSB
	Weintraub et al[51]	3,090 PD	USA/Canada	DA is associated with a higher risk of CSB
	Uitti et al[45]	13PD	USA	DA was associated with CSB. Levodopa monotherapy or associated with DA is a risk factor for CSB
	Voon et al[66]	297 PD	Canada	
	Giladi et al[67]	193 PD/190 CG	Israel	Longe treatment with DA can promote CSB
	Ondo and Lai[68]	300 PD	USA	Increased sexual activity is common in the use of DA
	Lee et al[69]	1.167 PD	Korea	There is a significant correlation between CSB and the use of DA
	Solla et al[70]	349 PD	Italy	
Younger onset	Giladi et al[67]	193 PD/190 CG	Israel	Younger age of PD motor symptom onset might be considered as a risk factor for the development of CSB
	Sossi et al[72]	27 PD/10 CG	Canada	Younger onset of PD has more motor and cognitive complications
	Cooper et al[73]	141 PD	USA	Younger age can be considered as a risk factor for CSB
Cognitive problems, history, and psychiatric damage (impulsivity, novelty seeking, hypomania, panic disorder, pathologic gambling, punding, depression)	Voon et al[66]	297 PD	Canada	CSB is associated with multiple psychiatric and cognitive damage
	Joutsa et al[71]	575 PD	Finland	CSB is associated with depression
	Vitale et al[74]	49 PD/14 CG	Italy	CSB is associated with prefrontal and memory damage

CG = control group; CSB = compulsive sexual behavior; DA = dopamine agonist; PD = Parkinson's disease.

It is also common to associate with depression, apathy,[58] and anxiety,[59] difficulty with vaginal tightness or dryness vaginal, and involuntary urination.[60] Although women with PD report less sexual desire, men with PD showed to have more sexual dysfunction and dissatisfaction with their sex life than women.[32] On the other hand, the compulsive sexual behavior in PD presented a rate of 0.5% in women, which also should be given important attention.[51]

The decrease in libido and deficiency or lack of desire for sexual activity in men with PD was between 27% and 83%,[55,57,61] whereas the decrease in the penis erection and the inability to achieve or maintain sufficient penile erection for sexual intercourse is between 42.6% and 79%.[41,55,61] The decrease in the latency time for ejaculation was 40.6%,[41] the decrease or absence of normal ejaculation was 79%, and the decrease in orgasm and the inability to reach orgasm was 87%.[55]

About the phenomena of erectile and ejaculatory functions, the dopaminergic projections of the dorsal and posterior hypothalami are directed to the caudal thalamus and then to the spinal cord, which regulates erection and ejaculation; having a high density of dopaminergic receptors in the ischiocavernosus muscle, however, this system can be compromised in PD.[62] On the other hand, regarding increased libido and sexual intercourse or forms of gratification outside the acceptance of social and personal limits, there was a rate of 5.2% in men, characterizing the compulsive sexual behavior.[51]

The central dopaminergic pathways play an important role in man's sexual function, increasing or decreasing libido and erectile activity,[63] and the drug levodopa and dopaminergic agonists, which act in this pathway and facilitate ejaculation, compromised by the loss of the neurotransmitter dopamine.[46,64] In men with PD, the feelings of the burden of sexual dysfunction are accompanied by fears, such as not meeting the expectations of their partners, thus avoiding sexual practices and causing thoughts of separation and withdrawal in the relationship.[32] Other factors that may explain indirectly the reduction in sexual behavior in PD are related to the partners exercising the role of a caregiver and the difficulties increasing with the progression of the disease physically and mentally, with reduced attractiveness due to sloppy dressing, salivation, excessive sweating, abnormal movements such as tremors, and sleep disturbances, which can also result in the separation of the sleeping bed.[38]

Compulsive Sexual Behavior

In 1970, compulsive sexual behavior in PD related to dopamine replacement therapy[65] being associated mainly with the use of dopaminergic agonists[21,22,34,45,51,66–70] but also with high doses of levodopa was first described.[45,51,66] In addition to compulsive sexual behavior,[51,66,67,70,71] early PD[67,72,73] with a history of psychiatry or cognitive impairment can exhibit a higher risk for men.[66,71,74] Table 2.

The levodopa is the gold standard in initial PD therapy, having been used since 1960[75] and showing improvements in 80% of patients.[76] However, some adverse reactions can occur over time; for example, in the case of compulsive consumption of the levodopa, the so-called dopaminergic dysregulation syndrome can lead to compulsive sexual behavior[23] and other compulsions in up to 4% of patients.[22,77] In turn, the chronic use of levodopa can develop dyskinesias and motor fluctuations,[78] resulting in less sexual attraction between partners.[38] These adverse reactions are iatrogenies that can affect physical, social, and occupational life.[24] Such differences in response to medication between people and gender are probably controlled by the machinery of the dopamine genes.[11]

In Brazil, epidemiological, behavioral, and clinical data related to sexual compulsiveness are very limited[79] and more in PD where reports are scarce.[62] However, this is a problem of serious proportions, which can impact on psychosocial, legal, and public health issues,[25] leading to serious negative outcomes, such as social isolation,[80] sexually transmitted infections, unemployment, divorce, financial problems, pregnancies unplanned, sexual harassment and abuse,[38] and zoophilia.[25]

The WHO (2018)[81] was concerned with providing access to treatment and reducing stigma and shame in seeking help due to the compulsive sexual behavior and further promoting research and international attention to this serious health problem has recommended including the disorder of compulsive sexual behavior in the 11th edition of the International Classification of Diseases.[82,83] The exacerbation of the compulsive sexual behavior can lead to remarkable suffering associated with the loss of the feeling of gratification and sexual satisfaction and failure to control intense sexual impulses, identified in a persistent and repetitive pattern, for a prolonged period of 6 months or more, leading to damage of personal life, family, education, and occupation and neglecting health, activities, and responsibilities.[83,84] Recently, the debate between clinicians and researchers has been intensified in the last 20 years,[85] with the compulsive sexual behavior assuming different names such as nymphomania, satyriasis,[25] sexual addiction, even sexual behavior out of control, or hypersexuality.[86–88] Although used synonymously, both the increased risk for compulsive sexual behavior and its outcome for hypersexuality disorder are complications of PD.[54]

There is considerable frustration in the search for relief with sexual compulsion, similar to erectile dysfunction, limited performance sexual, and inability to achieve orgasm,[32] raising concerns about failure and may lead to repeated attempts at sexual intercourse. Therapy for both partners and monitoring of problems involved must be alerted.[89,90] In PD, the precise mechanism of compulsive sexual behavior is not clearly known,[91] but both the dopaminergic and serotonergic pathways can contribute to the development and maintenance of compulsive sexual behavior[92] and to the high level of anxiety in this disease.[86,92] In addition, compulsive sexual behavior is commonly associated with depressed mood.[86]

It is essential to warn about the risk of pathological behaviors and side effects of the medication, as patients may not be able to immediately report the symptoms they feel voluntarily.[90,93] Thus, in PD, compulsive sexual behavior can be a challenge because there is no approved therapy, and the urgent first step is to reduce or discontinue the use of dopaminergic agonists. Other interventions are psychotherapy, antidepressants, multidisciplinary team approach, sex education, family planning, monitoring of human acquired immunodeficiency syndrome and other sexually transmitted infections and evaluation of medicolegal problems.[62] In a recent systematic review, naltrexone was used with promising results in compulsive sexual behavior refractory in PD, but further studies yet are needed with this drug to compulsive sexual behavior.[86]

QoL and Sexual Differences in Parkinson's Disease

Each individual has a perception of their health condition and how PD affects their QoL,[94] so there is a need to formulate

coping strategies,[95] predicting that with the evolution of the disease, difficulties in activities of daily living will increase and progression to limitations.[96] For this, in PD, it is important to identify the factors that most compromise QoL, even if they are not the most well-known symptoms such as the motor,[97] but they should be recognized briefly as NMSs being essential in the integral health assessment.[98] In this case, NMSs may be present before or even after the diagnosis of PD[99] and be prominent among the sexes,[100] as in the case of greater sexual dysfunction in men,[101,102] where the hypersexuality disorder has been associated with decreased health and sexual satisfaction,[103] and women in turn experience more psychological and social suffering.[104]

Caregivers of patients with PD are also victims who are on the front lines to receive sexual assault in 26.9% of cases and physical aggression in 65.4%, as demonstrated in a palliative care clinic. Physical aggressions become more common in the advanced stage of the disease, whether due to cognitive decline, anxiety, depression, loss of autonomy, independence, and identity. In these circumstances, the emotional support must be constantly strengthened, to renegotiate the roles and suffering involved in the relationship, including those related to the effects of medication.[105] Thus, patients using dopaminergic agonists have an increased risk of compulsive sexual behavior[106] and should be warned about this risk that can occur at any time even after starting treatment.[24]

Compulsive sexual behavior is considered an impulse control disorder[107,108] and is mainly associated with PD with the use of dopaminergic agonists but also with high doses of levodopa[51,109] in 98.1% of cases.[51] Individuals treated with these drugs have a 1.7−3.5%[51] risk of developing compulsive sexual behavior in PD, also varying from 2.2 to 8.3%.[66,110,111] Using levodopa alone, the risk is 2.7% and using only dopaminergic agonists is 7.4%.[90] Although compulsive sexual behavior in PD is not uncommon because of treatment with dopamine replacement and, especially in therapy with dopaminergic agonists,[90] there is an underdiagnosis of this behavior in 27.3% of patients.[111] This reveals that periodic screening and monitoring is necessary, also identifying other possible related risk factors such as male gender and being young, with early onset of PD and a history of behavioral problems,[90] and the search for novelties, family history, and past history.[106] In individuals diagnosed with PD younger than 60 years, possibly due to genetic factors or increased levodopa *turnover*, there is a greater risk of introducing dopamine agonists.[72,112−115]

Regarding deficits in the executive function of human cognition, associated with compulsive sexual behavior, there is a loss of impulse control, loss of judgment and decision-making, emotional dysregulation with cognitive rigidity, and difficulties in sustained attention, and many of these domains may be affected.[116] Behavioral changes can be observed as gambling, hyperphagia, abusive video game practices,[90] obsessive shopping, aggression, long walks for many hours,[23] repetitive behaviors called punding such as painting and gardening, or senseless tidiness and cleaning, organization, and fascination for word ordering and small collections of objects, with a variable prevalence of 1.4−14% in case of punding being many times non-diagnosed.[117−119] Thus, the diagnosis of PD can have a great impact on QoL and patient satisfaction[120] and can also affect the risk of mortality in the presence of NMSs and motor symptoms.[121]

Therefore, it is vital to recognize that in PD, there are more than motor problems involved, but there are also serious issues affecting emotional, cognitive, and even social relationships.[122] In addition, pharmacological therapy is important in the control of cognitive dysfunctions, and of mood disorders and impulse control disorders; such therapeutic targets are related to dopamine deficits and changes in serotoninergic, noradrenergic,[123,124] and cholinergic systems in PD.[125] Thus, there are still few individuals PD treated and identified for NMSs,[126] although there is the possibility of treatment,[125] and that is worrying because only treating motor signals is not sufficient.[98]

Another important limitation of QoL in PD is related to pain,[127] where these patients have a low pain threshold,[128−130] which progresses during the development of the disease.[131] The reduction of dopaminergic neurotransmission can compromise the body's natural analgesic; this occurs by decreasing the activation of dopamine-mediated pain inhibitory pathways, which descend from the substantia nigra to the spinal cord and inhibit the transmission of upward nociceptive signals.[132] Body discomfort is a relevant physical aspect of the disease, related to the loss of the pain domain,[133] where women are commonly affected.[96,131,134−136]

Although motor manifestations have more attention from doctors and patients and are the basis for the diagnosis of PD, NMSs deserve to be highlighted as much as motor problems because of their strong presence and discomfort in patients, causing impairment in QoL.[98,137] In these damages caused by NMSs, 70% of individuals with PD have some neuropsychiatric disorder due apathy,[138] depression or anxiety.[139] In addition, these individuals may also be affected by sensory problems, such as pain and hyposmia, sleep disorders, and problems in the autonomic nervous system, related to constipation, neurogenic bladder, orthostatic hypotension, erectile dysfunction, diaphoresis, salivation, and dysphagia.[98,134]

In a way, although men are at a greater risk for compulsive sexual behavior[140] and may experience impairment in cognition and communication,[141] women have shown the greater risk for motor complications,[142] postural instability,[143,144] risks for tremor in early illness,[13] compulsion for shopping and food,[80,145,146] and less rigidity than men.[147] Based on their activities of daily living, men and women have different expectations, and discrepant sexual needs can be observed in PD.[1] Thus, in the PD approach, individuals should be contemplated as such in their achievements in treatment based on strategies that include personalized and diversified planning, identifying their

goals, strengths, and weaknesses and the support where they are inserted.[148]

CONCLUSION

Sexual dysfunctions are marked problems in the lives of people with PD and are often neglected by health-care professionals. Symptoms may vary from an increase or decrease in sexual behaviors. The highest prevalence is in men, and the risk factors involved are the individual's personality style and behavioral problems, the onset and progression of PD, the nature of the disease by its own physiology and genetics, the sexual history before and after the onset of PD, cultural and psychological factors involved, partners' sexual needs and expectations, current or previous family history of impulse control disorders, and medications being used. Especially in this sense, drugs in the class of dopaminergic agonists are remarkable for being the ones that are most related to compulsive sexual behavior, with their use alone or associated with the drug levodopa. These findings indicate that sexual disorders in PD should be screened and monitored because of the natural history of the disease, resulting in loss of dopaminergic neurons and decreased libido and even because of their form of drug therapy, which can progress to compulsive sexual behaviors. Preventive measures for sexual dysfunctions should be instituted early, avoiding sexually transmitted infections, unwished pregnancies, suffering, and social isolation and sexual abuse, among others, and thus providing the necessary individual, family, and community relief. Thus, sexual dysfunctions in PD are clinical conditions that must not be silenced and passed unseen and must participate in permanent planning. Owing to its multifactorial and multidimensional repercussions, PD may often need special care with a psychologist and/or doctor; for example, a psychiatrist, urologist, gynecologist, sexologist. Thus, although primary health care must be prepared for first care, it needs a strengthened support network for these patients. Integrality wished by the WHO is still a challenge. To overcome this fact, in addition to identifying the first manifestations of sexual dysfunction, the doctor must be willing to get involved beforehand, amplifying his view of the extended clinic to improve the QoL of the patient with PD in all its instances. For this, instead of focusing only on the motor symptoms related to the diagnosis of PD, the NMSs in which sexual disorders are part should be valued, as well as the aspects of promoting broad sexual health. For the future, more studies should be developed to evaluate the training and preparation of health professionals in the management of sexual disorders in PD.

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