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Impact of An Instructional Program on Hypothyroidism Patients' Knowledge Toward Physical Exercise and Activity Daily Livings

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ABSTRACT:

Background: The effect of physical exercise on hypothyroidism exists argumentative and require more ferrets. Poor knowledge of the patients with hypothyroidism regarding physical exercise and Activity Daily Livings (ADLs) can change in their lifestyle, deteriorate symptoms and complications.

Objective: The main objective of the present research is to evaluate the effectiveness of an instructional program on hypothyroidism patients' knowledge toward physical exercise and ADLs.

Methodology: one group study (pretest– posttest) a pre experimental design study was used to conduct this study at Baghdad teaching hospitals from 2th March, 2021 to 30th Jun, 2021. A purposive sampling non probability was applied to select 50 patients with hypothyroidism were coming to Baghdad teaching hospitals. The validity of the questionnaire was verified by 20 experts. The reliability was determined the knowledge questionnaire by using (test and retest) approach. Statistics were used to analyze the results of the study using (SPSS) version (22).

Results: Statistically significant differences found between the scores of the patients' knowledge in two levels of measurements (pre- test and post-test) at ($p<0.01$), where the statistical global mean of score (GMS) for knowledge of patients regarding the physical exercise in pre-test was (0.195), while GMS .

becomes (0.880) in post-test. Furthermore, there is no relationship among age, gender and level of education variables and hypothyroidism patients' knowledge toward physical exercise and ADLs at ($p>0.05$) in pre and posttest.

Conclusion: Poor knowledge of hypothyroidism patients' toward physical exercise and Activity Daily Livings (ADLs) in (pretest) and clear

improvement in their knowledge of the patients after applying the instructional program in (posttest) and there is no relationship between Socio- Demographic variables(Age, Gender and Level of education) with knowledge of hypothyroidism patients' regard to physical exercise and ADLs.

Recommendations: The study recommends conduct further large cross- sectional studies on big populations to develop the knowledge of the patients and achieving the well-being of the society.

Keywords: Instructional program, Hypothyroidism, Knowledge, Exercise, Activity Daily Livings.

INTRODUCTION

Hypothyroidism is most common chronic condition with multiple signs and symptoms [1]. It also, effects on all people, ages, more in women than men, every races and levels of education [2]. The majority of cases of thyroid diseases are diagnosed in patients aged 45 to 65 years, but they can also affect children. Furthermore, thyroid disease is estimated to affects 2% of female and 0.2% of male worldwide [3].

Many physiological changes may occur in hypothyroidism disease like disturbance in secretion of thyroid hormones as a result to defect in body metabolism [4]. Also, decrease T3 and T4 hormones in plasma can increase accumulation of fat in body tissues and contribute to weight gain [5, 6]. As well as, decrease physical performance with various symptoms may increase an inactive life style.

However, left hypothyroidism patients without management can contribute to other chronic health, conditions such as dyslipidaemia, hypertension, cognitive impairment, infertility, neuromuscular problems and Myxedema coma [7]. Therefore, the patients with hypothyroidism require a regular physical activity and copy with those problems because the physical inactivity has been identified as the fourth leading risk factor for global mortality. So,

should promote the physical activity which is a priority for public health action and many countries have responded through the development of global recommendations on PA for health [8].

AIMS OF THE STUDY

The study aimed to evaluate the impact of an instructional program on hypothyroidism patients' knowledge toward physical exercise and ADLs in Baghdad teaching hospitals.

METHODOLOGY

A pre- experimental design one study group (pre and posttest) design was used to carry out this convey.

The study was done in period from 2th March, 2021 to 30th Jun, 2021. A non-probability (purposive) sampling was used to select (fifty) patients with hypothyroidism were admitting at the endocrine clinics (out patients clinics) in Baghdad teaching hospital and AL Yarmouk teaching hospital for diagnosis, treatment and periodically follow up. Also, they are participated

face to face and direct interview at the instructional program concerning physical exercise and ADLs.

The primary assessment was performed before beginning the study so as to assess the hypothyroidism patient's knowledge toward physical exercise and ADLs. Also, a list (a questionnaire) has (19) questions about physical exercise and ADLs were used to evaluate the patients' knowledge (pretest). Then the same list of questions items were used as a post-test which was applied after one month from implementation of the program. As well as, the study was conducted by compared the findings of pretest and posttest and data was analyzed statically by using Package of (SPSS) version (22).

Which has descriptive data analysis includes (frequencies, percentages, mean of score, standard deviation, relative sufficiency, Reliability Coefficient and Alpha Cronbach) and inferential statistics (Chi Square, Binomial test, Wilcoxon Signed Ranks test, McNemar test, Kolmogorov-Smirnov (K.S) test, ANOVA and T test). The validity of the questionnaire and the instructional program were verified by 20 experts. The reliability was determined the knowledge questionnaire by using (test and retest) approach.

RESULTS

In the table (1) and figure (1) are below showed that vast majority of hypothyroidism patients' were females and they are accounted (88%) 44 of the studied sample. Age groups have focusing on the group (40-49) years, and they are reported (50%) 25 with mean and standard deviation at the study (44.06 ± 9.64) years. Education levels have recorded low educated levels, since those whom in primary school were represented (36%) 18, of the study samples. Most of studied participants were housewives and reported (74%) 37.

In table (2) below the results of study population show that most of respondents of some related variables regarding to nutrition and physical exercise history for hypothyroidism patients have recorded low evaluation levels, and they are accounted highly significant differences at $P<0.01$. Moreover, only 6(12%) patients have eaten foods rich in iodine, 13(26%) of patients have taken iodine -rich salt, 14(28%) of patients had taken food supplements, as well as only 16(32%) of patients had played sports, also among most of them having low intensity, and accounting 13(81.25%). In addition, they are playing sport for 1-2 hours per week and reported 6 (37%).

Table (3) below shows that there are essential variables included two main domains, such that (Knowledge of patient with hypothyroidism concerning physical exercise and Activity Daily Livings), and that contents are (4 and 15) items respectively. And that were introduced for studying impact of an instructional program on patient's knowledge of hypothyroidism toward Physical Exercise and ADLs. As well as, the findings of current study show that an overall evaluation along studied (Pre, and Post) periods due to applying proposed of

an instructional program, and that were proved through reporting a highly significant differences at P<0.01. Result's impact of applying that program through raising patient's knowledge grades at the post period, and that could be enable to confirms importance and successfulness of applying the program. In addition , that and rather than testing significant are too sensitive to improvements that occurred for repeated measurements statistic in the study sample, but all studied main domains illustrated too highly and meaning changeable with high levels of evaluations along pre to post periods.

In table (4) below the findings of the study subjects show that a highly significant differences at (P<0.01) between (Pre, and Post) periods among physical exercises and Activity Daily Livings main domains and an overall evaluation due to applying proposed of an instructional program, and that were proved through reporting a highly significant differences at P<0.01.

Table (5) below shows that weak relationships between improvement Knowledge of hypothyroidism patient's with Socio- Demographic Characteristics variables (SDCv.), since no significant relationships were accounted at P>0.05.

The figure (2) below, revealed that mean of scores of hypothyroidism patients' Knowledge related to Physical Exercise in pretest are (0.195) while in posttest are (0.880).

This figure also showed that mean of scores of hypothyroidism patients' Knowledge toward Activity Daily Livings in pre-test are (0.509) and in post-test (0.337) , it means the patients' need for help are decreased.

DISCUSSION

The results of data analysis which were presented in table (1) below estimated that majority of the subjects in the study at Baghdad teaching hospitals were females and they were recorded (88%) of the study sample. This sample assignment covered a wide variety of patients in the endocrine clinics (out patient's clinics) in Baghdad teaching hospital and AL Yarmouk teaching hospital. Also, the findings estimated that (50%) of study subjects' were within age group (40-49) years, and with mean and standard deviation about (44.06 ± 9.64) years. Concerning the level of educational, the result of the study shows that (36%) of patients in the study population was primary school. Also, In regard to occupation status, most of studied samples were housewives (74%).

These results are sustained by study was conducted in Saudi Arabia [9] It approved that females are constituted (72.2%). The current study is consistent with another study was done in Saudi Arabia [10] stated that highest percentages (32%) of patients with hypothyroidism and mean age 44.1 ± 16.3 in the age group (40-49) years (fifth decade).As well as, these findings are supported by Iraqi study [11] reported that (30%) of study participants were primary school graduated with hypothyroidism.

Moreover, these results are sustained by Iranian [12] estimated that about (19.7%) of study population were primary school. In regard to occupation status, most of studied samples were housewives and accounted (74%) table (1) below, this result consents with Egyptian study [13] demonstrated that (70%) of the study subjects were housewives.

According to table (2) below some related variables regarding to nutrition and physical exercise history have recorded low evaluation levels, and they are accounted highly significant differences at ($P<0.01$). Therese, (12%) of patients have eaten foods rich in iodine, (26%) of patients have taken iodine -rich salt, (28%) of patients had taken food supplements, as well as only (32%) of patients had played sports, and among most of them having low intensity sport, and accounting (81.25%). And they are playing sport for 1-2 hours per week were (37%).

These outcomes consisted with study was conducted in the UK [14] demonstrated that there is association between elevation of the thyroid antibodies circulation and iodine intake. Also, another research [15] reported that add iodine to salt for persons who haven't iodine in salts to protect them from ID.

Furthermore, British study [16] revealed that the food supplement of iodine must not more than 150 mcg / day for adults. One study [17] stated that lower score in physical field relates to subclinical hypothyroidism patients'. As well as, [18] who discovered that patients were protected against hypothyroidism by doing physical activity regularly. Also, [19] supposed that level of exercise intensity effects on the thyroid function.

In the pre-test period, as in tables (3, 4 and figure 1) are below; the study revealed that patients with hypothyroidism regarding physical exercise and Activity Daily Livings in endocrine clinics (out patients clinics) have poor knowledge. Where the statistical global mean of scores (GMS), for Knowledge of hypothyroidism patients' toward Physical exercise and Activity Daily Livings (ADLs) are (0.195 and 0.509) respectively, table (4) below, and the evaluation of their knowledge was low and moderate respectively.

These outcomes of the research are consisted with the previous Egyptian study [13] which stated that patients with thyroid disorders were recorded highly significant (pre and post) implementation of nursing instructions. In addition to, study was conducted in Netherland [20] It revealed that moderate – intensity aerobic physical activity (MPA) in hypothyroidism patients' was low.

In the post-test period, the study showed improvement in the hypothyroidism patients knowledge about Physical exercise and Activity Daily Livings after implementation of the an instructional program, as shown in tables (3, 4 and figure 1) are below, where the statistical Global mean of scores (GMS), for Knowledge of hypothyroidism patients' toward Physical exercise and Activity Daily Livings (ADLs) are (0.880; 0.337) high and moderate respectively.

The study was a proved that highly statistically significant differences between the Global mean of scores (GMS) of hypothyroidism patients ' knowledge in pre and post-test periods (at p-value P<0.01). These results are similar to Indian study [21] found that most of study population have lack knowledge toward hypothyroidism.

[6] Reported that physical activity level in patients with SCH was low and the participants have fatigue. Furthermore, the findings of study are sustained by study was done in Turkey [22] estimated that after the exercises the values of TSH are changed significantly. Also, another study supported the outcomes [23] which demonstrated that thyroid gland ability is improved significantly by regular swimming exercises. On the other hand, the study [24] estimated that presence of neuromuscular symptoms and exercise intolerance in SCH can lead to impaired daily activities and an inactive lifestyle

The study confirmed that is no significant relationship between hypothyroidism patients' knowledge with demographical characteristics (age, gender and level of education) at (p<0.05), table (5) below. These outcomes are consent with Indian research [25] stated that highest percentage of study respondents was females and more than (40) years had significant a low level of hypothyroidism knowledge's more than males.

CONCLUSION

Poor knowledge of hypothyroidism patients' toward physical exercise and Activity Daily Livings (ADLs) in (pretest) and clear improvement in their knowledge of the patients after applying the instructional program in (posttest) and there is no relationship between Socio- Demographic variables (Age, Gender and Level of education) with knowledge of hypothyroidism patients' regard to physical exercise and ADLs.

RECOMMENDATIONS

- The study recommends conduct further large cross-sectional studies on big populations to develop the knowledge of the patients and achieving the well-being of the society.
- The patients with thyroid diseases should adhere to a healthy diet which is prescribed by the dietitians.
- Maintain regular physical exercises (2.5 hours)/week moderate intensity according to doctors prescribed and takes rest period between the activities.
- Walking in the open spaces and grass parks to inhale fresh air for (5-30) minutes every day. Also, Exposure to sun light for at least 5-30 min during the day or twice a week between 10 a.m. and 4 p.m. and according to season.

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Informal consent: All patients were asked before to complete the questionnaire if they accepted to participate in the research.

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TABLES AND FIGURES

Table (1): Distribution of the Study Sample According to the Socio demographic Data (SDCv.) with comparisons significant

SDCv.	Classes	No	%	C.S. (*) P-value
Gender	Male	6	12	P=0.000 (HS)
	Female	44	88	
Age Groups	< 30	4	8	χ^2= 31.200 P=0.000 (HS)
	30 - 39	9	18	
	40 - 49	25	50	
	50 - 59	9	18	
	≥ 60	3	6	
	Mean ± SD	44.06 ± 9.64		
Educational level	Read and Write	7	14	χ^2= 20.080 P=0.001 (HS)
	Primary school	18	36	
	Intermediate school	11	22	
	Secondary school	8	16	
	Institute	1	2	
	University graduated & post graduated	5	10	
Occupation	Government employee	8	16	χ^2= 66.000 P=0.000 (HS)
	Non-Government employee	4	8	
	Housewife	37	74	
	Retired	1	2	
	Something enough	15	30	
	Enough	5	10	

(*) HS: Highly Sig. at P<0.01; Testing based on One-Sample Chi-Square test, and Binomial test.

Table (2): Distribution of some related variables regarding of nutrition and physical exercise history for hypothyroidism patients

	Classes	No	%	C.S. (*) P-value
Eat foods rich in iodine	No	44	88	P=0.000 (HS)
	Yes	6	12	
Take iodine -rich salt	No	37	74	P=0.000 (HS)
	Yes	13	26	
Take food supplements	No	36	72	P=0.000 (HS)
	Yes	14	28	
Play sports	No	34	68	P=0.000 (HS)
	Yes	16	32	
Play sport most often	Non Applicable	34	68	P=0.000 (HS)
	Low intensity	13	81.25	
	Medium intensity	3	18.75	
	High intensity	0	0.00	
Play sport hours per week	Non Applicable	34	68	χ^2= 4.625 P=0.328 (NS)
	Less than 1 hour	3	18.75	
	1-2 hours	6	37.50	
	2-3 hours	4	25.00	
	3-4 hours	1	06.25	
	hours and more	2	12.50	

(*) HS: Highly Sig. at P<0.01; NS: No Sig. at P>0.05; Testing based on One-Sample Chi-Square test, and Binomial test.

Table (3): Descriptive Statistics according to the (Knowledge of hypothyroidism patients' toward Physical Exercise and Activity Daily Livings (ADLs) items) along studied period with comparisons significant

Knowledge of hypothyroidism patients' toward Activity Daily Livings (ADLs) items	Period	No.	MS	SD	RS%	Ev.	Sig. Level	CS
1. Sports …… usually recommended for patients with hypothyroidism.	Pre	50	0.04	0.20	4	L	P=0.000	HS
	Post	50	0.94	0.24	94	H		
2. should be exposed to sunlight daily ,especially people who are excess weight to get the right amount of ……..	Pre	50	0.42	0.50	42	M	P=0.000	HS
	Post	50	0.96	0.20	96	H		
3. The past 7 days did patient do at least 30 minutes of physical activity	Pre	50	0.16	0.37	16	L	P=0.000	HS
	Post	50	0.80	0.40	80	H		
4. The past 7 days did patient do a specific exercise activity (such as swimming, walking, or biking) other than what he do around the house or as part of his regular work	Pre	50	0.16	0.37	16	L	P=0.000	HS
	Post	50	0.82	0.39	82	H		
5.1 Need help: in / Cleaning patient's house	Pre	50	0.86	0.35	86	L	P=0.004	HS
	Post	50	0.68	0.47	68	L		
5. 2: Need help: Getting dressed & undressed	Pre	50	0.04	0.20	4	H	P=0.687	NS
	Post	50	0.08	0.27	8	H		

5 .3: Need help: With toileting	Pre	50	0.04	0.20	4	H	P=1.000	NS
	Post	50	0.02	0.14	2	H		
5.4: Need help: in Bathing	Pre	50	0.04	0.20	4	H	P=1.000	NS
	Post	50	0.02	0.14	2	H		
5.5: Need help: in / taking of medicines	Pre	50	0.46	0.50	46	M	P=0.557	NS
	Post	50	0.38	0.49	38	M		
5.6: Need help: Preparing meals and eating	Pre	50	0.88	0.33	88	L	P=0.180	NS
	Post	50	0.78	0.42	78	L		
5.7: Need help: Walking	Pre	50	0.24	0.43	24	H	P=0.006	HS
	Post	50	0.04	0.20	4	H		
5.8: Need help: Transportation	Pre	50	0.64	0.48	64	L	P=0.000	HS
	Post	50	0.20	0.40	20	H		
5.9: Need help: Climbing stairs	Pre	50	0.86	0.35	86	L	P=0.727	NS
	Post	50	0.82	0.39	82	L		
5.10: Need help: Grocery shopping	Pre	50	0.82	0.39	82	L	P=0.000	HS
	Post	50	0.28	0.45	28	H		
5.11: Need help: In using an adapted telephone	Pre	50	0.08	0.27	8	H	P=0.375	NS
	Post	50	0.02	0.14	2	H		
5.12 : Need help: House rules and expectations	Pre	50	0.96	0.20	96	L	P=0.004	HS
	Post	50	0.78	0.42	78	L		
5.13: Need help: Doing laundry (cleaning clothes)	Pre	50	0.88	0.33	88	L	P=0.001	HS
	Post	50	0.62	0.49	62	M		
5.14: Need help: Grooming & personal hygiene	Pre	50	0.06	0.24	6	H	P=0.625	NS
	Post	50	0.02	0.14	2	H		
5.15: Need help: Financial management (Calculator to track your purchases)	Pre	50	0.78	0.42	78	L	P=0.000	HS
	Post	50	0.32	0.47	32	H		

HS: Highly Sig. at P<0.01; S: Sig. at P<0.05; NS: Non Sig. at P>0.05; Testing based on repeated Measurement based on McNemar Test. Assessments Intervals Scoring Scales of Relative Sufficiency Coefficient (RS%): [L: Low (0.00 – 33.33)]; [M: Moderate (33.34 – 66.66)]; [H: High (66.67 – 100)].

Table (4): Comparative significant knowledge of hypothyroidism patients' toward Physical Exercise and Activity Daily Livings (ADLs) among main domains concerning pre/post period

Main Domains	Period	No.	Min.	Max.	GMS	PSD	Ev.	Z-value	Asymp. Sig. (2-tailed)
Part I : Knowledge of hypothyroidism patients' related to physical exercise	Pre	50	0.000	0.750	0.195	0.210	L	-6.218	0.000
	Post	50	0.250	1.000	0.880	0.197	H		
Part II : Knowledge of hypothyroidism patients' related to Activity Daily Livings (ADLs)	Pre	50	0.133	0.933	0.509	0.159	M	-4.644	0.000
	Post	50	0.067	1.000	0.337	0.181	M		

HS: Highly Sig. at P<0.01; S: Sig. at P<0.05; NS: Non Sig. at P>0.05; Testing based on repeated Measurement based on Wilcoxon Signed Ranks Test. Assessments Intervals Scoring Scales of Relative Sufficiency Coefficient (RS%): [L: Low (0.00 – 33.33)]; [M: Moderate (33.34 – 66.66)]; [H: High (66.67 – 100)].

Table (5): (ANCOVA) technique to find out relationships between Knowledge of hypothyroidism patient's improvement and their socio-demographical characteristics variables

Source of Variations	Type III Sum of Squares	d.f.	Mean Square	F- Statistic	Sig. Levels	C.S. (*)
Gender	0.001	1	0.001	0.082	0.777	NS
Age Groups	0.009	4	0.002	0.316	0.865	NS
Educational Level	0.031	5	0.006	0.845	0.529	NS

(*) Non Sig. at P>0.05; Statistical hypothesis based on Analysis of Covariance (ANCOVA).

Figure (2): Comparative Between Pre and Post Test of Knowledge for hypothyroidism patients' toward Physical Exercise and Activity Daily Livings (ADLs) represented graphically distributions of main domains, as well as an (Overall Evaluation) concerning grand/global means of score (GMS).