



The Effect of Occupational Therapy on Quality of Life and Pain Self-Efficacy in Chronic Disease Patients

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Abstract

Background: The purpose of this research is to study the effect of occupational therapy on the quality of life and pain self-efficacy among chronic disease patients. In this context, differences in quality of life and pain self-efficacy were investigated between patients who have followed occupational therapy and patients who have not followed the program of occupational therapy. **Methods:** The sample consists of 63 people, all chronic disease patients. Of the above patients, according to the research design, half received occupational therapy services at a rate of 50.8% (32 patients), while the remaining 49.2% (31 patients) did not receive them. For the data collection MVQOLI-15 and PSEQ were used. **Results:** We found that those receiving occupational therapy services, on average, seem to have comparatively better pain self-efficacy and overall quality of life compared to those not receiving them, while this difference is statistically significant, with the level of statistical significance amounting to $\alpha = 5\%$. **Conclusion:** The effect of occupational therapy on quality of life and pain self-efficacy in chronic disease patients is crucial.

Keywords: occupational therapy, quality of life, pain self-efficacy, chronic disease

1. Introduction

Occupational therapy is a person-centered intervention that addresses health and well-being through work involvement. The primary goal is to involve the individual in participating in activities of daily living. Occupational therapists achieve this goal by working with people to enhance their ability to engage in tasks they want, need, or are expected to do by improving their motor skills or modifying the activity or top environment to better support task engagement. Occupational therapy integrates the biomedical with the psychosocial model and is a link between diagnosis and consequences in everyday life [1].

A study that studied the effect of occupational therapy on the health-related quality of life of patients with multiple sclerosis showed that occupational therapy services were able to help them maintain their health and well-being at the best possible level [2]. Also, research by Tyszka and Farber showed that behaviors related to health promotion and prevention of deterioration and involvement in daily life projects improve quality of life. Occupational therapy interventions include the promotion of involvement and participation in projects, but also education about

ways to save energy and prevent deterioration in patients with chronic diseases, such as multiple sclerosis [3]. Furthermore, occupational therapy promotes the improvement of self-image and social support, as well as access to assistive technology equipment, thereby increasing the individual's adaptation to the community by assuming important roles for the individual. As a result, the individual obtains an optimal level of autonomy in his daily life, thus, a better quality of life [4].

In a recent systematic review on physical activity and symptom management interventions in cancer, Hunter et al. [5] included 138 studies of occupational therapy intervention, many of which showed positive effects on quality of life and chronic disease symptom management. However, the vast majority of included studies did not actually involve interventions delivered by an occupational therapist, and few studies included outcome measures that explicitly capture occupational performance or activities of daily living. Although this review shows a lack of strong direct evidence to support the occupational therapy approach, it provides an evidence base for interventions as used in occupational therapy. At the same time, the review demonstrates the preoccupation with symptom control and motor

function improvement that characterizes cancer rehabilitation research to date. Although the importance of these targets for cancer rehabilitation has not been disputed, we point out that general exercise interventions lack specificity for improving activities of daily living [5].

Occupational therapy contributes to cancer rehabilitation that goes beyond motor function to address the activity and participation needs of cancer survivors. Although strong evidence supporting the effectiveness of the occupational therapy approach is currently lacking, practitioners working with this target group choose interventions to achieve intermediate outcomes related to activities of daily living. Further study is needed on occupational therapy as an intervention for patients who have supportive care needs that are clearly related to daily functioning. Meanwhile, more research is needed to explicitly evaluate the effectiveness of occupational therapy in improving daily activities and quality of life for cancer patients and survivors [5]. A systematic review and meta-analysis by Tofany et al. [6] studied the effectiveness of occupational therapy interventions in the quality of life of patients with Parkinson's disease. The qualitative composition of the studies reviewed proves that occupational therapy, when combined with other treatments (physical therapy and speech therapy), leads to statistically significant improvements, in the short-term and long-term follow-up, in mobility, balance, and independence of the patient in activities of daily living. In addition, specific interventions such as cognitive enhancement and upper extremity interventions resulted in clinically and statistically significant improvements in attention, memory, and motor skills. This research, specifically, focused on whether the implementation of different occupational therapy interventions can improve the quality of life of Parkinson's patients. Consequently, a randomized design was used to perform the meta-analysis. In the quantitative analysis of the 4 studies included in the meta-analysis, they confirmed that different occupational therapy interventions (intended as heterogeneous approaches) improved the quality of life in Parkinson's patients, and this was assessed using the Parkinson's Disease Questionnaire-39 (PDQ-39) tool. When examining the subscales of the PDQ-39, improvement was significant in mobility, activities of daily living, emotional well-being, cognition, and communication at short-term follow-up, while at long-term follow-up, mobility, activities of daily living, emotional well-being, stigma, cognition, and physical discomfort improved. There was no significant improvement in social support in both short-term and long-term follow-up studies. It can be speculated that the lack of improvement in social support may be attributed to the fact that the occupational therapy interventions evaluated in the studies analyzed in the meta-analysis did not consider social support as a specific treatment goal [6].

The purpose of this research is to study the effect of occupational therapy on the quality of life and pain self-efficacy among chronic disease patients. In this context, differences in quality of life and pain self-efficacy were investigated between patients who have followed occupational therapy and patients who have not followed the program of occupational therapy.

2. Methods

It is a quantitative cross-sectional study including the independent variable (occupational therapy or not – two groups of patients) and the dependent variables of quality of life and pain self – efficacy.

The sample consists of 63 people, all chronic disease patients, mostly including multiple sclerosis, Parkinson disease and rheumatoid arthritis. Of the above patients, we selected, according to the research design, half patients who had received Occupational Therapy services at a rate of 50.8% (32 patients) while the remaining 49.2% which has been also selected (31 people) did not receive. The inclusion criteria for the sample's selection were > 18 years old, diagnosed with a chronic disease and speaking the Greek fluently.

For the implementation of this research, the questionnaire was used as a tool due to the many comparative advantages that characterize it (many examinees, low costs, ease of processing and analysis of the results, etc.). In particular, the three individual tools were used: Questionnaire to capture demographic data, Questionnaire to capture effectiveness in pain, questionnaire to capture quality of life. In more detail, the research tools are described below:

The demographic data of the sample was coded by a series of closed-ended questions, where gender, age, place of residence, occupation, etc. were specifically examined. To code and measure pain self-efficacy, the Pain-Self-Efficacy Questionnaire [7, 8] was used, which codes and examines the self-confidence and confidence of people with chronic pain in performing a series of activities. The questionnaire consists of a series of 10 sentences, which capture situations of everyday and not only life (e.g. "I can do most household chores, despite the pain I feel"), where the sample is asked to capture the feeling of the confidence he feels on a scale from 0 to 6, where 0 corresponds to Not at all Confident and 6 to Absolutely Confident, while the intermediate gradations correspond accordingly. To calculate overall self-confidence and self-efficacy in pain, the individual scores are added to finally form a cumulative scale with a range from 0 to 60. It is obvious that scale values close to 60 correspond to high self-efficacy. pain efficacy, while values close to 0 correspond to low pain self-efficacy. Furthermore, values close to 30 can be characterized as neutral pain self-efficacy. The PSEQ has been used in patients undergoing hemodialysis [7] in order to examine the psychometric properties of the Greek version

(Cronbach's Alpha 0,98) while in another study [8] QoL and pain self-efficacy were explored, also, among hemodialysis patients.

To measure quality of life, the Missoula – VITAS Quality of Life Index (MVQUOLI) tool was used, as originally developed by Byock, Merriman, and Kinzbrunner [9] and revised in 2004. The version of the questionnaire used consists of 15 questions. It should be mentioned here that although the original version of this tool consisted of 25 questions, it was found that it was difficult for some patients to complete, so the questions were reduced to 15 (a version that was also used in the present study) while at the same time measuring statistically that the information lost by reducing the questions to 15 was not significant. In this specific research, the translated and weighted in Greece tool was used by Dr. Theofilou Paraskevi [10, 11]. The above tool of 15 statements - questions, measures the quality of life in general, but also includes individual dimensions of the quality of life, as below:

- Symptoms: The physical distress associated with the illness; perceived levels of physical distress.
- Functionality: The ability to carry out ordinary functions and activities of daily life
- Interpersonal Relationships: The degree of association in personal relationships and the quality of life enjoyed from relationships with family and friends
- Well-being: Self-evaluation of an internal state; subjective sense of emotional "well-being" or "illness" Satisfaction or lack of satisfaction with self.
- Spirituality: The degree of connection to an ongoing situation; degree of experiential meaning and purpose in life. Each of the above five dimensions of quality of life measured by the questionnaire consists of three sentences where the sample is asked to express their degree of agreement or disagreement on a 5-point Likert scale ranging from Strongly Agree to Strongly Disagree, while intermediate scales include Agree, Neither Agree but Neither disagree, and disagree. Each of the above sentences is calibrated with integer numbers from -2 to 5, while it should be mentioned that in some sentences there is also a negative calibration. The individual calibration of the questions is detailed in the distributed questionnaire. As we have seen before, each of the measured dimensions of the quality of life consists of three questions, which aim to capture the situation. Each of these questions aims at a different approach to each dimension, as below:
- Assessment: Subjective measurement of the actual situation or conditions (Essentially examining "what exactly it is"). Example: I feel sick all the time.
- Satisfaction: Degree of acceptance of the actual situation (Essentially, the "degree of annoyance obtained" is examined). Example: I am Satisfied with the current control of my symptoms.
- Importance: The degree to which a dimension has an effect on the overall quality of life (Essentially examining "how much it matters"). Example: Physical discomfort prevents any opportunity for fun. Finally, each dimension of the quality of life is approached for its quantitative

measurement by a statement concerning "Estimation", one concerning "Satisfaction" and finally, one concerning "Importance".

For the implementation of the research, the questionnaire was distributed electronically, through the google forms platform. The researcher got in touch with Occupational Therapists working in rehabilitation centers as well as doctors who follow chronic patients, in order to forward the questionnaires to a sample of patients. The questionnaires were completed electronically and anonymously by the patients or with the help of their companions. As the aim of the research is the comparative study between patients who receive Occupational Therapy services and those who do not, care was taken to obtain a sample of both chronically ill patients who receive Occupational Therapy services and those who do not. Before completing the questionnaire, the patients had to agree to ethical conditions, related to anonymity, confidentiality and the assurance that the results will be used strictly and only in the context of the statistical analysis of the research (written consent form). The responses, after being coded, were processed with the statistical package spssv19. Helsinki Declaration has been followed for involving human subjects in the study. To capture the descriptive statistics, frequency, relative frequency, mean value and standard deviation were calculated with simultaneous visualization with bar graphs, histograms or histograms as appropriate. To draw inductive conclusions, the t-test of independent samples was used, while where its use was not possible (mainly due to a small sample), corresponding non-parametric tests were used, such as the Mann-Whitney statistical test.

3. Results

The sample consists of 63 people, all chronic disease patients. Of the above patients, according to the research design, half receive Occupational Therapy services at a rate of 50.8% (32 patients) while the remaining 49.2% (31 people) did not receive.

3.1 Recipients of occupational therapy services

As previously mentioned, there are 32 receiving Occupational Therapy services (50.8% of the total sample). Of these, 29.0% are men (9 people) and 71.0% are women (22people) while we also have a missing value. The average age of those receiving Occupational Therapy Services is 52.56 years (SD: 16.49), while the median age is 56 years. Ages range from 19 to 94 years. In continuation of the above, those receiving Occupational Therapy services have been diagnosed with the disease for an average of 10.31 years (TA: 10.751), while the median number of years that have passed since the diagnosis of the disease is 8.00 years. In addition, the range of years that have passed since the diagnosis of the disease is 59, ranging from 1 to 60.

Finally, and regarding the frequency of receiving Occupational Therapy services, the sample was asked in an open-ended question about the time they receive Occupational Therapy services and the frequency with which they receive them ("If you receive Occupational Therapy Services, how long do you receive them and how often;"). To capture the results, the frequency of download was divided into times/week and correspondingly the total duration of download into years. It was found that the average weekly frequency of receiving Occupational Therapy services amounts to 2.34 times/week (SD: 1.54). Accordingly, the minimum weekly frequency of receiving Occupational Therapy services is 0.5 times/week (once every two weeks) while the maximum is 7 times/week (every day). Accordingly, the average years of receiving Occupational Therapy services amounts to 2.23 (SD: 2.37). The years of receiving Occupational Therapy services range from 0.25 years (one quarter) to 10 years.

3.2 Non-recipients of occupational therapy services

Accordingly, and in continuation with the above, there are a total of 31 people not receiving Occupational Therapy services, of which 32.3% (10 people) are men while the remaining 67.7% (21 people) are women. Looking at the age distribution of those not receiving Occupational Therapy services, we can see that the minimum age is 24 years, while the maximum is 78 years. Mean age is 50.65 years (SD: 15.58) while median age is 52 years. Examining the years that have passed since the diagnosis of the disease, for

those not receiving Occupational Therapy services, we can find that the average value is 9.97 years (SD: 11.71) and in addition the minimum value is 1 year and the maximum 62.

3.3 Pain self-efficacy and quality of life

We can find that the average value of the sample regarding self-efficacy amounts to 39.10 (TA: 13.25), from which we can conclude that the sample appears moderately self-efficacious. Beyond this, the minimum value of self-efficacy amounts to 11,000 while the corresponding maximum to 64,00. The median price is 41.00, while the prevailing price is 50.00. If we examine the distribution of the values of the overall quality of life scale for the entire sample, we can find that in general the sample appears to be neutral regarding its overall quality of life with the corresponding average value of the scale amounting to 15.86 (TA: 3.09). The price range is found from 9.60 to 22.50, while the median value is 15.80.

From the table, we can see that the sample generally seems to have a higher quality of life in the Interpersonal Relationships subscale, with the corresponding mean value amounting to 11.51 (SD: 14.81), while the corresponding lowest value is found in the subscale of Spirituality with the average value amounting to -8.82 (TA: 11.43). In relation to the other dimensions of the quality-of-life subscales, we can find that the sample generally appears neutral with the corresponding mean values relatively close to 0 (Table 1). By implementing the independent samples t-test, we obtain the following results:

	Mean	Standard deviation
Symptoms	2,8730	8,38680
Function	4,4286	10,31866
Interpersonal relations	11,5079	14,81267
Well-being	-1,3492	15,76865
Spirituality	-8,8254	11,42654

Table 1: Mean value and standard deviation of quality-of-life subscales for the entire sample (N = 63).

First from the results of Levene's test we can find that with $F=6.398$, $p=0.014 < 0.05$ that the null hypothesis of equality of variances between the two groups is rejected. Next, from the t-test statistical control we can find that with $t=3.302$, $df=54.58$, $p=0.002 < 0.05$ the null hypothesis is rejected and therefore there is a statistically significant difference in mean pain self-efficacy between those receiving Occupational Therapy services and those not receiving Occupational Therapy services (Table 2). In conclusion, from the above, we found that those receiving Occupational Therapy services, on average, seem to have a comparatively better pain self-efficacy compared to those not receiving, while this difference is statistically significant with the level of statistical significance amounting to $\alpha=5\%$.

Initially from the results of Levene's test we can find that with $F=0.018$, $p=0.892 > 0.05$ that the null hypothesis of equality of variances between the two groups cannot be rejected. Next, from the t-test statistical control we can find that with $t=2.584$, $df=61$, $p=0.012 < 0.05$ the null hypothesis is rejected and therefore there is a statistically significant difference in the mean overall quality of life between those receiving Occupational Therapy services and those not receiving Occupational Therapy services, with those receiving Occupational Therapy services having a comparatively higher overall quality of life compared to with those not receiving Occupational Therapy services (Table 3).

		Levene's test for equality of variances		t-test for equality of means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean difference	Std. error difference	95% confidence interval of the difference	
								Lower	Upper	
Pain self-efficacy	Equal variances assumed	6,398	,014	3,319	61	,002	10,28528	3,09886	4,08873	16,48184
	Equal variances not assumed			3,302	54580	,002	10,28528	3,11451	4,04257	16,52799

Table 2: Independent samples t-test results of pain self-efficacy according to receiving occupational therapy or not.

		Levene's test for equality of variances		t-test for equality of means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean difference	Std. error difference	95% confidence interval of the difference	
								Lower	Upper	
Overall quality of life	Equal variances assumed	,018	,892	2,584	61	,012	1,92863	,74645	,43602	3,42124
	Equal variances not assumed			2,586	60,957	,012	1,92863	,74574	,43741	3,41985

Table 3: Results of independent samples t-test for overall quality of life according to receipt of occupational therapy services or not.

From the table, we can initially see that regarding Symptoms, Interpersonal Relationships, Well-Being and Spirituality, those receiving Occupational Therapy Services seem on average to enjoy higher levels than those not receiving Occupational Therapy Services. On the other hand, regarding Functionality, those not receiving Occupational Therapy services seem to have on average marginally higher levels of functionality compared to those receiving them. Nevertheless, examining the results of the t-test statistical control, we can find that statistically significant differences are found only in the Well-being scale. In conclusion, we could say that the

analysis identified statistically significant differences ($t=2.50$, $p=0.015 < 0.05$) in the average value of Wellness, between those receiving Occupational Therapy services and those not receiving such. Those receiving Occupational Therapy services seem on average to enjoy higher levels of well-being, as the corresponding mean value is 9.10 (SD: 14.73) comparatively higher than the 3.34 (SD: 16.16) of non-recipients Occupational Therapy services. Apart from well-being, no statistically significant differences were found in any other subscale of quality of life (**Table 4**).

	Λαμβάνετε Υπηρεσίες Εργοθεραπείας	Mean	Standard deviation	t	p value
Symptoms	YES (N = 32)	4,4688	5,95675	1,54	0.130 > 0.05
	NO (N = 31)	1,2258	10,15779		
Function	YES (N = 32)	4,0938	11,34036	-0.260	0.769 > 0.05
	NO (N = 31)	4,7742	9,32277		
Interpersonal relations	YES (N = 32)	13,8438	14,74101	1.278	0.206 > 0.05
	NO (N = 31)	9,0968	14,73399		
Well being	YES (N = 32)	3,3438	16,15771	2.500	0.015 < 0.05
	NO (N = 31)	-6,1935	14,01290		
Spirituality	YES (N = 32)	-7,6250	11,93193	0.845	0.401 > 0.05
	NO (N = 31)	-10,0645	10,93598		

Table 4: Mean value, standard deviation, and t-test results of the subscales of the quality of life according to the receipt of occupational therapy services.

4. Conclusion

The analysis focused on two distinct (dependent) variables: pain self-efficacy and quality of life with its subscales. From the analysis, moderate pain self-efficacy of the sample emerged. Those receiving occupational therapy services appeared more self-efficacious in pain compared to those not receiving such, while this difference was statistically significant. Regarding the quality of life, the sample appears to be neutral regarding its overall quality of life. Of the measured subscales of quality of life, interpersonal relationships seem to stand out the most, followed by functionality and symptoms, while comparatively lower are well-being and spirituality. The analysis showed a statistically significant difference in total quality of life between those receiving occupational therapy services and those not receiving such, with the highest quality of life found in those receiving occupational therapy services. With reference to the subscales that make up the quality of life, statistically significant differences were found in well-being, where the characteristic in question is found more among those receiving occupational therapy services.

These findings are in line with the results of other relevant studies conducted in the past demonstrating the significance and the positive impact that Occupational Therapy has on health – related quality of life as well as pain self - efficacy among chronic disease patients [2,12–20].

Moreover, the present research findings have a clinical importance for the health professionals indicating the crucial role that occupational therapy plays [21–23].

Last but not least, this study had some limitations due to its small sample. It is noted that the results can be further investigated in larger samples from other groups of chronic disease patients. In future research there may be the possibility of investigating other factors that are related to or affect the levels of quality of life and pain self - efficacy.

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