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Development a Model of the Relationship of Psychological Well-Being with Self-Efficacy, Self-Esteem and Psychological Hardiness in Cancer Patients of Benign Brain Tumors

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ABSTRACT

Brain tumors are common causes of mortality and disabilities in human societies. With the all-round advances in the fields of diagnosis and treatment as a group and team and interdisciplinary is an undeniable necessity. According to the National Association of tumor America in 2013, In America the number of 688000 persons suffering from primary brain tumors. The incidence of brain tumors over the past 20 years has increased in all age groups. This study investigates a model of the relationship of psychological well-being with self-efficacy, self-esteem and psychological hardiness in cancer patients of benign brain tumors in order to recovery and better health and better compatibility with brain tumor patients. This research is descriptive-correlation. The population includes all brain tumor patients who are referring to Beasat hospital in Sanandaj of Kurdistan province, who they are gone under brain tumor surgery from 2014 to 2016.according to Morgan table for the studied population the acceptable samples will be 200 persons. These samples were selected as stratified random sampling. For data analyzing structural equation modeling was used for investigate the main purpose of the study in addition to descriptive indicators associated with each scale. SPSS software version 22 and modeling software AMOS18 were used for data analyzing. According to obtained fitting indicators (RMSEA=0.005, CFI=0.956, AGFI= 0.907, GFI, 0.931, CMIN=2.2) P=0.001. It was clear that the developed model has good fitness. The application of this model is useful in the supportive psychotherapy of brain tumor patients for upgrading health and computability with illness.

Keywords: Psychological Well-Being, self-efficacy, Self-esteem, psychological hardiness, benign brain tumor

INTRODUCTION

Brain tumor is one of the prevalent reasons of mortality and disability in human society. With all-round progress in the fields of Diagnosis and Treatment as group and teamwork and interdisciplinary it is an undeniable necessity [1]. According to National Brain Tumor Society of America in 2013 the 688000 persons in America are suffering from initially brain tumors (CNS) (Central Nervous System). Which includes 63% benign tumors in which 41980 persons and %37 of malignant tumors in which 24300 persons (National Brain Tumor Society of America) [2]. The incidence of brain tumors during 20 years past has increased in all age groups [3]. In contrast to significant developments in medical science the cancer is one of the most important diseases of current century and considered as the second cause of death after cardiovascular diseases [4]. Due to the chronic nature of cancer disease, the

patient have to accept the long-time treatment course which mostly have side complications such as swollen lymph, weakness, pain, numbness, psycho-social disorders [5].

Self-efficacy is of concepts of empowerment patterns which as an effective factor focus on life quality and psychological well-being and self-esteem in the person are understanding from skills and its abilities in doing successfully good performance. This concept affects the personal performance and the level of effort [6].

Bandura (1986) states that self-efficacy of a person creates a necessary confidence for successfully performance. A person with low efficacy probably avoids from hard jobs in a specified position and has low solicitude and obligation toward goals. While a person with high self-efficacy does challengeable actions in a specified position. He tries to overcome difficult situations and has more obligations toward goals. Self-efficacy is a predictor factor of mental well-being and psychological hardiness and is an important internal factor for long-term control of chronic diseases and its high score related to improvement the ability of computability in patients and can predict it, then this computability is improved and leads to reducing psychological disorders [7]. Researches indicated that people who believe in their ability, they actively participate in the health programs of enhancing health and this participation leads to improving the quality of life [8]. Kobasa (1979) is one of the first researchers that attempted according to Celieh theory (1957) to determine variables that divert the negative effects of stressors factors. Among the moderator variables, he considered the relationship between stress and illness and in his first study, he investigated the hypothesis that people who have high degree of mental stress without sickness, have different personal structure from people that become patient in the stressful conditions. Kobasa (1979) showed in this study that the difference is refluxed in the structure of psychological hardiness. Psychological hardiness generally focuses on internal experience and mental understanding of human and three components of hardiness including obligation (against aliens), control (against disability) and challenge. Stubborn people have characteristics such as the significant sense of curiosity, tendency to have interesting and meaningful experiences, believing to effectiveness of what is mental image and strong assertiveness, ability and resistance [9].

Health is a multi-dimensional concept and it is a model which comprises the happiness and well-being sense in addition to sickness and not being able. in the last decade Ryff et al offered 6 patterns of psychological well-being and mental health .according to Ryff model the psychological well-being consisted of 6 factors: self-acceptance (having positive attitude toward own),positive relationship with others(having warm and friendly relations and the ability to empathize with others), autonomy(sense of independence and ability to resistance against social pressures), purpose in Life(having goal in life and giving meaning to it),personal growth and having dominance on life(ability to manage the environment)[10].

On the other hand when psychological hardness of people would be weak they are lack of obligations, control and fighting components and they will be more susceptible to disease and stressful events, such that a person will build a disaster and tragedy from tension. Most studies confirm this content that high self-esteem is of positive and effective factors in the mental health and low self –esteem is of susceptible factors of mental diseases. Self-esteem includes: the feel of being valuable, this sense arises from a collection of thoughts, feelings, our emotions and experiences during life. People, who have good senses toward themselves, usually would have good sense to the life and they are able to face with problems and cope with them [11].

Considering the importance of compatibility with chronic disorders such as cancers of benign brain tumors and its important effect according to basic variables such as psychological well-being and self-efficacy or self-esteem and psychological hardness in the pain controlling of chronic disorders and quality of patients life and according to limitations of conducted studies in Iran about offering a good model on the basis of health mental theories which in them the psychological well-being, self-efficacy, psychological hardness and self-esteem components in the patients who suffering benign brain tumor cancers, this study has done with the purpose of determine and developing a model of well-being-psychological with self-efficacy, self-esteem and mental hardness of brain tumor patients [7].

MATERIALS AND METHODS

This research is descriptive-correlation. The population includes all benign brain tumors that are referring to Behsat hospital of Sanandaj in Kurdistan province who they are gone under surgery from 2014 to 2016.according to Morgan table for population with 15000 persons the acceptable sample would be 200 persons. This number was selected as stratified randomly sampling.

Research tools include:
A: Cooper Smith's self-esteem inventory.
This scale which contains 59 items includes 4 scales such as family self-esteem, educational self-esteem, total self-esteem and social self-esteem. The method of grading is as zero and one. Finally by summing the related items of each sub scale and also the whole questionnaire, the grades will be calculated. This questionnaire has validated and confirmed. For example we can refer to the results of the research of Pour Shafee [12. 13]. Which they reported the amount of Cronbach's Alpha equal to 0.83, 0.81 and 0.80 respectively, in the current research Cronbach's alpha values of whole questionnaire is equal to 90%.

B: the questionnaire of Ahvaz psychological hardiness AHI: This questionnaire is a tool of self-reporting that includes 27 items and has built with factor analysis in a 523 person's sample from students of Islamic Azad University and University of Shahid Chamran of Ahvaz. The method for grading is as Likert spectrum (I am totally agreeing 5 point and totally disagree 1point). Whatever the subjects score higher they enjoy more hardiness [14]. Two methods of internal and retest were used for measuring the reliability of hardiness scale. Cronbach's alpha coefficients were used for the questionnaire of consistency psychological hardiness which obtained0.76 for all exams, in the current study Cronbach's alpha coefficients is obtained as 0.82.

C: Ryff, s psychological well-being inventory: the Ryff, s psychological well-being scale was used in order to study the psychological well-being of brain tumor patients. In this scale the answer of each item (including 84 items) is determined for a 6 degree spectrum. Whatever the grade of a person in each components and the whole grade of questionnaire be high, it enjoys higher and more desirable psychological well-being. This tool includes 6 components (individual growth, Independence, Environmental dominant, positive relationships with others, the objective life and self-acceptance) and each component have 14 items which they measure psychological well-being. Cronbach's alpha coefficients for each 6 components of individual growth, Independence, Environmental dominant, positive relationships with others, the objective life and self-acceptance is equal to 0.72, 0.60, 0.77, 0.74, 0.75 and 0.77,repectively [15]. At the present study the Cronbach's alpha for each mentioned components is equal to 0.76, 0.76, 0.76, 0.72, 0.72 and 0.75, respectively.

D: the self-efficacy questionnaire
The self-efficacy of Schaleshere contains 33 items which has 14 scales which 1 indicates totally disagree and 14 indicates totally agree and the higher grade indicates more powerful self-efficacy. The reliability of this scale was obtained v=0.79 by using the method of calculating the correlation between the self-efficacy scale and internal and external control [16], and its validity was confirmed by experts. For data analysis in addition to descriptive indicators related to each scale, for investigate the main purpose of the research structural equation modeling (SEM) was used. The SPSS software version 22 and modeling software of Amos18 were used for data analyzing.

RESULTS

A total of 200 brain tumor patients participated in this study. Their average age was 42±16 years with range of 19 to 76 years. The most patients were men (%53) and married. 24 percent of patients had secondary education. The most of patients were 38 percent under supportive treatment of chemotherapy and minor surgery had been performed on them. Table 1 shows the demographic and clinical profile of patients under investigation:

Table 2 shows mean and standard deviation of texts of brain tumor patients in the psychological well-being and its scales. The data indicates that the sub scale of objective life enjoys the highest mean (M=64.55) and personal growth has the lowest mean (M=53.8).

Table 2 offered in order to review the psychological well-being status (as dependent variable in the under investigation model) of brain tumor patients. According to results the T single test, according to obtained grade means from the separation of improved brain tumor in terms of psychological well-being (all components) significantly ($p<0.001$) is above the hypothetical number 3. Since the spectrum of grades of this market is changeable between 1 to 6and obtained means are changeable between 3.7 to 3, it was determined that psychological well-being of brain tumor patients is higher than middle of grades.

Table 1: The demographic and clinical profile of patients under investigation

Item	Item	Number
Gender	Men	125
	women	120
education	illiterate	35
	literate	43
	Middle	39
	secondary	48
	academic	20
	Patient performance score	85
	A brief examination of cognitive status	24
	Duration since diagnosis	9
Marital status	Single	30
	Married	150
	divorced	20
Kind of surfery	Biochemical	70
	Minor cut	96
	General cut	60
Kind of supportive treatment	Chemotherapy	80
	Radiotherapy	30
	Chemical radio therapy	60
Type of brain tumor	Astrocytoma	80
	Oligodendrogliomas	30
	Atypical meningiomas	70
	Schwannoma	15
	Papilloma	107
	Hippophise Arnoma	25
	Glioblastoma	25
	Astrocytoma	30

Table 2: mean and SD of the grades of exams in the scale of psychological well-being

factors	mean	SD	Minimum	Maximum
Self-acceptance	53.8	8.79	23	75
Positive relationship with others	61.22	8.76	39	81
Autonomy	64.28	8.49	43	81
Purpose in live	64.55	11.19	38	139
Personal growth	153.81	10.99	27	77
Environment dominance	60.29	10.3	24	79
Psychological well-being	356.99	45.99	230	514

Table 3: the average of grades of benign and malignant brain tumor patients in the sub tests of psychological well-being

psychological well-being	Benign brain tumor		Malignant brain tumor		All subjects		p
	average	SD	SD	Average	SD	Average	0.000
Self-acceptance	4	0.77	3.2	0.62	3.7	0.71	0.000
Positive relationship with others	4.5	0.60	2.7	0.45	3	0.56	0.000
Environment dominance	3.8	0.5	3.80	0.49	3.5	0.71	0.000
Autonomy	3.89	0.74	3.60	0.66	3.60	0.74	0.000
Purpose in life	4	0.78	3.90	0.62	3.70	0.58	0.000
Personal growth	4.04	0.60	3.8	0.68	3.45	0.51	0.000
Total grade	3.90	0.54	3.7	0.47	3.84	0.51	0.000

as it can be seen in table 4 the double amount equal to 0.45 with degree freedom of 4 and in significant level 0.978 and fitness index which in comparison with determined standards for fitness, indicates the fitness of graphical and suggested model.table5 indicates the correlation coefficient of multi variable along with the coefficient of determination and changes of The coefficient of determination of predictor variables od psychological well-being and self-efficacy and psychological hardiness with self-esteem.

Table 4: indexes related to psychological well-being model ways and self-efficacy with psychological hardiness and self-esteem of benign brain tumor patients

index	β coefficients	Standardized coefficients of β	Ratio of T	The level of P	The fitness index of RSMEA
psychological well-being to self-efficacy	0.21	0.21	4.35	P≤0.00	RSMEA≤0.0001
Self-esteem to self-efficacy	0.22	0.22	5.01	P≤0.00	RSMEA≤0.0001
Psychological hardiness to self-efficacy	0.59	0.59	13.50	P≤0.00	RSMEA≤0.0001
self-efficacy to Self-esteem	0.47	0.47	8.95	P≤0.00	RSMEA≤0.0001
Self-esteem to psychological well-being	0.38	0.40	7.5	P≤0.00	RSMEA≤0.0001
psychological well-being to mental hardiness	0.35	0.38	6.5	P≤0.00	RSMEA≤0.0001
The criteria values on the value	The obtained values	significance			
$\frac{x^2}{df} < 2$	$\frac{x2}{df} = \frac{45}{4}$	Does not fit			
p≤0.05	P=0.978	Does not fit			
RSMEA≤0.08	RSMEA≤0.0001	Does not fit			

Table 5: result of regression test

model	The correlation coefficient	The coefficient of determination	The modified coefficient of determination	The standard error of prediction	The changes of The coefficient of determination	Standardized coefficients
First step	0.57	0.32	0.32	14.11	0.32	%57
Second step	065	0.43	0.42	13.02	0.10	%43
Third step	067	0.46	0.45	12.70	0.03	%36
Fourth step	0.69	0.48	0.49	12.45	0.02	%36
Fifth step	0.71	0.51	0.50	12.71	0.02	%33
Sixth step	0.72	0.52	0.51	12.06	0.01	%36
Seventh step	0.73	0.53	0.52	12.94	0.01	%36
Eighth step	0.73	0.53	0.52	12.94	0.01	%35

In table 5 Multi-variable correlation coefficient along with the coefficient of determination and changes of the coefficient of determination of predictor variables of psychological well-being and psychological hardiness and self-esteem with self-efficacy as predictor factors of variables of the model and finally these factors determine 54 percent of psychological well-eing variance.

In table 5 the stages of entering predictor variables of the model of psychological well-being has brought to the equation. According to contained results in the table during 8 stages variables of self-efficacy, self-esteem and psychological hardiness are predictor of psychological hardiness. Finally the predictor equation is as following:

Psychological well-being=0.74 self-efficacy, 0.79 self-esteem=0.55 psychological hardiness.

DISCUSSION

The present study has done with the purpose of explaining psychological well-being by using variables of self-efficacy, self-esteem and psychological hardiness through modeling of structural equations. Results obtained from descriptive indexes showed that psychological well-being of brain tumor patients is at middle level. Results obtained from optimized model indicated that self-efficacy has positive effect in improving self-esteem and psychological hardiness. Therefore it is clear that self-efficacy has effective role in self-esteem and self-esteem has effective role in structural model, as well. While the effect of self-esteem on self-efficacy and psychological well-being is explained mostly 53 percent from the changes of psychological hardiness. Also about 68 percent from the changes of psychological well-being is explained through psychological hardiness. Findings of this study are consistent with findings of [17]. Kiaee et al in their study found the same results and focused that existing positive and meaningful relationship between psychological well-being and self-efficacy and quality of life in different studies, shows the importance of considering self-efficacy in quality life of patients [18]. Results of Fathi et al indicates the direct and meaningful relationship between self-efficacy and psychological well-being with self-esteem and psychological hardiness with psychological hardiness with quality of life and self –esteem, they predicted, such that by increasing grades in this indexes the quality of life and psychological hardiness was increased. And the studies of [19] confirm this study.

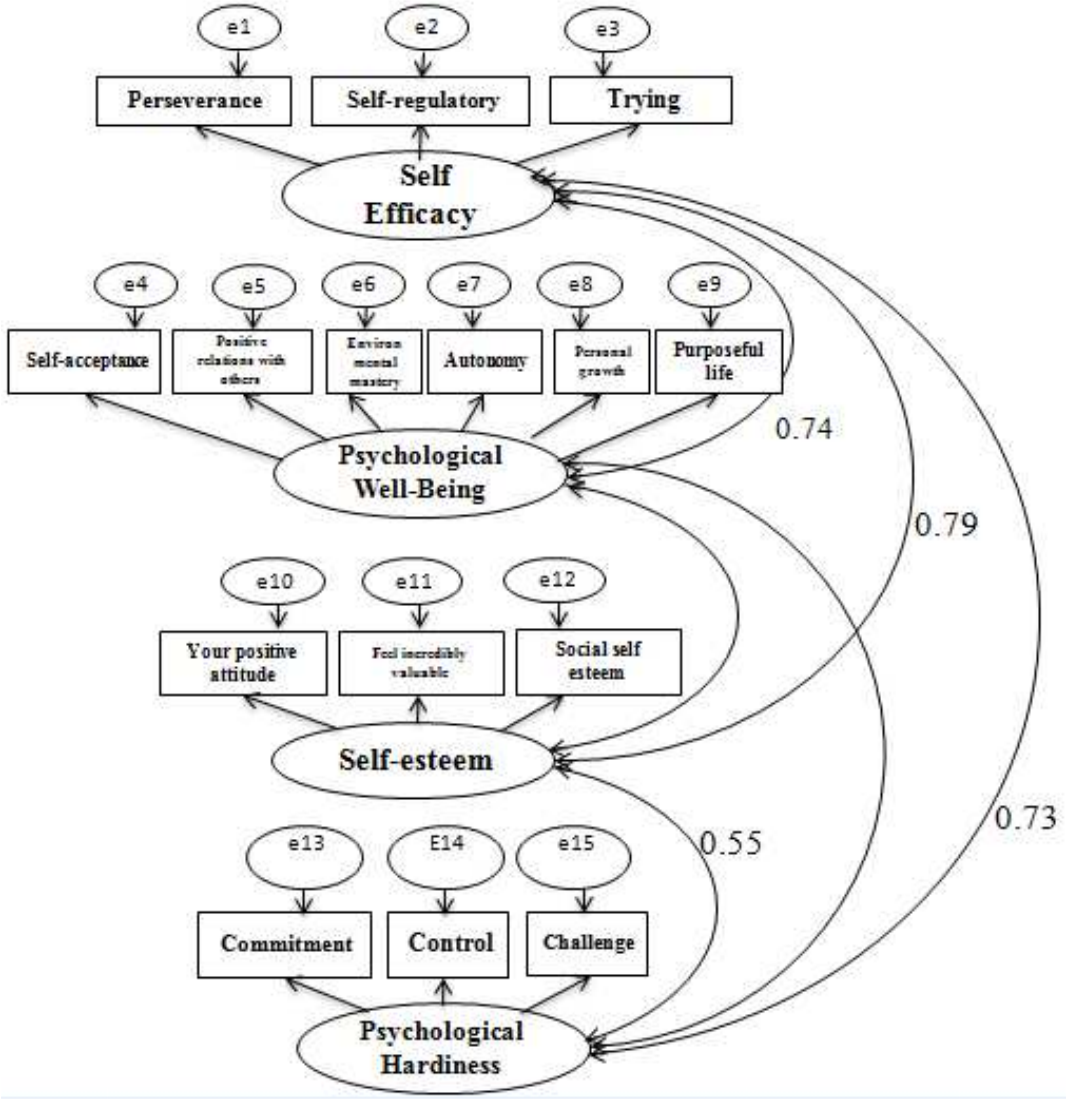

Fig 1: Research Model

Before brain tumor surgery and after that the supportive treatment process and CBT is essential for reducing stress of patient. Reducing the amount of tumor can lead to relieve the symptoms of Neurological and reducing the cognitive defect of the patient, as well. This can itself confirm the treatment model of the study. Because this leads to increase psychological well-being and psychological hardiness of the patient in fighting with the disease and according to self-efficacy principle and self-esteem, the self-care of patient would increase and rehabilitation of patient's improved. Results of this study indicated that patients who had gone under surgery had the better psychological well-being and self-efficacy. However the surgery and injuries after surgery can lead to neuron-cognitive disorders. This result consistent with study results of [20]. The most prevalent tumor is Mesodermal meningiomas. Meningiomas usually are benign and originate from specific regions that are included: the length of dorsal surface of the brain, Skull base and brain Crescent, Sphenoid ridge or inside the lateral ventricles. Psychological hardiness and psychological well-being along with self-efficacy of patients with benign tumor is better than self-esteem and psychological well-being of patients who have malignant brain tumor. Results of this study consistent with study of Olasode, 2000 [21]. There are relationship between psychological hardiness and brain tumor illness. And straggle behaviors of patients who enjoy more self-efficacy and self-esteem is more supported in this case and this has positive effect on the quality life of being brain tumor patients. Pain and psychological Effects

such as aggression, delusion and tinnitus, reduced vision and sensor motor signs, depression, tension are signs and effects after brain tumor surgery. Therefore mental treatment is an essential in psychotherapy and self-efficacy of patient. According to this research model can prevent more mental incompatibilities.

Psychological hardiness is the positive effect of mental and spiritual well-being on the social support and perceived social support leads to adopt adaptive strategies to increase self-efficacy and self-esteem for tolerate pain derived from the cancer. Because the cancer is the cause that endangers life. And perceived mental support can big help to deal with chronic disease of cancer.

CONCLUSION

This model is effective to improve health and computability with illness in cancer patients of brain tumor and have acceptable fitness. In the treatment process, the social team work especially health psychologists are responsible for the mental treatment of cancer patients with brain tumor. Therefore due to importance of maintain and improving the quality life of patients who are suffering from benign brain tumor, it is recommended to examine amount of psychological well-being and psychological hardiness and self-efficacy with self-esteem and interfere to increase mental health for rehabilitation for patients for better recovery and computability with the disease.

At present study there was positive and meaningful relationship between self-efficacy and psychological well-being with psychological hardiness and self-esteem and patients who had better self-efficacy was joining health improving and better quality of life.

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