Ilkogretim Online - Elementary Education Online, 2021; Vol 20 (Issue 5): pp. 6492-6502
http://ilkogretim-online.org
doi: 10.17051/ilkonline.2021.05.734

Type D personality a risk factor for poor Quality of life (QoL) during the COVID-19 pandemic: A comparative analysis of individuals with Parkinson's disease and without Parkinson's disease

Fatima Khan Gohar, Student of Behavioral Sciences, Fatima Jinnah Women University, Pakistan; fatima.khan.gohar26@gmail.com
Iram Gul*, Assistant Professor, Department of Behavioural Sciences, Fatima Jinnah Women University, Pakistan; iramgul@fjwu.edu.pk
Bandar Alsaif, Assistant Professor, Department of Public Health, College of Public health and Health Informatics, University of Ha'il, Ha'il-81451, Kingdom of Saudi Arabia; ; b.alsaif@uoh.edu.sa
Adeela Rehman, Assistant Professor , Department of Sociology , Fatima Jinnah Women University, Pakistan; adeela.rehman@fjwu.edu.pk
Sehar un Nisa Hassan, Assistant Professor , Department of Public Health, College of Public health and Health Informatics, University of Ha'il, Ha'il-81451, Kingdom of Saudi Arabia; s.nisa@uoh.edu.sa

ABSTRACT: The primary focus of treatment for Parkinson's disease is medical in nature whereas, there is need to lay emphasis on improving QoL of individuals which is likely to be deteriorated during the COVID-19 pandemic. The predictive role of distressed type D personality on the QoL has not been observed much by previous research studies locally or internationally. The present research did the comparative analysis of individuals with Parkinson Disease and without Parkinson's disease on distressed personality type and various domains of QoL as well as determined the predictive role of distressed personality type in QoL. In this cross-sectional research a total of 116 individuals participated out of which 58 participants were identified with Parkinson's disease and 58 without Parkinson's disease who completed study questionnaires to collect data on demographic variables, Type D personality and Physical, Psychological, Social and Environmental domain of QoL. Findings demonstrated both negative affectivity and social inhibition negatively associate with all domains of QoL. Being a Parkinson's patient, negative affectivity and social inhibition significantly predict poor psychological, social and environmental QoL There is need to adopt a holistic approach rather than focusing on motor symptoms alone in rehabilitation programs of patients with Parkinson's disease to minimize the detrimental impact of disease symptoms on the quality of life and daily functioning of these individuals particularly during the COVID-19 pandemic.

Keywords: Parkinson 's disease; Quality of Life; COVID-19 pandemic

I. INTRODUCTION

Parkinson's disease, one of the most common neurological disorders, is a chronic and progressive disease characterized with both motor and non-motor disturbances. Motor symptoms of Parkinson's disease include tremors, rigidity, gait disturbances, akinesia/ bradykinesia, while depression, fatigue, anxiety, speech problems, sleep disturbances, dementia among many others are some of the non-motor disturbances confronted by such individuals (Opara et al., 2012). Parkinson's disease involves the loss of neurons (dopamine) in a part of brain called as "substantia nigra". These neurons, as the name implies, are responsible for producing the neurotransmitter dopamine which helps in coordination between brain and the nervous system thereby controlling body movements, memory and other functions. Other changes that occur are the presence of Lewy bodies and presence of Alpha synuclein within those Lewy bodies (DeMaagd & Philip, 2015).

In accordance with Parkinson's Disease Collaborators (2018), Parkinson's is the most speedily increasing and the second most prevalent neurological disease that has affected a large size of human population (Dorsey et al., 2018). An estimated of 6.3 million cases of Parkinson's disease were reported worldwide, with Pakistan occupying 0.4 million of it (Saad et al., 2017).

Quality of life (QoL) of an individual, as defined by the World Health Organization, is the subjective understanding of their well-being and perception of where they stand in life. It includes their goals, expectations, concerns and standards, which are guided by their values and cultural context in which they live (Ackerman et al., 2006). It follows a holistic approach towards a patient's wellbeing. Chronic diseases are hard to live and deal with only because they have the capacity to influence a patient's life on so many

levels. Therefore, in the rehabilitation process delaying death is not sufficient since patients' utmost requirement is a good quality of life. Hence, quality of life should be one of the most pivotal outcomes in rehabilitation of individuals with such a debilitating disease (Post, 2014). In addition to this, not only physical functioning but psychological, social, and environmental functioning should also be given equal consideration when working towards the betterment of a patients' quality of life.

Research studies have shown evidence of a deteriorating quality of life in Parkinson's individuals. Self-perceived status of health and quality of life, regardless of sex and age, are found to be weakened in Parkinson's individuals. Some areas of quality of life are seen to be more influenced as compared to others. Disease severity has been found to be strongly correlated with impaired social functioning, bodily discomfort, daily living activities, cognitive functioning, communication, emotional well-being, and mobility. Moreover, a comparison drawn between two different groups of people; the Parkinson's individuals group and the general population of the United Kingdom, showed the former reporting lower scores in almost all areas of quality of life, especially in self-care (Schrag et al., 2000).

As the disease progresses, individuals are more likely to experience an increased burden of both motor and non-motor indicators which can result in a reduced quality of life. With regards to non-motor disturbances, depression has been reported as a key predictor of low quality of life in numerous studies (Schrag et al., 2000); (Kuopio et al., 2000);(Soh et al., 2011). Anxiety, fatigue, sleep disorders, pain, fatigue and cognitive impairment are also reported to be significantly associated with low quality of life in Parkinson's disease individuals (Gallagher et al., 2010); (Hanna & Cronin-Golomb, 2012); (Quelhas & Costa, 2009). Among motor symptoms, disease severity, gait disturbances, and postural instability haven emerged as significant determinants of a low quality of life (Carod-Artal et al., 2007). Therefore, the focal objective in treating individuals with Parkinson's should be to minimize the detrimental impact of disease symptoms on the life quality and functioning.

Furthermore, Type D personality type is a relatively new concept which was proposed by Johan Denollet, through studies performed on coronary heart disease patients. It has two distinctive characteristics namely, social inhibition and negative affectivity. Social inhibition, as the name suggests, refers to the propensity of inhibiting one's behaviour and emotions when socially interacting with others. Therefore, such individuals are tensed up, inhibited, and insecure during social interactions, while negative affectivity is a tendency to experience negative emotions or negative affect, despite the circumstances (Denollet, 2005). Research studies have reported a percentage of as low as 19.9% (Kim et al., 2017) and as high as 52.8% (Dubayova et al., 2013) of Parkinson's disease individuals with type D personality characteristics. Personality plays a consequential role in defining an individual's quality of life. Certain characteristics of personality can prove as a risk factor for poor life quality in both groups; individuals diagnosed with chronic conditions and individuals who are seemingly healthy. Personality characteristics can impact an individual's quality of life both directly and indirectly. It has been found to be strongly linked with the psychosocial domain of quality of life than the physical domain (Huang et al., 2017). Individuals with Parkinson's disease with type D personality characteristics have been found to experience more non-motor disturbances. A strong correlation between distressed personality and quality of life has been observed (Kim et al., 2017).

The primary focus of treatment for Parkinson's disease is medical in nature whereas, there is need to lay emphasis on improving quality of life of individuals. The impact of distressed type D personality on the QoL has not been observed much by previous research studies locally or internationally. In existing literature, the quality of life and its psychological predictors are neglected in patients with Parkinson's disease. Therefore, the present study was designed to assess distressed type personality among Parkinson's individuals along with identifying whether type D personality is an additional risk factor of a reduced quality of life in Parkinson's individuals or not. Moreover, the study assessed the differences in QoL by comparing individuals with Parkinson's disease and without Parkinson's individuals. The present study has adequate scope and will provide a basis for the emergence of other research studies related to this area. Findings will be useful to formulate interventions and guidance for the medical professionals to consider the psychological factors such as Type D personality in rehabilitation program for individuals with Parkinson's Disease.

II. METHODS

Study Designs and Settings

The current study is a cross-sectional research study, which was carried out on primary and quantitative data. Data collection for the current research study, due to the pandemic and lockdown, took place online. Individuals with Parkinson's were identified through various pages and support groups for individuals with Parkinson Disease on social networking sites. Additionally, neurologists and physiotherapists from various hospitals and clinics were contacted to provide contacts of the desired participants with consent. Firstly, the information sheets were sent to the individuals to familiarize them with details of the current research study and then upon approval Google meet/ Whatsapp video sessions were held(with consent) for the purpose of form filling. The request for filling the forms in the presence of the researcher in an online video session was required for the purpose of controlling confounding effects of online data collection procedure. It was made sure that the questionnaires were being filled by the participants themselves. The process of data collection initiated in April, 2020 and ended in August, 2020. Since, a very specific sample was required for the current study; therefore it took five months to complete the entire process.

Instruments

Distressed personality type: Distressed type personality was operationally defined in terms of experiencing both social inhibition and negative affectivity. Social inhibition refers to the propensity of inhibiting one's behaviour and emotions when socially interacting with others (Denollet, 2005). Negative affectivity refers to the propensity of experiencing negative emotions or negative affect, despite the circumstances (Dubayova et al., 2013). This variable was assessed using Type D Scale-14 (DS14 Scale) (Denollet, 2005). High scores on both social inhibition and negative affectivity on DS14 indicated a distressed personality type. The current research study used the Urdu version of DS 14 translated by (Gul & Bhatti, 2009). The DS14 scale is comprised of 14 items. Item number 1, 3,6,8,10,11 and 14 measure social inhibition. Negative affectivity is evaluated through item no. 2,4,5,7,9,12, and 13. The scores on both the sub-scales range from zero to twenty-eight. Additionally, the scoring for men and women are same on the social inhibition scale and it differs on the negative affectivity scale. DS14 uses Likert scale to measure the responses. It ranges from 0 to 4, where 0 stands for *false*, 1 stands for *rather false*, 2 stands for *neutral*, 3 stands for *rather true*, and 4 stands for *true*. The subjects were required to provide responses based on their own impressions about their personality indicators. The cut-off score for both sub-scales is 10, which means individuals with a score of 10 or greater on both scales will be classified as having a distressed personality(Denollet, 2005). In the current study, internal consistency determined through Cronbach's alpha lie in range of 0.85- 0.86.

Quality of Life (QoL): QoL was operationally defined in terms of one's subjective well-being and ability to operate in four areas, namely physical, social relationships, psychological and environmental. It was determined using the World Health Organization Quality of Life Instrument (WHOQOL-BREF)(Group, 1998). The current research study used the Urdu version of WHOQOL-BREF translated by (Khan et al., 2003). The total number of items on the scale are 26. Responses range from 1-5 where 1 represents 'not at all' or 'disagree' and 5 represents 'extremely' or 'completely agree'. Higher scores in each domain are indicative of a higher quality of life (The WHOQOL Group, 1998). In the current study, internal consistency determined through Cronbach's alpha of WHOQOL-BREF for PD individuals was 0.82 (physical domain), 0.85 (psychological domain), 0.71(social domain), 0.88 (environmental domain) and 0.80 (physical domain), 0.62 (psychological domain), 0.69(social domain), 0.81 (environmental domain) for general population

Sample

A purposive sampling technique was used to choose the study participants. The sample size is estimated by using the Raosoft software. The calculated size of the sample was fifty-eight for each group, with five per cent margin of error, ninety-five per cent confidence level and fifty per cent response distribution. A total number of 116 people participated in this research study, out of which 58 were individuals with Parkinson's and 58 were from the general population with equal proportion of male and female participants. The age ranged between 34 to 63 years. Individuals who were diagnosed with Parkinson's Disease for at least 1 year or more without suffering from co-morbid chronic physical or mental health problems were only included in the study to control the effects of the confounding variables. The

participants from general population were matched with those diagnosed with Parkinson disease about background variables and other health conditions.

Data Collection Procedure

Individuals with Parkinson's were identified through various social media pages and support groups for Parkinson's disease patients through social networking sites. Additionally, neurologists and physiotherapists from various hospitals and clinics were contacted to share study invitation and obtain consent of interested participant. The prospective study participants were explained about procedure of the study, rules regarding confidentiality and anonymity, potential risk and benefits of the study and their rights regarding participation and withdrawal. If they were willing to participate, a written consent form was provided to be filled out. Keeping in view the context of COVID-19 pandemic the online method of data collection was used. The information sheets were sent to the individuals to familiarize them with study questionnaires and other details of the current research study. After their approval, a Google meet/ Whatsapp video session were held with study participants to provide assistance during completing the study questionnaires**.**

Ethical Consideration

Ethical issues were considered while working on the research. Participants were provided all the essential information regarding the study and their queries were answered. After a complete understanding of the research, consent was taken. It was made sure that consent taken was voluntary without any coercion. Confidentially and anonymity were completely ensured throughout. Adherence to the protocol of each scale administered was assured along with their right to withdrawal at any stage from the study. The study protocol was approved by the ethical review board of the main institution and permission were sought from all the organizations supported in approaching study participants.

Statistical Analysis

Statistical Package for Social Sciences (SPSS, version 20) was utilized to carry out data analysis. Data screening was carried out to ensure the data doesn't contain any errors, extreme outliers and missing values. Both numerical and graphical methods were used, namely histograms, P-P plots, z-scores of Skewness and kurtosis to assess the normal distribution of scores on data. A bell shaped curve on all histograms indicated normal distribution. The data points on P-P plots forming a straight line were also indicative of normal distribution. Independent t-test was carried out to compare Parkinson's individuals and general population across psychological variables and domains of QoL.

Correlational analysis was performed to assess the linkage between predictor variables namely, negative affectivity, social inhibition on type D personality scales and outcome variables namely, QoL. The data met the assumptions for carrying out regression analysis. Therefore, a linear regression analysis was performed for each domain of life quality individually, for both groups to determine the predictive role of social inhibition and negative affectivity in various domains of QoL.

III. RESULTS

The result section focuses on presenting descriptive data on main study variable and demonstrating predictive role of Type D personality in QoL during the COVID-19 pandemic by collected data from individual with Parkinson's disease and without Parkinson's disease.

Sociodemographic characteristics of study participants

Table 1. Sociodemographic characteristics of study participants (N=116).

	Individuals with Parkinson Disease (n=58)	Individuals without Parkinson Disease (n=58)
Variables	**Frequency (%)**	**Frequency (%)**
Sex		
Males	29 (50%)	29 (50%)
Females	29 (50%)	29 (50%)

Age of individual with Parkinson's (Years)		
34-39 years	3 (5.2%)	3 (5.2%)
40-45 years	2 (3.4%)	2 (3.4%)
46-51 years	5 (8.6%)	5 (8.6%)
52-57 years	16 (28%)	16 (28%)
58-63 years	32 (55%)	32 (55%)
Education		
Secondary	0	4 (7%)
Matric	5 (8.6%)	7 (12%)
Intermediate	7 (12.1%)	14 (24%)
Bachelor	25 (43.1%)	18 (31%)
Postgraduate	17 (29.3%)	10 (17%)
Professional education	4 (7%)	5 (8%)
Occupation		
Employee in an organization	18 (31%)	22 (38%)
Self-employed	6 (10.3%)	8 (14%)
Retired/Unemployed	16 (28%)	24 (41%)
Housewife	18 (31%)	4 (7%)
Marital status		
Married	51 (88%)	36 (62%)
Unmarried	7 (12%)	22 (38%)

Table 1 presents the demographic background of variables diagnosed with Parkinson's Disease and without Parkinson's Disease. In both groups, the study participants were comparable with regard to gender, age, education and occupation expect for marital status. The proportion of unmarried participants were slightly higher (38%) in group of participants without Parkinson's Disease as compared to participants with Parkinson's Disease (12%).

Duration of Diagnosis for Parkinson's Disease

Table 2. Duration of Diagnosis for Parkinson's Disease (N=58).

Duration of Parkinson's Disease	**Frequency (%)**
1-3 years	10 (17%)
4-6 years	18 (31%)
7-9 years	7 (12%)
10-12 years	12 (20%)
Above than 12 years	11 (20%)

Table 2 shows that majority of the participants had been diagnosed with Parkinson' disease for duration of 4-6 years followed by 10-12 years. Nearly 20% had been suffering from Parkinson' Disease for more than 12 years.

Assessment of Distressed Type Personality and Quality of Life (QoL) among individuals with Parkinson Disease and without Parkinson's Disease

Table 3. Prevalence of Type D personality and QoL among study participants (N=58).

	Individuals with Parkinson Disease (n=58)	**Individuals without Parkinson Disease (n=58)**
Variables	**Frequency (%)**	**Frequency (%)**
Type D Personality		
Yes	39 (67%)	31 (53%)
No	19 (33%)	27 (46%)
Perception about overall QoL		
Very poor	5 (9%)	1 (2%)
Poor	26 (45%)	3 (5%)

Neither good nor poor	9 (15%)	13 (22%)
Good	16 (28%)	32 (55%)
Very good	2 (3%)	9 (15%)
Satisfaction with Health Conditions		
Very dissatisfied	7 (12%)	1 (2%)
Dissatisfied	33 (57%)	10 (17%)
Neither satisfied nor dissatisfied	14 (24%)	16 (28%)
Satisfied	2 (4%)	22 (38%)
Very satisfied	2 (4%)	9 (15%)

Table 3 shows that (67%) of the participants with Parkinson's Disease had distressed perosnality type and (53%) from general popuation group had distressed personlaity type. Higher proportion of particitpants with Parkinson' disease perceived the quality of life as poor (45%) and were dissatisifed with their health conditions (57%) in comparison to particiapnts without Parkinson's Disease.

Mean differences on Distressed Type Personality and Quality of Life (QoL) among individuals with Parkinson Disease and without Parkinson's Disease

Table 4. Mean differences on Type D personality and QoL among study participants (N=58).

	Individuals with Parkinson Disease (n=58)	**Individuals without Parkinson Disease (n=58)**	**Significance of mean difference**
Variables	**Mean (S.D.)**	**Mean (S.D.)**	**t-score/p-value**
Type D Personality traits			
Negative Affectivity	14.1 (7.1)	15.4 (6.8)	1.01(ns)
Social Inhibition	14.3 (4.1)	13.7 (5.4)	1.18 (ns)
Domains of QoL			
Physical QoL	16.6 (5.1)	22.8 (5.5)	6.34***
Psychological QoL	16.1 (3.8)	20.2 (4.7)	5.09***
Social QoL	10.8 (2.7)	16.1 (3.8)	3.94***
Environmental QoL	26.4 (5.7)	29.6 (6.2)	2.82**

ns=non-significant ***p<.001; **p<.01; *p<.05

Table 4 shows that there was non-significant mean difference on Type D Personality traits between individuals with Parkinson's disease and without Parkinson's Disease. Whereas the participants with Parkinson's Disease had lower mean scores on all domains of QoL and difference was statistically significant at p<.001 for physical, psychological and social domains of QoL and it was significant at p<.01 for environmental QoL.

Relationship between Type D Personality and Quality of Life (QoL)

Table 5. Correlation between Type D Personality and Quality of Life (QoL)

	Negative Affectivity	**Social Inhibition**
Type D Personality	-	-
Negative Affectivity	-	-
Social Inhibition	.462**	-
Domains of QoL	-	-
Physical QoL	-.282**	-.239**
Psychological QoL	-.418**	-.438**
Social QoL	-.344**	-.412**
Environmental QoL	-.214**	-.309**

ns=non-significant ***p<.001; **p<.01; *p<.05

Table 5 shows that Type D Personality significantly negatively associate with QoL at p<.01 and the strength of relationship lie between low to moderate range. A linear regression analysis was performed to determine the predictive role of Type D personality in determining QoL.

Table 6. Linear regression analysis to demonstrate predictive role of Type D personality with QoL (N=116)

Physical QoL as criterion variable					
Predictor Variables	B	SE B	β	t	95% CI
Constant	27.8	1.53		18.1***	24.7-30.8
Parkinson Disease	6.59	0.93	0.53	7.02***	8.46-4.73
Negative Affectivity	-0.281	0.76	-0.31	23.70***	0.43-0.13
Social Inhibition	-0.04	0.11	-0.03	0.38ns	0.25-0.17
R	.61				
R2	.37				
F-change	22.07***				
Psychological QoL as criterion variable					
Predictor Variables	B	SE B	β	t	95% CI
Constant	27.1	1.12		23.9***	24.8-29.2
Parkinson Disease	4.18	0.68	0.43	6.07***	5.55-2.82
Negative Affectivity	-0.24	0.56	-0.35	-4.38***	0.35-0.13
Social Inhibition	-0.22	0.08	-0.22	-2.77**	0.38-0.06
R	.61				
R2	.43				
F-change	28.92***				
Social QoL as criterion variable					
Predictor Variables	B	SE B	β	t	95% CI
Constant	14.49	0.74		19.54***	13.02-15.96
Parkinson Disease	1.94	0.45	0.34	-4.28***	2.84--1.04
Negative Affectivity	-0.11	0.03	-0.25	-2.89***	-0.17--0.03
Social Inhibition	-0.14	0.05	-0.25	-2.83**	-0.25--0.04
R	.55				
R2	.31				
F-change	16.98***				
Environmental QoL as criterion variable					
Predictor Variables	B	SE B	β	t	95% CI
Constant	35.3	1.78		19.85***	31.8-38.8
Parkinson Disease	-3.01	1.08	0.24	2.77**	5.17-0.85
Negative Affectivity	-0.12	0.08	-0.13	-1.37ns	-0.29-0.05
Social Inhibition	-0.27	0.12	-0.21	-2.21*	-0.53-0.02
R	.41				
R2	.16				
F-change	7.09***				

***p<.001; **p<0.01, *p<0.05; The model simultaneously adjusted for demographic variables

Table 6 presents findings from multiple regression after adjusting the demographic variables. Parkinson's Disease and Negative Affectivity significantly predict poor Physical QoL (p<.001). Parkinson's Disease, Negative Affectivity and Social Inhibition found to significant predictors of poor Psychological QoL and Social QoL as demonstrated by p-value significance at p<.001 and p<.01. For Environmental QoL, Parkinson Disease and Social Inhibition are found to be significant predictors.

IV. DISCUSSION

The findings of the research study suggested a prevalence of 67% of Parkinson's individuals with type D personality. The obtained percentage is quite high in comparison to other studies investigating prevalence of type D personality in Parkinson's disease individuals. A cross-sectional study performed in South- Korea reported a prevalence of 20% (Kim et al., 2017), while another study reported a prevalence of 52.85% (Dubayova et al., 2013). Studies conducted on other chronic diseases such as, Multiple sclerosis also identified a comparatively lower rate of 56.8% (Demirci et al., 2017), however heart disease patients reported a higher rate of 71% individuals with type D personality (Saeed et al., 2011).

With reference to non-patient group, the findings reported 53% participants with type D personality. This percentage (53%) is also quite high in comparison to studies performed in other parts of the world. A study conducted in Belgium reported a prevalence of 35.5% (De Fruyt and Denollet, 2002). (Williams, 2008) identified 38.5% of adults in their study with type D personality, while a study in Pakistan on general population declared a percentage of 33% (Saeed et al., 2011)

Moreover, Individuals with Parkinson's reported a higher percentage of distressed type personality (67%) as compared to Individuals without Parkinson's disease (53%). These findings can be corroborated by a research study performed on heart disease patients, where a higher rate of distressed type personality in Myocardial infarction individuals (71%), in comparison to general population (33%) was declared (Saeed et al., 2011). Similarly, another study found 51.6% diabetic individuals and 35.6% healthy individuals with distressed personality which is indicative of a higher prevalence of distressed personality in patient groups in comparison to non-patient group (Conti et al., 2016). However, t-test analysis for individuals with PD and without PD revealed no significant mean differences with respect to social inhibition and negative affectivity.

Regression analysis showed Parkinson's disease as a significant predictor of poor quality of life. Additionally, most of the PD individuals (26%) perceived their quality of life as being poor. Similarly, most of the PD individuals (33%) were also not satisfied with their health status. These individuals also reported lower mean scores in all domains of quality of life. Current study findings validates that chronic diseases like PD are hard to live and deal with because they have the capacity to influence a patient's life on so many levels. A diminishing quality of life is one such variable that PD individuals have to deal with in the long run. As the disease progresses, individuals are more likely to experience an increased burden of both motor and non-motor disturbances that potentially has a detrimental impact on an individual's overall quality of life. Some research studies have reported depression, anxiety, fatigue, sleep disorders, pain, and cognitive impairments (Gallagher et al., 2010), and others have reported , disease severity, gait disturbances, and postural instability life (Carod-Artal et al., 2007) to be significant predictors of a poor quality in PD individuals. Studies have shown evidence of a deteriorating quality of in these individuals. One such study conducted by (Schrag et al., 2000) explained that self-perceived health status and quality of life, regardless of sex and age, were poor in Parkinson's individuals. They found some areas of quality of life to be more influenced as compared to others. Disease severity was strongly correlated with impaired social functioning, bodily discomfort, daily living activities, cognitive functioning, communication, emotional well-being, and mobility. Other variables such as, gender or age were not significantly associated with a reduced life quality.

Type D personality (social inhibition, negative affectivity) was also identified as carrying a predictive role in determining quality of life. Negative affectivity (NA) and social inhibition (SI) were negatively associated with all domains of quality of life and regression analysis revealed NA and SI as important predictors of quality of life. Several research studies have reported type D personality as a significant predictor of poor quality of life (Kim et al., 2017); (Bartels et al., 2010); ; (Demirci et al., 2017).

Individuals with type D personality have been shown to be fretted about their health, but they exhibit self-contradicting behaviour by not discussing their health issues with the concerned medical professional. This can lead to worsening of both motor and non-motor symptoms which in return can impact their overall quality of life (Schiffer et al., 2007).

One of the reasons for not contacting the doctor/nurse lies in the fact that, individuals who are socially inhibited are not effective communicators, they fear rejection/ negative responses, and are therefore insecure when socially interacting with others (Denollet, 2005); (Kuopio et al., 2000); (Schiffer et al., 2007).

Furthermore, Individuals with NA have been reported to experience issues in medication adherence, which can result in negative health outcomes (Molloy et al., 2012); (Conti et al., 2016). Such individuals are also reported to be involved in unhealthy behaviours, where suggestions from medical professionals such as exercising regularly, following a healthy diet, keeping low stress levels are not observed. This ultimately leads to poor recovery of patients (Ziegelstein et al., 2000).

Parkinson's disease in itself is an extremely debilitating disease which single-handedly can affect an individual's QoL to a great extent. The rehabilitation of an individual with any disease or illness requires upholding an optimal quality of life. Therefore, the focal objective in treating individuals with Parkinson's should be to minimize the detrimental impact of disease symptoms on the quality of life and daily

functioning. Additionally, the findings indicated that patients with distressed personality type are high risk individuals hence, locating them is necessary to put them through psychosocial interventions.

The study has some limitations to be considered when interpreting study findings. The sample size used in the research study was comparatively smaller. A larger sample size of PD individuals is recommended so that better generalizations can be made. Lastly, although while administering the questionnaires participants were asked to provide responses keeping in mind the current scenario of pandemic in order to control the confounding effects of Covid-19; but future research studies should include separate questionnaires to assess the influence of Covid-19 on variables.

V. CONCLUSION

The current study validates the relationship between distressed type personality and QoL and negative impact on QoL of Parkinson's individuals during the COVID-19 pandemic. Parkinson's in itself is an extremely debilitating disease which single-handedly can affect an individual's QoL to a great extent. Therefore, individuals with Parkinson's and even the general population should be supported with adequate interventions. Medical professionals when devising treatment plans should take into consideration both non motor disturbances and personality traits to have holistic approach and improvement in overall QoL.

REFERENCES

1. Amir, D. (1987) Preventive behaviors and health status among the elderly. Psychology and health, 1(4), 353-378. https://10.1080/08870448704487084003337.

2. Aslund, C., Starrin, B., & Nilsson, K. W. (2014). Psychosomatic symptoms and low psychological well-being in relation to employment status: the influence of social capital in a large cross-sectional study in Sweden. International Journal for Equity in Health, 13(1), 22. https://10.1186/1475-9276-13-22

3. Calnan, M. (1989). Control over health and patterns of health-related behaviour. *Social Science & Medicine*, *29*(2), 131–136.

4. Campos-Mercade, P., Meier, A. N., Schneider, F. H., & Wengström, E. (2021). Prosociality predicts health behaviors during the COVID-19 pandemic. Journal of Public Economics, 195, 104367.

5. Conden, E., Leppert, J., Ekselius, L., & Aslund, C. (2013a). Type D personality is a risk factor for psychosomatic symptoms and musculoskeletal pain among adolescents: a cross-sectional study of a large population-based cohort of Swedish adolescents. BMC Pediatrics, 13(1)

6. Conden, E., Ekselius, L., & Aslund, C. (2013b). Type D personality is associated with sleep problems in adolescents. Results from a population-based cohort study of Swedish adolescents. Journal of Psychosomatic Research, 74(4), 290–295

7. Denollet, J., Rombouts, H., Gillebert, T., Brutsaert, D., Sys, S., Brutsaert, D., & Stroobant,N. (1996). Personality as independent predictor of long-term mortality in patientswith coronary heart disease. *The Lancet*, 347(8999), 417–421.

8. Denollet, J. (1998). Personality and risk of cancer in men with coronary heart disease. *Psychological Medicine*, *28*(4), 991–995.

9. Denollet, J. (2005). DS14: Standard Assessment of Negative Affectivity, Social Inhibition, and Type D Personality. Psychosomatic Medicine, 67(1), 89–97. https://10.1097/01.psy.0000149256.81953.49

10. De Fruyt, F., & Denollet, J. (2002). Type D personality: A Five-Factor Model perspective. *Psychology & Health, 17*(5), 671-683. https://doi.org/10.1080/08870440290025858

11. Egger, H. L., Costello, E. J., Erkanli, A., & Angold, A. (1999). Somatic Complaints and Psychopathology in Children and Adolescents: Stomach Aches, Musculoskeletal Pains, and Headaches. Journal of the American Academy of Child & Adolescent Psychiatry, *38*(7), 852–860.

12. Freud, S. & Breur, J. (1985). *Studies in Hysteria*. US: Penguin Classics.

13. Gilmour, J., & Williams, L. (2012). Type D personality is associated with maladaptive health related behaviours. *Journal of Health Psychology*, *17*(4), 471–478.

14. Ginting, H., van de Ven, M., Becker, E. S., & Näring, G. (2014). Type D personality is associated with health behaviors and perceived social support in individuals with coronary heart disease. *Journal of Health Psychology*, *21*(5), 727–737.

15. Hayajneh, W. A. & Mahafzah, A. (2009). Swine Flu: An Old Virus with a New Face. *Jordon Medical Journal*, *43*(2), 122-128.

16. Horwood, S., Anglim, J., & Tooley, G. (2016). Statistically modelling the relationships between Type D personality and, health behaviors and symptom severity in chronic illness groups. *Psychology & Health*, *31*(9), 1047–1063.

17. Kupper, N., Pedersen, S. S., Hofer, S., Saner, H., Oldridge, N., & Denollet, J. (2013). Cross-cultural analysis of Type D (distressed) personality in 6222 patients with ischemic heart disease: A study from the International HeartQoL Project. *International Journal of Cardiology*, *166*(2), 327–333.

18. Marinaci, T., Carpinelli, L., Venuleo, C., Savarese, G., & Cavallo, P. (2020). Emotional distress, psychosomatic symptoms and their relationship with institutional responses: A survey of Italian frontline medical staff during the Covid-19 pandemic. Heliyon, e05766.

19. Merlijn, V., Hunfeld, J. A. M., van der Wouden, J. C., Hazebroek-Kampschreur, A. A. J. M., Koes, B. W., & Passchier, J. (2003). Psychosocial factors associated with chronic pain in adolescents. *Pain*, *101*(1), 33–43.

20. Mols, F. & Denollet, J. (2010). Type D personality among non-cardiovascular patient populations: a systematic review. *General Hospital Psychiatry*, *32*(1), 66–72.

21. Mols, F., & Denollet, J. (2010). Type D personality in the general population: a systematic review of health status, mechanisms of disease, and work-related problems. *Health and Quality of Life Outcomes*, *8*(1), 9.

22. Mommersteeg, P. M., Kupper, N., & Denollet, J. (2010). Type D personality is associated with increased metabolic syndrome prevalence and an unhealthy lifestyle in a cross-sectional Dutch community sample. *BMC Public Health*, *10*(1), 714.

23. pandemic. (n.d.). In Merriam-Webster.com dictionary. Retrieved June 15, 2020 from https://www.merriam-webster.com/dictionary/pandemic

24. Pope, J., Olander, E. K., Leitao, S., Meaney, S., & Matvienko-Sikar, K. (2021). Prenatal stress, health, and health behaviours during the COVID-19 pandemic: An international survey. Women and Birth.

25. Psychosomatic. (n.d.). In Merriam-Webster.com dictionary. Retrieved June, 15 from https://www.merriam-webster.com/dictionary/psychosomatic

26. Raosoft, I. 2004. Sample Size Calculator.

27. Roth-Isigkeit, A. (2005). Pain Among Children and Adolescents: Restrictions in Daily Living and Triggering Factors. *Pediatrics*, *115*(2), 152–162.

28. Sararoudi, R. B., Sanei, H., Baghbanian, A. (2011). The relationship between type D personality and perceived social support in myocardial infarction patients. *Journal of Research in Medical Sciences, 16*(5), 627-633.

29. Svansdottir, E., Denollet, J., Thorson, B., Gudnason, T., Halldorsdottir, S., Gudnason, V., Broek, K. C., & Karlsson, D. (2013). Association of Type D personality with unhealthy lifestyle, and estimated risk of coronary events in the general Icelandic population. *European Journal of Preventive Cardiology 20*(2): 322-330.

30. Wheaton, M. G., Abramowitz, J. S., Berman, N. C., Fabricant, L. E., & Olatunji, B. O. (2011). Psychological Predictors of Anxiety in Response to the H1N1 (Swine Flu) Pandemic. *Cognitive Therapy and Research*, *36*(3), 210–218.

31. Williams, L., Abbott, C., & Kerr, R. (2016). Health behaviour mediates the relationship between Type D personality and subjective health in the general population. *Journal of Health Psychology*, *21*(10), 2148–2155.

32. Williams, L., O'Connor, R. C., Howard, S., Hughes, B. M., Johnston, D. W., Hay, J. L., O'Connor, D. B., Lewis, C. A., Ferguson, E., Sheehy, N., Grealy, M. A., & O'Carroll, R. E. (2008). Type-D personality mechanisms of effect: The role of health-related behavior and social support. *Journal of Psychosomatic Research*, *64*(1), 63-69.

33. Gilmour, J., & Williams, L. (2012). Type D personality is associated with maladaptive health-related behaviours. Journal of health psychology, 17(4), 471-478.

34. Williams, L., & Wingate, A. (2012). Type D personality, physical symptoms and subjective stress: The mediating effects of coping and social support. *Psychology & Health*, *27*(9), 1075-1085.

35. Zidkova, R., Malinakova, K., van Dijk, J. P., & Tavel, P. (2021). The Coronavirus Pandemic and the Occurrence of Psychosomatic Symptoms: Are They Related?. International journal of environmental research and public health, 18(7), 3570.

36. Zvolensky, M. J., Garey, L., Rogers, A. H., Schmidt, N. B., Vujanovic, A. A., Storch, E. A., ... & O'Cleirigh, C. (2020). Psychological, addictive, and health behavior implications of the COVID-19 pandemic. Behaviour research and therapy, 134, 103715.