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Original Research

Predicting Executive Functions and Quality of Life Based On Psychological Well-being with Regard to The Personality Traits of the Elderly with Sleep Disorders

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Abstract

Background: The research is about issues and problems related to old age and the goal of increasing the quality of life and executive functions and sleep quality of this growing population is one of the most important issues of today's world. Old age issues follow a natural process of body changes. However, psychological factors such as executive functions and quality of life, stress, etc. play an important role. This study aimed at investigating the relationship between executive functions and quality of life based on psychological well-being with respect to the role of personality traits of the elderly with sleep disorders referred to neighborhood house of district 5 of Tehran in 1398.

Methods: This study is a descriptive correlational study in which 59 elderly people were selected by purposive sampling and analyzed by statistical tests, that is, regression method and Pearson correlation coefficient.

Result: There is a relationship between quality of life, executive function, psychological well-being and personality traits. Psychological well-being and personality traits psychological well-being components can respectively explain 44% and 54% of executive function, and psychological well-being and personality traits psychological well-being variable can explain respectively 25% and 58% of the quality of life.

Conclusion: Therefore, by improving the components of psychological well-being and personality traits, we can predict the executive functions and quality of life of the elderly and recommend it to improve the quality of sleep of the elderly.

Keywords: Quality of Life, Executive Functions, Psychological Well-being, Personality Traits, Quality of Sleep

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Introduction

Senescence is a stage in human life that is naturally associated with reduced physical and mental abilities. Meanwhile, the unpleasant changes that many older people face with can lead to many problems, including sleep disorders and reduced sleep quality in the elderly. Insomnia, which is defined as insufficient sleep in terms of quantity or

quality, leads to disruption in consciousness and daily activities. Sleep disorders occur with symptoms such as difficulty falling asleep, restlessness during sleep, frequent awakenings, and decreased performance of the elderly, and ultimately affect the quality of sleep of the elderly. Therefore, considering that sleep is one of the basic needs of the elderly, which is necessary for maintaining energy, their physical condition and physical well-being, their health is related to the quantity and quality of sleep (1). In general, the causes of insomnia in the elderly can be divided into psychological causes such as depression, anxiety, stress, etc., physical causes such as heart failure, respiratory diseases, etc. Environmental causes such as very hot or cold environment, noise, air pollution, loss of wife, retirement, fear of death, etc., and the causes of the pattern of life, such as eating heavy meal before bed, taking a daily nap, etc. Insomnia can have serious unintended consequences, including attention and memory disorder, depression, hypnic jerk, and loss of quality of life in the elderly. We also know that one of the basic human needs is sleep, so that any disturbance in its flow, reduces a person's ability in addition to causing psychological problems. Sleep and its disorders have long been considered in the fields of medicine, psychiatry, physiology and nursing and are discussed as a basic need. It is necessary to study the principles and disorders of sleep due to its high prevalence while it has received less attention. Sleep disorders often occur at any age, but older people often face many problems in this regard (2). One of the most important issues in the elderly's life is the issues related to their sleep patterns because senescence is the most important reason for increasing prevalence of sleep disorders. Phenomena related to sleep disorders include difficulty falling asleep, daily drowsiness, daily naps and taking sleeping pills. Sleep disorders can occur at any age, and older people have a greater problem with this (2). Previous studies have shown that among factors such as age, sex, occupation, social class and mental health that can be involved in the development of sleep disorders is age.

One of the major health challenges of the twentieth century is to increase life expectancy, and the major challenge of the twenty-first century is a better quality of life. Although population senescence is one of the positive results of development, but if we are not ready to confront with it in a developed world, it will have many negative consequences and complications. Economic inequalities and inadequacy of social services, medical care, etc. has caused this group to be one of the most vulnerable groups, so it is necessary to pay attention to the quality of life of the elderly and plan to improve their quality of life. Senescence also causes physical and cognitive impairments of the elderly and interferes with their health. Cognitive disorders are among the impairments that have currently attracted the attention of many experts. Cognitive disorders are one of the most important and controversial

prevalent psychiatric disorders in the elderly which causes depression, isolation, and stress in the elderly. Due to economic, social conflicts and other problems that the elderly face, the tendency to taking care of them in nursing homes has been increased (3) and taking care of them in home has shifted to nursing homes.

frequent falls in nursing homes and many disorders, including sleep disorders, are considered as consequences of being kept in a nursing home. It is clear that these complications lead to a further decline of life quality of the elderly. As a result, giving importance to the quality of life of all the elderly is an important challenge. Senescence reduces the quality of sleep and cognitive function in the elderly and low sleep quality also increases the cognitive functions deficit.

The most common way to cope with sleep problems is to use medication. The effectiveness of drug-free treatments is slower than that of taking sleeping pills, but they are more durable and do not have the side effects of drug use such as addiction. Therefore, studying and paying due attention to quality of life and psychological well-being are necessary to increase the quality of sleep and reduce drug use. But in the last decade, research on the quality of sleep of the elderly has been neglected for various reasons in the country.

Elderly people suffering from sleep disorders should benefit from ways to improve their health and correct their lifestyle. In this regard, the Department of the Elderly of the Ministry of Health and Medical Education, while emphasizing on teaching a healthy lifestyle to the elderly, has stated that the priority of ministries should improve based on planning for healthy living of the elderly than their initial prevention programs. Therefore, poor sleep and sleep disorders have a negative effect on the dimensions of physical, emotional, social performance and quality of life of the elderly. Therefore, investigating the effective factors in its occurrence and implementing interventions in order to deal with sleep problems to help improve the quality of sleep and improve the quality of life of the elderly is necessary. In this regard, the present study aimed to predict executive functions and quality of life from psychological well-being with respect to the personality traits of the elderly with sleep disorders.

Theoretical foundations of research

Executive functions

Miyake and Marin (2000) identified three interrelated (yet distinct) executive function processes:

1. *Inhibitory* control function: This function is used for the purpose of voluntarily controlling the opposite responses and preventing distractions. For example, this function was used in the Stroop effect, which includes naming the colors equivalent to words. When words contain a contrasting color

(for example, when the word blue is printed in red), the realization of the word requires inhibition instead of naming the color.

2. Task-switching function: This function is used to switch between tasks or mental sets in a flexible way.

3. Updating function: This function was used to monitor the explicit collection or deletion of working memory content. For example, this function is used when you require to track the last member of the four categories.

One approach to understanding the central executive functions the is to study people with brain damage whose central executive function is impaired. Such people suffer from executive dysfunction syndrome.

Executive functions are a set of neurological processes related to self-determination, decision-making, and purposeful behavior. Self- determination and decision-making skills are part of the neurological processes of executive functions responsible for purposeful behavior. Development and improvement of executive functions is associated with the development of the prefrontal cortex and its integration with the centers of motivation and emotion in the lower cerebral cortex ((4); (5), (6). Processes such as concentration, attention, planning, controlling thoughts and behavior, organizing reasoning and memory, which is the origin of the brain, are among the cognitive functions through which human beings can have intelligently activities. Tasks of executive functions include controlling and coordinating behavior, planning for goals, self-monitoring behavior, inhibiting inappropriate responses, flexibility and orientation of future behavior and performing tasks successfully in daily life. Executive Functions perform these tasks with the help of a number of important functions and forces, including working memory, flexibility, response inhibition, reasoning, planning, and attention. Response inhibition of executive functions is described as an indicator of "how" and "when" to perform normal behavioral performance.

The concept of changing attention direction (change of set) refers to the ability to change quickly from one state of mind, actions and activities to another, and the ability to adapt quickly to existing conditions. There are two main dimensions in set transfer processes:

1. Creating and shaping a state of mind that is accompanied by a response or stimulus that must be carefully retained in memory.

2. Changing the direction from one created mental state to another mental state. Various sets include learning set, preparatory set, mental set, motor set, response set, objective set and stimulus set.

Other definitions of executive functions include the high-level cognitive abilities required for self-control, including inhibiting incorrect response, attention transfer, and information updating in working memory.

Another definition also states that: a complex set of brain functions, action planning, maintaining levels of cognitive stimulation, focusing on tasks and switching attention, observing performance levels, using feedback, ignoring external contexts, and flexibility in adaptive activity for changes in the environment are called executive functions (7).

Quality of Life

The origin of the concept of quality of life dates back to Aristotle in 385 BC. At that time, Aristotle considered "good life" or "doing things well" to mean happiness. But at the same time, he dealt with the different concept of happiness among different people and pointed out that health that makes a sick person happy is not the same as wealth that makes a poor person happy and has clearly stated that happiness not only has different meanings for different people but also does not have the same meaning for one person in different situations. However, at that time, happiness or to live happily was equated with what is now called quality of life; But the term "quality of life" was not used until the twentieth century. Since the 1930s, researchers have studied the quality of life in a variety of ways (and attitudes). Planners of welfare and social area have sought to determine the components and elements of quality of life and to compare geographical areas such as cities, states, and nations through the quality of life indicators they have developed. In addition to researchers, international organizations such as the UNDP, the United Nations, and the Development Council developed their own defined indicators of quality of life (8).

Definitions of quality of life

researchers divided quality of life into three categories: The first category are those who pay attention only to the mental dimension of quality of life. In their work, they either do not consider the objective dimension of quality of life or down grade its importance. The second category are those who, unlike the first group, examine the quality of life objectively, although the number of these people is very small compared to the first group. But the third category, which seems are increasing day by day, are those who have a more comprehensive view of this concept and believe that the quality of life should be examined from both objective and mental dimensions (8).

In general, quality of life is one of the words that does not have a clear and uniform definition. Although people instinctively understand its meaning, many studies do not provide a definition of quality of life. This is because its definition is either too simple or too complex and as a result researchers avoids defining it, while due to the lack of consensus on the definition of the term, it is expected that, this concept and dimensions considered for it should be clearly defined in related research.

What is very important in this definition is that it can be distinguished this concept from other

related concepts such as "good health condition", "life satisfaction" and "hope". There are different theories about the quality of life. Some researchers believe that it can be called quality of life only if it measures several dimensions of health. Some also believe that there is no single definition for this concept can be applied to all stages of a disease or to different societies. In this context, most experts agree that quality of life takes into account the positive and negative realities of life together and has several dimensions. On the other hand, it is considered a mental and dynamic concept. Mental in the sense means it must be determined by the person himself, based on his opinion and not the alternative person, and dynamic means that it will change over time, and therefore it is necessary to measure it in a period of time. However, the subjectivity of quality of life domains is not sufficient for some scientists, so that some experts believe that each domain of quality of life should be able to be measured both subjectively and objectively. This group believes that mental assessment, although necessary, is not enough. It is important that its definition be clarified by the researcher in any research related to the quality of life.

The World Health Organization equates quality of life with obvious items related to living standards, including physical health, mental health, social health, and the environment. According to this comprehensive definition, quality of life is closely related to physical, psychological, social condition and personal beliefs and environment.

Maslow and McCall examined the quality of life from an objective dimension and believe that by considering the objective aspects of quality of life, this concept can be better analyzed. These two advocates the use of objective indicators compatible with each culture to measure the quality of life (8).

In the context of quality of life, Phillips has studied this concept from individual and collective dimensions using objective and subjective components. According to Phillips, the individual quality of life requisite in the objective dimension is basic needs and having financial resources to meet the social demands of citizens, and in the mental dimension, it refers to having the independence of action in the following cases:

1. Increasing mental well-being including hedonism, satisfaction, purposefulness in life and personal growth
2. Growth and efflorescence in the path of felicity and compersion.
3. Participation in a wide range of social activities

Quality of life in its collective dimension emphasizes the stability of the physical and social environment, social resources within the groups and communities in which they live, including civic cohesion, synergy and integration, extensive network relationships

and temporary connections at all levels of society, norms and values such as trust, altruism and compersion behavior, fairness, social justice and equality.

define the quality of life as physical, social, and mental domains of health that are influenced by one's experiences, beliefs, expectations, and perceptions. defines quality of life as a criterion for evaluating the treatment outcomes and safety of patients with physical and mental disorders.

In the definition given by viewer (2001) and accepted by many experts, quality of life is each person's perception of their health condition and the degree of satisfaction with this condition (9). In general, it can be said that the quality of life is determined only by the person. However, the quality of life can be affected by different aspects of a person's life.

Concepts used to understand quality of life include satisfaction and dissatisfaction, living conditions, happiness, unhappiness, life experience, and factors such as comfort, functional situation, socioeconomic situation, independence, and environmental conditions.

Health related quality of life is a multidimensional concept that emphasize four main dimensions: Physical, psychological, social and welfare activities related to the environment. In addition to these dimensions, health-related quality of life includes disease and treatment, as well as the mental nature of quality of life from the patient's perspective.

Dimensions of quality of life

In addition to defining quality of life, it is essential to identify its dimensions in education, research, and medicine. In order to find the domains of this concept, the strongest determinants of quality of life are considered as its domains usually by inductive approach of the data obtained from the patient and using statistical methods such as factor analysis. Most scientists agree that the concept of quality of life always includes the following five dimensions:

1. Physical: Concepts such as strength, energy, ability to perform daily activities and self-care are in this category.
2. Psychological: Anxiety, depression and fear are among these.
3. Social: This dimension is about the person’s relationship with family, friends and colleagues, and finally society.
4. Spiritual: includes a person's perception of life and the purpose and meaning of life. It has been proven that the spiritual dimension is not a subset of the psychological dimension and is an important and independent domain.
5. Symptoms related to the disease or changes related to treatment: In this regard, cases such as pain, nausea and vomiting can be named. This dimension is being paid more attention in dedicated tools (Nejat, 2008).

Pedila outlines five other dimensions for quality of life: being psychologically well, social concerns, come to terms with appearance, being physically well and response to treatment. These four dimensions of quality of life include: 1) physical health including functional ability, strength, fatigue, sleep, appetite; 2) mental health including anxiety, depression, pleasure and fun, pain, happiness, fear, attention and concentration; 3) Social concerns including role in the family and society, relationship with others, love, sexual relations and appearance and 4) spiritual health including suffering and religion. Franz has tested and demonstrated four almost identical dimensions of "health and function", "socio-economic", "psycho-spiritual" and "family", including children, spouse and family health in this regard. Other scientists have also believed that happiness and satisfaction are the two main features of quality of life and the domains mentioned can be considered as factors influencing these two characteristics. In fact, this group of theorists recognizes the quality of life as a cognitive experience that is shown by "satisfaction" of important aspects of life from the individual's point of view and also an emotional experience that is manifested by "happiness" (9).

Given the different definitions of quality of life offered by different scientists, all researchers agree on three principles of the concept of quality of life:

Quality of life is the result of a subjective evaluation, and the patient himself can judge his quality of life better than anyone else. But sometimes there are situations that make it difficult for the patient to make a judgment, in which case we ask the caregiver (physician and nurse) to do the evaluation.

Quality of life is a dynamic nature, not a static one, meaning that it changes over time as internal and external changes occur. Quality of life is a multidimensional concept and should be measured from different angles and dimensions, which are the main pivots of the quality of life research conceptual framework.

One of the most important issues related to cancer is to reduce the psychological problems of these patients and increase their quality of life after the disease. At present, in addition to medical and physical therapies, efforts are being made to alleviate the emotional and psychological pain and suffering of these patients; So that they can return to normal life after illness. In fact, improving the quality of life is an issue that is at the forefront of dealing whith disease. Psychological interventions such as biofeedback and hypnosis, social support, relaxation and guided imagery, body image counseling, and cognitive adjustment strategies can all play a role in reducing some of the signs and symptoms of cancer.

Factors affecting quality of life

According to Bound & kiurter, the factors affecting quality of life includes:

Individual satisfaction: If we consider an area as the most important area of quality of life, that area is the personal general satisfaction of life. Personal satisfaction has been a major part of quality of life studies in the United States for more than 4 decades (10).

Physical environment factors: Physical environment is one of the important factors in quality of life research. The quality of the living space is evaluated by the area of housing, the presence or absence of basic facilities such as indoor toilets, hot water, home heating, etc.

Social environmental factors: Support networks, family and community have existed as one of the aspects of the foundation of the social environment both in early societies and today. This issue not only shows the importance of social and family networks in our social structure but also has attracted the attention of social care policy makers (10).

Socio-economic factors: By preferring the global culture of consumption and people's response to this culture, income and wealth are considered as the main factors affecting the quality of life. This means that the basic necessities of life are increasing.

Cultural factors: In the social sciences, it is assumed that cultural differences arising from different social bases attributed to age, gender, class status, ethnic and religious background affect the quality of life of individuals. When we are conceptualizing the concept of quality of life, these factors (age, gender, etc.) often seem similar and uniform, but in fact these factors, as much as they reflect individual differences within social and cultural groups, also show these differences among groups (10).

Health condition factors: Disability and illness are mentioned as features of future life and death is mentioned as a definite event. It has been found that there is a significant relationship between physical health, functional ability and mental health and quality of life.

Personality factors: A person's personality and psychological structure are often directly related to his mental health. Personality factors indirectly affect people's quality of life through their impact on mental health.

Individual independence Factors: Individual independence Factors are related to personality factors but are independent from the physical and social environment. Factors of individual independence include the ability to make decisions, individual control, control with discussion about the physical and social environment belonging to them.

Personality characteristics

Personality

Personality is a set of physical and mental characteristics that distinguish each person from another. Personality is made up of special intellectual, emotional and behavioral patterns that distinguishes each person from another. Personality has an internal origin and remains almost constant throughout life. Personality psychologists study the unique characteristics of individuals as well as the similarities between groups of individuals. *Eysenck* has focused his research on the patterns and types of personality and their traits in order to identify different personalities and in this regard has paid attention to the various psychological characteristics that are identified in psychology with titles such as traits, habits and patterns. According to *Eysenck*, two main dimensions of personality can be identified based on the method of factor analysis: introversion-extraversion and excitability-emotional stability. The introversion-extroversion dimension refers to characteristics that indicate a tendency towards internal or external affairs. If a person pays more attention to his outward turning and his behavior is more due to external factors, his personality tends to be extrovert and if his behavior is more the result of mental evaluations and internal factors, he tends to be introvert (11).

Characteristics such as sociality, vitality, willingness to lead, humor and prank, diversity and be active refer to the extroverted type and characteristics such as mood stability, continence, minuteness, be thoughtful and antisocial, conservative, pacifism refer to the introverted type (12). Neurosis refers to characteristics such as anxiety, disquiet, variability and excitability and emotional stability to characteristics such as mood proportionality, rational decision-making ability, attention to social norms and the ability to adapt (11). Friedman and Rosenman, in their research, concluded that personality factors could play a role in the development of cardiovascular disease and provided a model of personality type. The personality type includes traits such as trying to get the most out of work in the shortest possible time, aggression, ambitious competition, quick and explosive speech, intolerance, mental preoccupation with deadlines and fighting with events.

Personality theories

1. Biological theory: which states genetic factors are responsible for personality, such as *Eysenck* and introversion and extroversion issues and its relationship to brain stimuli.
2. Behavioral theories: It is considered that personality is the result of interaction between the individual and the environment, such as Skinner and Bandura.
3. Psychodynamics Theories: which are strongly influenced by Freud's thoughts and works and emphasize the influence of the unconscious mind and childhood experiences on the formation of personality and include the theory of Freud's psychodynamic stages as well as Erickson's psychosocial development stages.

4. Humanistic theories: which emphasize the importance and free will and individual experiences in personality development.

Senescence

Senescence in humans is the process of life from pregnancy to death, which includes rapid growth during the early stages of life, then a period of relative stability, and finally physical deterioration and in some cases mental deterioration. Physical senescence is separated from psychological senescence. Although both may coexist, some people who are young in terms of age, are psychologically older and vice versa.

Senescence is a natural process in human life and the result of gradual ablation of vital organs and individual factors such as gender, age and race, social, cultural and economic properties affect its time and extent and its costs in various dimensions of society is undeniable. Of course, individual lifestyles, social relationships, economic and cultural capabilities make some differences. In industrialized developed countries, although they have access to financial resources to meet the needs of the elderly, however, this has mentioned the phenomenon as a deadlock, and unprecedented economic burden and a pervasive problem that requires a new approach (13). This should warn Iran and other countries whose population dynamism confirms the acceleration of the phenomenon of senescence in the country's population, because increasing the number and proportion of elderly people in society, , poses a serious challenge to social welfare and health systems, if the necessary infrastructure is not ready (13).

The English word "old" is defined in the dictionary as follows: living or long life, senescence is a wonderful phenomenon in such a way we often cannot believe one day it will come after us, because the transition from youth to old age is so gradual that its changes are never noticeable to us. Senescence is a natural process that begins with life of the fetus and continues until death.

Sleep quality

Sleep is of the basic human needs so that about one third of every person's life is spent during sleeping. Any sleep disorder in addition to causing psychological problems, also reduces a person's ability. The importance of sleep is due to the widespread impact of sleep-wake cycle disorders on people's lives. The quality of life and activity of people during waking hours is greatly affected by the quality of sleep. Sleep affects the immune system's response. Many sleep disorders are indirectly life threatening. A significant proportion of traffic accidents are caused by sleep disorders. Many industrial accidents have also been caused by drowsiness. The annual indirect damage caused by sleep problems in the United States is estimated at $ 5-430 million. With this description, sleep disorders have relationship with health and mortality and affects not only person but also

the family and society as a whole. Sleep and its disorders have long been paid attention to in the fields of medicine, psychiatry, physiology and nursing and are discussed as a basic need. Therefore, accurate measurement of sleep is an important part of clinical practice.

The importance of sleep in medicine has been well known since the time of Baqwama. When he writes in the aneurysm:

The disease does not occur unless you have excessive sleep or insomnia.

Sleep is a regular, repetitive, and easily reversible state of the organism that is characterized by relative immobility and significant increase of human response to external stimuli compared to the waking state.

According to Reimer, sleep quality is inherently related to quality of life, so that poor sleep quality is associated with poor quality of life, and this highlights the need to pay attention to sleep quality. He considers the sleep process essential for better health and quality of life. Sleep is the basis of physiological processes. Normal sleep leads to decreased sympathetic activity, blood pressure and heart rate. Gustafson states the quantity and quality of sleep affect the quality of life of individuals. Due to the prevalence of sleep disorders in the elderly, it should not be underestimated. Desirable sleep protects physical health, reduces depression and anxiety, strengthens the ability to adapt and lead to concentration on daily life activities. Disorders in quality of sleep is associated with physical, behavioral and psychological problems and disrupts psychological, social and interpersonal functioning. Lack of sleep with sleep disorders may impair brain function and reduce the ability to learn.

Poor sleep quality is one of the main symptoms of chronic insomnia and one of the most common problems elderly faced with. Research has shown that poor quality sleep is the third most common problem in the elderly after headaches and gastrointestinal disorders, and is one of the most common complaints and reasons for older people to see a doctor. It is estimated that between 30% and 40% of the world's population suffers from insomnia and its rate increases with age. Epidemiological studies have shown that more than 57% of the elderly report sleep disorders and only 12% do not complain of sleep problems, while more than 40% of people over the age of 60 have poor sleep quality. It is very necessary to study the sleep principles and disorders due to its high prevalence, while this issue has received less attention. Although sleep disorders can occur at any age, older people often face many difficulties in achieving a good night's sleep.

Research background

Mirzaei et al. (2015), Azadian (2015), Aghayari et al. (2015), Hosseini et al. (2015), Hasan Lou (2015) have done a lot of research on sleep disorders and personality issues in the

elderly. Tavakoli Kuh Jahri and Farhad Kahrazei (2015) investigated the relationship between personality traits and quality of life of the spouses of patients with physical disabilities.

Angelinasutin et al. (2019) in an article examined the personality traits of the five-factor model and cognitive function in five areas in adulthood. neuroticism related with worse performance in all cognitive functions. Conscience was related with better performance in all 5 areas. Openness and agreeableness except numerical reasoning were related with better performance in all areas. Extraversion was associated with greater speed of executive attention and dominance. Rachel J. Curtis et al. (2014), LBLiwise (2015); Katrien (2012), Marmoot et al. (2009), Baltzan, Elkhoy, (2) in many articles have addressed this issue and found that the prevalence of many sleep disorders increases with age.

Research Methods

This research is an applied research in terms of purpose and descriptive research in terms of method. The statistical population of the study is all the elderly aged 65 years and older who refer to neighborhood house in District 5 of Tehran. In this study, purposive sampling was used to select elderly referring to the neighborhood house in the 5th district of Tehran and according to Morgan table, the statistical population is 70 people and the sample size is 59 people. Also, in this research, the required information has been obtained through the field questionnaire and desk study. Also, SPSS software was used to analyze the data.

Research findings

After collecting data, it was observed that 32 (54.2%) of the respondents were male and 27 (45.8%) were female.

Also, 30 (51.7%) of the respondents have a high school degree degree, 17 (28.8%) have a diploma, 6 (10.2%) have an associate degree, 4 (6.8%) have a bachelor's degree and 2 people (3.4%) have a master's degree and above.

In examining normality of the data using Kolmogorov-Smirnov test: Since in order to use appropriate statistical techniques, it must first be determined whether the collected data has a normal or abnormal distribution, at this stage we examine the results of Kolmogorov-Smirnov test about each of the research variables, and based on the results, appropriate tests are adopted to verify the research hypotheses.

H0: The data of the relevant variable has a normal distribution.

H1: The data of the relevant variable does not have a normal distribution.

As the findings of Table 1 show, significance level for all variables is greater (0.05), so the

condition of normal distribution of research variables is established.

Durbin-Watson statistics for the research variables indicate the independence of the observations (statistics between 1 and 3 indicate the independence of the observations).

To investigate the mediation relationships between the research variables, the bootstrap method was used in Macro of Preacher & Hayes software. The confidence interval of the examined route at 95 confidence level and the number of Bootstrap resampling (1000) was 0.0260 (lower limit) to 0.0808 (upper limit). Since zero is not between the upper limit and the lower limit, among the thought control strategies, only distraction strategy has mediated the relationship between the difficulty in regulating emotion and dissatisfaction with the body image in a defective way (Table 2).

Hypothesis 1: There is a relationship between executive functions, quality of life, psychological well-being and personality traits of the elderly with sleep disorders.

As can be seen in the Table 3, there is a positive and significant relationship between executive functions, quality of life and psychological well-being (P <0.01). Also, there is a significant relationship between executive functions, quality of life and psychological well-being with personality traits (P <0.01) and there is no significant relationship only between psychological well-being and adjustment.

Hypothesis 2: Executive functions are related to the psychological well-being of the elderly with sleep disorders by personality traits.

Table 4 shows that in the first step, psychological well-being explains 19% and in the second step psychological well-being and personality traits explain 54% of the variance of executive functions.

According to Table 5 and by emphasizing the amount of F (10.11), which is significant at the level of 99% (P <0.01), it can be said that psychological well-being and personality traits predict executive functions.

According to Table 5 regression results for predicting executive functions show that psychological well-being, extraversion and neuroticism are able to predict executive functions. Thus, in the first model, psychological well-being ($\beta = 0.51$) can predict executive functions, and in the second model, with the introduction of personality traits into the model, among the personality traits, extroversion ($\beta = 0.40$) and neuroticism (27 / 0- = β) can predict executive functions. Therefore, considering that the relationship between the predictor variable (psychological well-being) and the criterion (executive functions) decreases significantly when the intermediate variable (personality traits) is included in the regression equation, the relationship between

the predictor variable and the criterion is no longer significant, so the variable completely mediated the relationship.

Bootstrap method in Macro of Preacher & Hayes software was used to investigate the mediation relationships between research variables. The path confidence interval under study at confidence level of 95 and the number of Bootstrap re-sampling (5000) for extroversion and neuroticism are 0.0613 (lower limit) to 0.4749 (upper limit) and 0.0032 (lower limit) to 0.2470 (upper limit) respectively. Given that zero is not between the upper limit and the lower limit, then among the personality traits, extraversion and neurosis mediated in the relationship between psychological well-being and quality of life.

Hypothesis 3: Quality of life is related to the psychological well-being of the elderly with sleep disorders according to personality traits.

Table 7 shows that in the first step, psychological well-being explains 25% and in the second step, psychological well-being and personality traits explain 58% of the variance of quality of life.

According to Table 8 and by emphasizing the amount of F (11.92) which is significant at the level of 99% (P <0.01), it can be said that psychological well-being and personality traits can predict quality of life through.

According to Table 9 regression results of the quality of life prediction show that psychological well-being, adjustment and deontology can predict quality of life. Thus, in the first model, psychological well-being (β = 0.50) can predict quality of life, and in the second model, with inclusion of personality traits in the model, psychological well-being (β = 0.26) and adjustment among personality traits (32 B = 0) and deontology (β = 0.31) can predict quality of life. Therefore, considering that the relationship between the predictor variable (psychological well-being) and the criterion (quality of life) decreases significantly when a mediator variable (personality traits) is included in the regression equation but it is still significant, so personality traits partially mediate this relationship.

The results of the study of mediation relationships using the bootstrap method showed that path confidence interval under study at 95 confidence level and the number of bootstrap re-sampling (5000), for adjustment and deontology, were respectively 0.0046 (lower limit) to 0.2257 (upper limit) 0.0348 (lower limit) to 0.3358 (upper limit). Given that zero is not between the upper limit and the lower limit, therefore among the personality traits, adjustment and deontology mediated the relationship between psychological well-being and quality of life.

Conclusion and Recommendations

The first hypothesis:

There is a relationship between executive functions, quality of life, psychological well-being and personality traits of the elderly with sleep disorders.

Standardized B Coefficients Indicates that there are significant effects between quality of life and psychological well-being and personality traits.

The second hypothesis:

there is a relationship between executive functions and psychological well-being with respect to the role of personality traits.

According to Table (3) and according to obtained F values, it can be said that psychological well-being and personality traits can predict executive functions.

Due to the fact that when the mediator variable of personality traits is entered, the relationship between the predictor variable and the criterion is no longer significant, the personality trait completely mediated the relationship.

In explaining this finding, it can be said that executive functions are functions in the brain that deal with voluntary behaviors and significantly help achieve the goal, and among the personality traits of executive functions, have a positive and significant role in executive functions.

Extroversion personality traits, especially emotional stability, increase the speed of cognitive processing which is consistent with the results of the study of Sekineh Aghayari et al. (2015).

Positive personality traits can significantly help the elderly improve their executive functions. These results are consistent with the results of the study of Seyed Jafar Hosseini et al. (2016). On the other hand, neurotic personality traits have a negative and significant role in predicting executive functions. Tendency to negative emotions such as sadness and feelings of guilt and hatred and anxiety are among the complete characteristics of neuroticism. Neurotic people do not give themselves the opportunity to think and review the problem due to incorrect cognitive assessment and do not understand the situation correctly. These results are consistent with the results of Seyed Jafar Hosseini et al. study (2016).

Extraversion is associated with better performance in executive tests and domination. Higher-extraverted people tend to speak more and have more power of expression. Such characteristics lead to better ability and faster reaction time. These results are consistent with the results of Angelina et al. (2019). Neurotic people are prone to anxiety and tend to perform poorer in the presence of others, and such functional anxiety is likely to prevent good function. Neuroticism is associated with a number of risk factors of dementia that lead to poorer cognitive functioning and stress hormone physically contributes to poorer

performance. Important cognitive aspects such as memory and processing speed decrease with aging, however, some personality traits such as extroversion and neuroticism can be mediators that are consistent with the results of J. Curtis et al. (2014) study.

Third Hypothesis: Quality of life is related to the psychological well-being of the elderly with sleep disorders with regard to the role of personality traits.

According to table (6) and F-test, it can be said that psychological well-being and personality traits can predict quality of life.

Given that the relationship between the predictor variable (psychological well-being) and the criterion (quality of life) decreases when the mediating variable of personality traits enters the regression equation, but it is still significant, personality traits play a minor role as mediator. The results can be explained as follows. Because psychological well-being is defined as a positive and stable state of mind that allows individuals and groups to take action for success and progress. Strengthening the sense of psychological well-being of the elderly can improve their quality of life and can act as an accelerator in the quality of life of the elderly. On the contrary, the lack of psychological well-being creates a cold meaning that cannot obtain the necessary energy and as a result, quality of life and at the same time the quality of sleep of the elderly decreases. Therefore, by improving the indices of life expectancy and physical and mental health and providing the grounds for the independence of healthy communication, especially family communication and improving psychological well-being, the quality of life and sleep quality of the elderly can be improved. These results are consistent with (Mehdi Hasan lou (1394) researches.

And among personality traits, adjustment and responsibility have a positive and significant relationship with the quality of life of the elderly with sleep disorders. If the elderly has more adaptability, their social connections background and their quality of life will be better. And if they have more responsibility, they will have positive evaluations of themselves and others. This will make things understandable and predictable for them, and will naturally have a positive effect on their quality of life. This research is consistent with the results of the research of Mahdieh Tavakoli Kooh Jahri and Hadi Kahvazei (1394).

In explaining these findings, it can be said that by meeting the basic psychological needs, the elderly will feel self-esteem, usefulness and mental vitality. When the elderly's need for autonomy is met, their mental health promotes. Research backgrounds show that sleep quality in the elderly is not only affected by physical factors and the promotion of psychological components has a positive effect in this regard.

Research limitations

The issues and problems that the researcher encounters during the research and collecting information and hinders him and can affect the results of the research, are the limitations of the research and students and enthusiasts can use the same limitations as subjects for future research. Some of these limitations are at the researcher's disposal and some of them are beyond the researcher's control.

The limitations researcher encountered in this study are:

1. The results of this study can be generalized only to all elderly people 65 years and older who refer to the neighborhood house in the 5th district of Tehran, and other places need to be re-examined. The use of convenience sampling method has reduced the generalizability of research results. Therefore, the results of this study are limited to this study.
2. The research findings are limited only to the time of data collection and its validity is limited to a short period of time. Passing of time may change the results obtained. Therefore, similar research is needed in future time periods.
3. The present research has been done according to the conceptual model of the research and there may be many other related variables. Examining other variables requires conducting other researches that was not in the scope of the current research and the most important of them are mentioned in the suggestions for future research.
4. The main limitation of this project was completion of the questionnaire by the elderly which requires a lot of care and time.

Research suggestions

One of the most basic functions of research is to make suggestions for the optimal functioning of research, and this will be done in research suggestions. The following suggestions came to the researcher's mind during the research and in the final conclusion.

Suggestions and practical results of research

1. Carrying out more studies for enlightening and familiarizing people with the capabilities of old age and paying attention to this period as a continuation of the way of life and the period of growth and relaxation.
2. Recognizing the basic psychological needs and paying attention to them can be an effective way to maintain or increase the well-being and mental health of the elderly.
3. for studying the elderly issues, it is better to use their real living environments instead of the laboratory.

Suggestions for future research

1. Carrying out the current research in another time domain and comparing its results with the results of the present research

2. Examining all components of psychological well-being with the quality of life of the elderly
3. Examining the characteristics of life expectancy and physical and mental health, independence, healthy communication and especially strong family relationships and the impact on the quality of life of the elderly.

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Conflict of interest

There is no conflict of interest for the authors of this article.

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Tables and Charts:

Table 1. Kolmogorov-Smirnov's z test to test the normality of the sample

variable	Z k-s	sig
sleep quality	146/0	82/0
deficits in executive functioning	164/0	88/0
Psychological well-being	172/0	92/0
Quality of Life	128/0	71/0
personality	221/0	35/0

Table 2. Durbin-Watson Test

Independent variables	Dependent Variable	Durbin-Watson Statistics	Error of estimation
Psychological well-being Extraversion	Executive functions	517/1	53/8

Neurosis			
Psychological well-being Adjustment deontology	Quality of life	004/2	12/9

Durbin-Watson statistics for the research relationship between executive functions, quality of life, psychological well-being and personality traits

Table 3. relationship between executive functions, quality of life, psychological well-being and personality traits

	executive functions	quality of life	psychological well-being	extroversion	adjustment	deontology	Openness to experience	Neurosis
executive functions								
quality of life		1						
psychological well-being		**50/0	1					
extroversion		**49/0	**45/0	1				
adjustment		**55/0	21/0	**41/0	1			
deontology		**64/0	**41/0	**55/0	**42/0	1		
Openness to experience		**54/0	**38/0	**60/0	*32/0	**66/0	1	
Neurosis		*30/0-	*26/0-	**36/0-	*27/0-	*31/0-	23/0-	1

Table 4. Summary of the regression model of executive functions based on psychological well-being and personality traits

model	R	R2	R2adj	standard error of the estimate
1	44/0	19/0	18/0	70/8
2	73/0	54/0	48/0	88/6

Table 5. Results of regression analysis of variance of executive functions based on psychological well-being and personality traits

	Model Sources of changes	Sum of squares	Degree of freedom	Mean squares	f-test	Sig.
1	regression	44/1020	1	44/1020	47/13	001/0
	residual	49/4319	57	78/75		
	total	93/5339	58			
2	regression	16/2875	6	19/479	11/10	000/0
	residual	77/2464	52	40/47		
	total	93/5339	58			

Table 6. Regression coefficients of executive functions based on psychological well-being and personality traits

model	Predictor variables	B	beta	t	sig
1					
	psychological well-being	51/0	**44/0	67/3	001/0
2					
	psychological well-being	16/0	13/0	23/1	223/0
	extroversion	85/0	**40/0	06/3	003/0
	Neurosis	05/1-	**27/0-	62/2-	011/0

Table 7. Summary of quality of life regression model based on psychological well-being and personality traits

model	R	R2	R2adj	standard error of the estimate
1	50/0	25/0	24/0	96/7
2	76/0	58/0	53/0	26/6

Table 8. Results of quality of life regression analysis of variance based on psychological well-being and personality traits

	Model Sources of changes	Sum of squares	Degree of freedom	Mean squares	f-test	Sig.
1	regression	638/1227	1	64/1227	38/19	001/0
	residual	871/3610	57	35/63		
	total	51/4838	58			
2	regression	75/2801	6	96/466	92/11	000/0
	residual	76/2036	52	17/36		
	total	51/4838	58			

Table 9. Regression coefficients of quality of life based on psychological well-being and personality traits

model	Predictor variables	B	beta	t	sig
1					
	psychological well-being	56/0	**50/0	40/4	001/0
2					
	psychological well-being	29/0	*26/0	49/2	016/0
	adjustment	77/0	**32/0	14/3	003/0
	deontology	81/0	*31/0	41/2	019/0