The Influence of Physical Activities on Improving the Memory of Elderly

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Abstract: **The evidence that staying physically fit keeps your brain healthy into old age is especially compelling. Most concrete is the link between physical activities and cognitive preservation. Aim: Evaluate The Influence of physical activities on improving the memory of elderly Research design: Experimental design. Settings: The study was conducted in Geriatric home at Suez Canal University. Subjects: A convenient sample of 60 older adults, from the previous setting at age 60 or higher, without cognitive impairments. Tools of data collection: First tool: Interviewing questionnaire, it was composed of 4 parts, part one: socio-demographic data, part two: Medical history, and nutritional style. Part three: Assess elderly's knowledge regarding to physiological changes, physical activity, and exercise. Part four: Assess elderly's practice regarding to physical activities, and exercise. Second tool: Observational checklist, it was composed of 4 parts, Part one: Assess elderly's general health. Part two: Assess elderly's activities of daily living. Part three: Assess elderly's performance of exercise. Part four: Assess elderly's mini mental state. Results: As regard comparison between pre-program and post-program mean scores of all scales , the present study revealed that scales of elderly knowledge of physiological changes, elderly knowledge of physical activity and exercise, total knowledge scale, elderly practice of physical activities, elderly practice of exercise and sport, total practice scale, elderly performance regarding exercise and physical activity scale, and elderly mini mental state scale were statistically highly significant P < 0.001 pre, post-program, while scales of elderly total activity of daily living was non statistically significant P > 0.05 pre, post-program. Conclusion: Application of physical activity training program was effective in improved knowledge, practices, performance, and mini mental state of elderly. Recommendations: Older adults are at risk for or may have multiple chronic conditions. Thus physical activity may interfere with or retard both disease pathways and age-related decline in the pathway to disability, older adults may not know what they can do or should do for physical activity, thus, Conducting physical activity programs for older persons that can be safe, effective in community settings, and low cost therapeutic approach, and members of health team should be planning and implemented several health educational programs regarding physical activities, which types of eating and drinks that enhancing memory and brain function for elderly people in geriatric home.**

Keywords: **Physical activity, Elderly, Memory.**

I. INTRODUCTION

Physical activity generally refers to movement that enhances health. And is any body movement that works your muscles and requires more energy than resting. Walking, running, dancing, swimming, yoga The other types of physical activity—muscle-strengthening, bone strengthening, and stretching—benefit your body in other ways. Muscle-strengthening activities improve the strength, power, and endurance of your muscles. Doing pushups and sit ups, lifting weights, climbing stairs, and digging in the garden are examples of muscle-strengthening activities. **(Carroll, et al, 2015).**

Physical exercise has well-documented benefits for general health and well-being, and more recently has been showed to benefit cognition. Epidemiological evidence consistently links physical exercise with cognitive benefits. Lower risk for dementia, and reduced pathological changes.

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Egypt is the most populous country in the Middle East and the third-most populous on the African continent (after Nigeria and Ethiopia). One of the main features of the Egyptian population over the last few decades is the gradual increase in the absolute and relative numbers of older people. This trend is expected to continue over the next decades. **(WHO, 2017).**

The community health nurse plays a key role in all aspects of prevention through good care planning and collaboration with secondary care colleagues, or by advising and supporting family careers in community settings, Physical and emotional wellbeing are closely linked and any intervention to support one will also affect the other. **(Jenkins& Bernie, 2016).**

Nurses take many roles in promoting physical activity for older adults. Because many older adults do not perceive the benefits of physical activity and in fact may falsely believe that physical activity should be avoided. Nurses need to assess the person's beliefs about and understanding of both the beneficial and detrimental effects of physical activity. Nurses also assess for and address other factors that positively or negatively influence an older adult to participate in regular physical activity. Nurse researcher found an association between self-efficacy and motivation to participate in exercise and physical activity. **(Carol A. M, 2013).**

Significant of the study:

Today, over 46 million people live with dementia worldwide. This number is estimated to increase to 131.5 million by 2050**.** The prevalence rate of dementia in Egypt (4.5%) is within the mean age-adjusted prevalence estimate in developing countries (5.3%). **(Alzheimer Disease International, 2016)**.

worldwide federation of Alzheimer associations and global voice on dementia, a purpose-driven global health and care company that is the leading international provider of specialist dementia care, caring for around 60,000 people living with dementia each year. Together, we are committed to ensuring that dementia becomes an international health priority. We believe national dementia plans are the first step towards ensuring all countries are equipped to enable people to live well with dementia, and help to reduce the risk of dementia for future generations. There is now a growing list of countries which have such provision in place or which are developing national dementia plans, but it's not enough. **(Alzheimer's Disease International, 2016).**

Aim of the study

The aim of this study is to evaluate The Influence of physical activities on improving the memory of elderly through:

1- Assessing elderly knowledge regarding to physical activity.

2- Assessing elderly performance regarding physical activity to detect their needs.

3- Planning and implementing physical activity training program based on elderly needs.

4- Evaluating the influence of physical activity training programs on performance on elderly.

Research Hypothesis:

The researchers hypothesized that the physical activity training program will improve the elderly performance on improving the memory of elderly.

II.   SUBJECTS AND METHODS

1. Research design: Experimental research design was used in this study.

(Each group pre/post test and follow up).

II. Technical Design:

A- Research Setting: The present study was conducted in the Geriatric Home at Suze Canal University.

B- Subjects: A Convenient sample was used in the current study. The sample size was calculated using the following equation:

$$Sample\ Size = \frac{\frac{z^2 \times p(1-p)}{e^2}}{1 + (\frac{z^2 \times p(1-p)}{e^2 N})}$$

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The sample size was 60 older adults representing 100% of the total number 60 of older adults, who attended the previous mentioned setting in the latest year 2017, with criteria of older adults, age 60 or higher, without cognitive impairments and agreed to participate in the study. 10% (6) of the subjects were excluded in a pilot study.

C-Tools for data collection:

Tool (1): An interviewing questionnaire: It was an Arabic interviewing questionnaire demonstrated by the researcher, it included the following parts:

Part I: It was concerned with elderly socio- demographic data which included: (age, gender, educational level, marital status, job, residence, and income).

Part II: A. elderly health history: It was composed of 3 items which included: medical history included (previous chronic disease- previous surgery – current medication- and are you taken anti-depression medication), and elderly nutritional style.

B. Elderly knowledge about: 1) physiological changes of elderly: It was composed of 7 items which included (skin changes- hearing changes, vision changes, hair changes, urinary system changes, sleep changes, and memory changes), 2) elderly knowledge regarding to physical activity and exercise: It was composed of 7 items which included (definition physical activity- types of physical activity- importance of physical activity- meaning of exercise- meaning of memory- type of memory- and does physical activity affect on the memory).

Scoring System for knowledge: It was included 14 items a correct answer scored one and each incorrect answer scored zero, a total of 60% and above were considered satisfactory and less than 60% were considered unsatisfactory.

Part III: elderly practice regarding to their physical activities, and exercise: It was composed of 37 items which included: elderly practice of physical activities: It was composed of 31 items included (practice any physical activity- types of physical activity are you practice- practice any recreational activities- watch video Sport, etc), and elderly practice of exercise: It was composed of 6 items which included (practice any sport activity- type of sports activity do you practice- times have you practiced sports- duration of exercise- feel when you exercise- and personal benefit to you from your practice of sport).

Scoring system for practices: it was composed of 37 items and answers were coded according to the following: always= 1scores, and rarely =0, and the total optimal score = 74.

The total points of practice represent the optimal score and accordingly the points obtained will be classified into always => 50% and rarely =< 50%.

Tool (2): The Observational Checklist (Appendix 11) contain four variables were measured by the investigator in this study which included:

Part I: Assessing elderly general health: It composed of 16 items which included (vital Signs- body shape- head- eyes- ears- mouth, throat- neck- cardiac- pulmonary- breasts- abdomen- gastrointestinal, genital, rectal- extremities- muscular/ skeletal- skin- and neurologic).

Scoring system for practices: It was composed of 16 items and answers were coded according to the following: normal= 3scores, moderate= 2 scores, and abnormal =1, and the total optimal score = 48.

Part II: Assessing elderly activities of daily living: It composed of 10 items which included (eating- showering- personal care- wearing- using toilet- mobility- movement- stairs- defecation- and urination).

Scoring system for practices: It was composed of 10 items and answers were coded according to the following: non-dependent= 2scores, semi-dependent= 1 scores, and dependent =0, and the total optimal score = 20.

Part III: Assessing elderly performance regarding exercise: It composed of 6 item which included (physical activity (Warm up)- walking- muscle strength- stretching- flexibility- and balance) and each item contain 4 parts which included: (duration- frequency- intensity- and volume).

Scoring system for practices: It was composed of 6 items and each item contains 4 parts and answers were coded according to the following: always= 2scores, sometimes= 1 scores, and rarely =0, and the total optimal score = 48.

Part IV: Assessing elderly mini mental state: It composed of 4 items which included (orientation1- orientation2-registration- attention and calculation- recall-and language).

Scoring system for practices: It was composed of 4 items and answers were coded according to the following: alert= 5scores, drowsy= 3 scores, stupor= 2 and coma =1, and the total optimal score = 30.

III. Operational design:

The operational design includes: content validity and reliability, pilot study, preparatory phases, and fieldwork.

• **Content validity and reliability:** To achieve the criteria of trust worthiness of the data collection tools in this study, tools were tested and evaluated for content validity. Content validity was tested by five experts in community health nursing and medicine specialties. They were from different academic categories, i.e., professor and assistant professor from faculty of nursing and medicine in Ain shams and Suez Canal University. To ascertain relevance, clarity, applicability, and completeness of the tools. Based on experts comments and recommendations, minor modifications had been made such as rephrasing and rearrangements of some sentences. And Chronbach Alpha test was used to measure the internal consistency of the 2 tools used in the current study.

• **Pilot study:** A pilot study was carried out on 10% (7) of elderly to test the study tools for clarity, feasibility, applicability, and time required to fill out the questionnaires. The necessary modifications were done through omission of unneeded or repeated questions and improvements were made prior to data collection according to the pilot study results. The sample of the elderly who participated in the pilot study was excluded from the main study sample.

• **Preparatory phase:** A review of recent, current, national and international related literature in various aspects of the problems to design the study tools, then tools of data collection were tested for content validity through pilot study to determine the elderly needs to be included in physical activity training program were done and educational booklet through extensive review of the literature and other available resources.

B) Program implementation:-

Based on the needs identified in the assessment phase and review of literatures the researcher developed a comprehensive physical activity training program with simple Arabic language to suit elderly' level of understanding, which aimed to assessing elderly knowledge regarding to physical activity, assessing elderly performance regarding physical activity to detect their needs, planning and implementing physical activity training program based on elderly needs, and evaluating the influence of physical activity training programs on performance on elderly.

(perceived meaning, perceived different types, perceived benefits and right ways to practice it).

Program implementation based on conducting sessions plan using different educational methods, and media in addition to the use of guiding booklet, hand out, and illustrative pictures specifically designed and developed based on elderly assessment needs. Elderly who were assigned to group teaching were divided into 10 group between 10- 12 in each group. Information and skills for each group by the end of the teaching experience were revised. Time was opened for attendance to ask questions and to receive the corresponding answers as well as to express their feedback toward the teaching session. This phase started from beginning of December 2017 up to May 2018, takes six months.

Program sessions: The researcher visited the selected setting from 11.00AM to 1.00PM 3 days/ week for program implementation. The program content and its objectives were developed by researcher in the form of 12 sessions each session take about 1- 2 hours according to the elderly understanding and span of attention. Teaching sessions were conducted in the clinic.

At the beginning of the first session, an orientation about the program and its purposes were given. It was agreed at the time of the sessions with the elderly. From the second session and so on each session started by a summary about what was given through the previous session and objectives of the new one. By the end of each session a summary was made and time allocated for questions and answers, and plan for next session was made.

Each session of the program contains of general and specific objectives, these objectives achieved through several teaching methods and media as lecture, group discussion, brainstorming, posters, guidance booklet, illustrative pictures and hand out which includes instructions and information for elderly as a reference during, and after program implementation.

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C) Evaluation phase:-

This phase aimed to evaluate the level of improvement in elderly knowledge, health practices and their memory through implementation of program .This was done through giving posttest similar to the pretest, evaluation administered to study subjects after completion of the program in order to estimate the effect of program on elderly knowledge and practices related physical activity and measuring the effect of physical activities on improving elderly memory.

- **Field work**: The researcher attended the geriatric home three days per week, from 11.00 AM. to 1.00 PM. The data collection lasted over six months starting from the beginning of December 2017 up to May 2018, the researcher interviewed each elderly individually and briefly explained the nature and the purposes of the study, and asked for participation. All elderly were informed that participation is voluntary, after obtaining the acceptance of elderly to participate in the present study. The elderly was interviewed to assess their socio-demographic data, and their knowledge, practice, performance, activities of daily living, health status, mini mental state (pretest). The average time needed to fill out the questionnaires was 1-2 hours. A number of interviewed elderly per week ranged from 10- 12. The program was designed by the researcher based on data obtained from pre assessment tools.

IV. Administrative approval:-

An official permission including the title and purpose of the study were submitted from the concerned authorities in the faculty of nursing/ Ain Shams University, and the manager of and the manager of geriatric home at Suez Canal University to get an approval for data collection to conduct the study.

V. Statistical Design:

The collected data were organized, analyzed using appropriate statistical significant tests. The data were collected and coded using the Computer Statistical Package for Social Science (SPSS), version 20, and was also used to do the statistical analysis of data to evaluate the studied subject's changes throughout the study phases (pre, post & follow-up). Data were presented using descriptive statistics in the form of frequencies and percentages. Chi-square tests were used to compare frequencies and correlation between study variables. Degrees of significance of results were considered as follows: p-value > 0.05not significant, p-value ≤ 0.05 Significant, p-value ≤ 0.01 highly Significant.

III. RESULTS

Table (1): Shows that 46.7% of elderly age ranging from 65 to < 70 years, *Mean±SD* 66.35±5.97, 70.0% were female, 37.7% were had secondary school, 56.7% were widow, also, 43.3% were housewife, 90.0% were lived in urban, and 90% of elderly were had enough income.

Table (2): illustrates distribution of the elderly according to their medical history; showed that 35% elderly had diabetes mellitus, 35% elderly were taken diabetes mellitus medication, and 95% of elderly hadn't taken anti-depression medication.

Table (3): illustrated distribution of the elderly nutritional style; showed that 85.1% of elderly hadn't taken nutrition from outside geriatric home , 91.7% had varity meals 93.3% had suitable meal for health person, moreover, 100.0% had enough meal quentity, also, 91.7% had taken three meals per/day, and 90.0% of elderly had prefered fruits and vegetables meals.

Fig.(1): This figure shows that; only 1.4% of the elderly had satisfactory knowledge pre physical activity training program, and this percentage increased to 98.6% during post program.

Fig.(2): This figure shows that; 100.0% of the elderly had poor of total practice pre program, then this percentage decreased to 65.7% of poor and 34.3% of average during post program respectively.

Table(4): This table shows that; Showed that, total mean of elderly activity of daily living was 79.57 ± 14.03 pre-program, while 82.43 ± 12.79 post program..

Fig.(3): This figure denotes that, elderly mini mental state; 34.3% of the elderly had drowsy, 65.7% had alert pre program then this percentage improved to 100.0% of alert during post program .

Table (5) represents that, all scales were statistically highly significant of elderly knowledge of physiological changes, elderly knowledge of physical activity and exercise, total knowledge scale, elderly practice of physical activities, elderly practice of exercise and sport, total practice scale, elderly performance regarding exercise and physical activity scale, and elderly mini mental state scale $P < 0.001$ pre, post-program, while was non statistically significant of elderly total activity of daily living scale $P > 0.05$ pre, post-program.

Table (1): Distribution of the elderly according to their socio- demographic characteristics (n=60).

Item	No	%
Age:		
60 years < 65	21	35
65 years < 70	28	46.7
70 years and above	11	18.3
Mean±SD	66.35±5.97	
Gender:		
Male	18	30.0
Female	42	70.0
Educational level:		
Illitrate	13	21.6
Read &write	19	31.7
Secondary	22	37.7
University	6	10.0
Marital status:		
Married	9	15
Single	9	15
Divorced	8	13.3
Widowed.	34	56.7
Job:		
Does not work	11	18.3
House wife	26	43.3
Retired	22	36.7
free work	1	1.7
Residence:		
Urban	54	90.0
Rural	6	10.0
Income:		
Enough	54	90
Not enough	3	5
Enough and save	3	5

Table (2): Distribution of elderly according to their medical history (n=60).

Item	No	%
* Previous chronic diseases:		
Diabetes mellitus.	21	35
High blood pressure.	15	25
Heart disease.	15	25
Kidney diseases.	6	10
Liver diseases.	5	8.3
Respiratory system diseases.	3	5

* Previous surgery:		
Yes.	41	68.3
No.	19	31.7
* Current medications:		
Diabetes mellitus mediaction.	21	35
Hypertension mediaction.	15	25
Heart disease mediaction.	15	25
Others medication.	6	10
* Are you taken anti-depression medication:		
Yes.	3	5
No.	57	95

Table (3): Distribution of elderly regarding to their nutritional style (n=60).

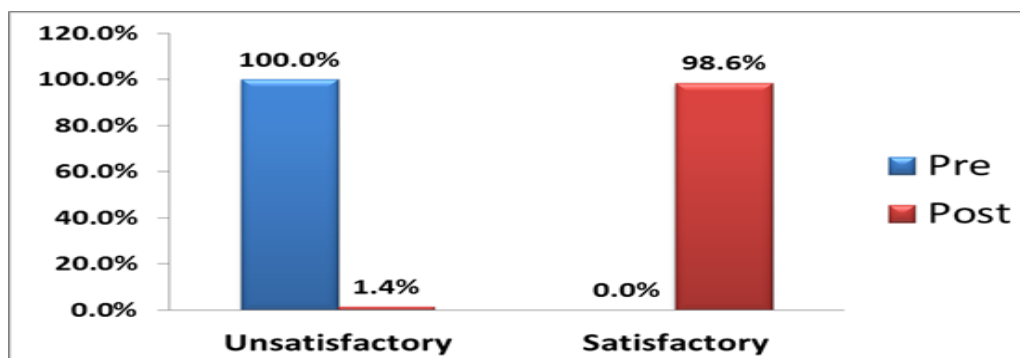| Item	No	%
* Nutrition from outside of geriatric home:		
Yes.	9	15
No.	51	85.1
* Nutrition Variety:		
Yes.	55	91.7
No.	5	8.3
* Suitable for person health:		
Yes.	56	93.3
No.	4	6.7
* Quantity:		
Enough.	60	100.0
Not enough.	0	0.0
* Frequency:		
Less than three meals.	4	6.6
More than three meals.	1	1.7
Three meals.	55	91.7
* Which foods do prefer:		
Meat.	35	58.3
Legume.	17	28.3
Starche.	23	38.3
Friuts Vegetables.	54	90.0
Milk.	35	58.3

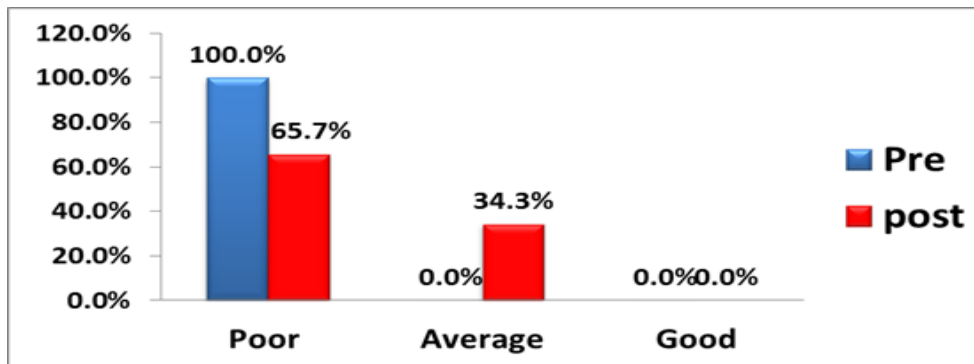**Fig.(1): Percentage distribution of elderly total knowledge. (n=60).**

Fig.(2): Percentage distribution of elderly total practice. (n=60).

Table(4): Distribution of elderly according to their total mean activity of daily living (n=60).

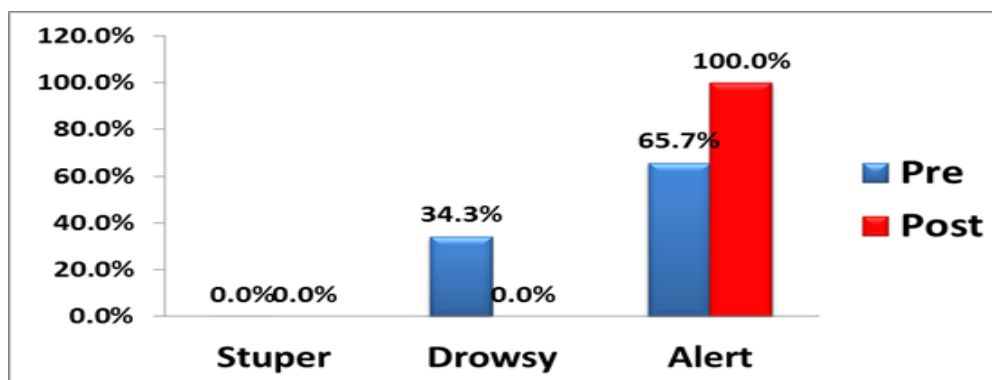| Item	Pre	Post
Mean of elderly activity of daily living	79.57 ± 14.03	82.43 ± 12.79

Fig.(3): Percentage distribution of elderly mini mental state (n= 60).

Table(5): Comparison between pre-program and post-program mean scores of all scales (N= 60).

Items:	Time	Mean	SD	T	df	P-value	
Knowledge of Physiological Changes	Pre	23.37	10.17	-29.41	138	0.00000	**P < 0.001 HS**
	Post	70.31	8.65				
Knowledge of physical activity and Exercise	Pre	27.28	6.90	-40.44	138	0.00000	**P < 0.001 HS**
	Post	74.33	6.87				
Total Knowledge Scale	Pre	26.06	5.60	-49.10	138	0.00000	**P < 0.001 HS**
	Post	73.08	5.73				
Elderly practice of physical activities	Pre	33.11	4.06	-15.80	138	0.00000	**P < 0.001 HS**
	Post	44.00	4.11				
Elderly's practice of exercise and sport	Pre	3.20	10.54	-39.33	138	0.00000	**P < 0.001 HS**
	Post	62.40	6.89				
Total Practice Scale	Pre	26.66	3.68	-33.34	138	0.00000	**P < 0.001 HS**
	Post	47.97	3.87				

Total activity of daily living Scale	Pre	79.57	14.03	-1.26	138	0.21015	**P > 0.05 NS**
	Post	82.43	12.79				
Elderly performance regarding exercise and physical activity scale	Pre	3.20	4.07	-82.84	138	0.00000	**P < 0.001 HS**
	Post	75.40	6.05				
Elderly mini mental state scale	Pre	70.47	5.66	-22.72	138	0.00000	**P < 0.001 HS**
	Post	88.95	3.78				

SD at *$P < 0.05$, **$P < 0.01$, and ***$P < 0.001$

IV. DISCUSSION

Physical activities such as shopping, laundry, managing finance, leisure activities, learning new technologies, communicating with family and friends and monitoring health related activities. elderly also carry out enhanced activity of daily living to adapt changing environment that requires to be willing to accept challenges and engage in learning experiences. These are primarily cognitive oriented, and they contribute to quality of life. **(Izekenova, et al, 2015).**

According to socio-demographic characteristics of elderly, the present study revealed that less than half of elderly age were ranged from 65 to <70 years old, *Mean±SD* 66.35 ± 5.97, more than two third were female, more than one third were had secondary school, more than half were widow, more than two forth were housewife, the majority were lived in urban areas, and the majority had enough income **(Table 1)**. This finding in the same line with the study about physical activity pattern in elderly Kashan population in Iranian by **Ali et al., (2016)** who study reported that the average of age of the study population was 67.6 ± 6.8 years.

Concerning medical history of elderly, the current study revealed that more than one third were had diabetes mellitus, and taken diabetes medication, more than two thirds had previous surgery, and the majority of them were hadn't taken anti-depression medication **(Table 2)**. This finding agrees with **Irving, (2014)** who mentioned that a study about antidepressant and the placebo effect in USA study reported that popular antidepressants may induce a biological vulnerability in the future.

Regarding nutritional style of elderly the current results revealed that the majority were hadn't taken food from outside geriatric home, most of them were had variety meals, most of them had suitable meal for health person, also the majority of them taken three meals per/ day, most of them preferred fruits and vegetables, and all of them were had enough meal quantity **(Table 3).**This result disagrees with **Shigeki et al., (2015)** who study nutritional status of an elderly population in south west China, a cross-sectional study based on comprehensive geriatric assessment study reported that 3.2% were had malnutrition, and 19.3% were at risk for malnutrition, and the majority of them had normal nutritional status.

Regarding elderly total knowledge, the current results revealed that few of the elderly had satisfactory knowledge pre program, and the majority of them had satisfactory knowledge post program **(Figure 1).** this result disagrees with **Reijneveld et al., (2003)** who mentioned that a study of promotion of health and physical activity improves the mental health of immigrant: results of a group randomized controlled trial among Turkish immigrants in the Netherlands aged 45 and over study reported that unsatisfactory knowledge post-program.

Regarding elderly total practice, the current results revealed that all of the elderly had poor practice pre program, while two third of them had poor practice, and one third of them had average practice post program **(Figure 2).** This finding in the same line with the study about interventions to increase physical activity among older adults: a meta-analysis in Columbia by **Jo-Ana, (2015)** who study reported that physical activity interventions had a significant impact on physical activity behaviors among community dwelling older adults P< 0.001.

Concerning total mean of elderly activity of daily living, **(Table 4)**, the current study revealed that, mean 79.57 ± 14.03 pre-program, while mean 82.43 ± 12.79 post program**,** This finding agrees with the study about the effects of movement stimulation on activities of daily living performance and quality of life in nursing home residents with Dementia: a randomized controlled trail in Amsterdam by **Henskens, et al, (2018)** who study reported that a 6 month of activity of daily living training positively affected overall quality of life P= 0.004, and multiple aspects of quality of life.

Regarding elderly total mini mental state, the current results revealed that one third of the elderly had drowsy, and two third of them had alert pre program, while all of them had alert post program **(Figure 3).** This finding agrees with the study about cognitive and language function in a phasic patients assessed with the Korean version of mini-mental status examination in Korea by **Eun & Kun, (2016)** who study reported that the scores of orientation, language function, and total score of mini-mental state examination showed significant improvement in all groups P< 0.01.

Regarding comparison between pre-program and post-program mean scores of all scales **(Table 5)**, the current study revealed that scales of elderly knowledge of physiological changes, elderly knowledge of physical activity and exercise, total knowledge scale, elderly practice of physical activities, elderly practice of exercise and sport, total practice scale, elderly performance regarding exercise and physical activity scale, and elderly mini mental state scale were statistically highly significant P < 0.001 pre, post-program, while scales of elderly total activity of daily living was non statistically significant P > 0.05 pre, post-program. This finding goes with the results of the study about effect of physical activity guidelines on physical function in older adults in North Carolina by **Richard et al., (2008)** who study reported that individuals reporting 150 minutes or more of moderate physical activity/ week had mean scores that were 30.2 points higher than those who didn't P< 0.001. Also the same result agrees with **Karen et al., (2012)** who mentioned that a study about the memory fitness program: cognitive effects of a healthy aging intervention in Erickson study reported that there was statistically significant between subjective memory measures and retrospective functioning following the intervention, indicating perception of a better memory. And this finding agrees with the results of the study about physical exercise and cognitive performance in the elderly: current perspectives in USA by **kirk& Gough, (2014)** who study reported that there were positive relationships between aerobic fitness, brain health, and cognitive performance, long-term participation in resistance performance, especially executive functions. Also the same result disagree with **Alexandre et al, (2014)** who mentioned that a study about influence of mental practice and movement observation on motor memory, cognitive function and motor performance in the elderly in Brazil study reported that there was statistically non-significant correlation between mini mental state score and the execution time as well as the number of error in the motor task.

V. CONCLUSION

Elderly in the current study lacked appropriate knowledge and practice regarding physical activity in the pre program phase. After implementation of physical activity training program, significant improvements were noticed in elderly' knowledge, practice, performance, mini mental state. Therefore, the physical activity training program was successful in attaining its aim and hypothesis of positively changing the knowledge, practice of elderly.

VI. RECOMMENDATIONS

(1) Older adults are at risk for or may have multiple chronic conditions. Thus physical activity may interfere with or retard both disease pathways and age-related decline in the pathway to disability. (2) Older adults may not know what they can do or should do for physical activity. (3) Conducting physical activity programs for older persons that can be safe, effective in community settings, and low cost therapeutic approach. (4) Clinically meaningful outcome measurements are needed to assess the effectiveness of physical activity interventions and outcomes should be broader and including mental health and wellbeing in the field. (5) further studies suggest that playing matching games, and puzzle for 45 minutes two times a week have improve scores on memory test, standing or sitting, at a table, at a bedside, or from wheelchair, its simple physical activities and provide cognitive and sensory stimulation. (6) members of health team should be planning and implemented several health educational programs regarding physical activities, which types of eating and drinks that enhancing memory and brain function for elderly people in geriatric home.

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