



Effect of health literacy program on improving of elderly women awareness and self-practice about vaginal atrophy

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Abstract

As the number of elderly persons in our country increases, vaginal atrophy affects 10 to 40% of postmenopausal women worldwide. Promotion of health literacy level is one of the main non-pharmaceutical measures proposed to older adults.

Aim of the study: To determine the effect of health literacy on improving of elderly women awareness and self-practice about vaginal atrophy.

Subjects and Method: quasi-experimental research design was used in this study.

Setting: The study was conducted in two geriatric clubs at Assiut City (Geriatric club of Legitimacy Assembly and Geriatric club of Islamic Cultural Center).

Sample: The total number of elderly women attending to previously mentioned setting (200) it was taken to assessment of health literacy. The program was conducted on participants who had low level of health literacy for (100) elderly women and was using purposive sampling in this study. The main results yielded by the study, proved that a highly statistical significant difference between pre & posttest program as regarding health literacy awareness and self-practice about vaginal atrophy for elderly women. This study concluded that the health literacy program was effective on improving the awareness and self-practice about vaginal atrophy for women. This study recommended that be conducted on another sample acquired from different age & areas for generalization in Egypt.

Keywords: Vaginal atrophy, elderly women, health literacy, program

1. Introduction

The increasing proportion of the population is a major concern today, especially concerning the health of women, who account for approximately 60% of all those age 65+ years and 67% of those ages 85+ years. Despite increasing life expectancies, there has been no concomitant change in the average age of menopause (approximately 50–51 years) which means that women are spending longer periods of their life in a hypo-estrogenic state (Abd-El Rahman *et al.*, 2010)^[2].

In Egypt the percent of older people “defined as 60 years and above” was 6.9% in 2015. The percentage is projected to be 9.2% in 2021, while it is expected to rise to 11.5% in 2031 and it is expected to reach 20.8% in 2050. This means that, around 20 million Egyptians will be categorized as elderly by that time, while throughout the same period the expected rate of increase among older individuals is about 79% (Central Statistical Processing Center Egypt, 2018).

The increasing proportion of the population is a major concern today, especially concerning the health of women, who account for approximately 60% of all those age 65+ years and 67% of those ages 85+ years. Despite increasing life expectancies there has been no concomitant change in the average age of menopause (approximately 50–51 years) which means that women are spending longer periods of

their life in a hypo-estrogenic state (Abd-El Rahman *et al.*, 2010)^[2].

Vaginal atrophy is a medical condition characterized by the inflammation of the vagina due to diminishing estrogen levels and is usually brought on by menopause. It results in thinning and shrinking of the vaginal walls as well as reduced lubrication. The pelvic floor muscles, urethra, and vagina may all be affected by the reduction of estrogen production (Freitas, *et al.* 2009)^[9].

Vaginal atrophy occurs most often after menopause. For many women, vaginal atrophy not only makes intercourse painful, but also leads to distressing urinary symptoms. Because of the interconnected nature of the vaginal and urinary symptoms of this condition, experts agree that a more accurate term for vaginal atrophy and its accompanying symptoms is “genitourinary syndrome of menopause (GSM) (Abdul Rahman *et al.*, 2010)^[2].

Elderly women may experience the following vaginal and urinary signs and symptoms of vaginal atrophy as vaginal dryness, vaginal burning, vaginal discharge, genital itching, burning with urination, urgency with urination, more urinary tract infections, urinary incontinence, light bleeding after intercourse, discomfort with intercourse, decreased vaginal lubrication during sexual activity, and shortening and tightening of the vaginal canal (Freitas, *et al.* 2009)^[9].

The term of postmenopausal is insufficient to describe the years after menopause. The term “geripause” has been suggested to describe consistent changes in the body due to both estrogen loss and the impact of ageing. It has been used to characterize a phase of reproductive ageing that begins post-menopause, presenting a new set of endo-crinological, metabolic and physiological manifestations with an increase in age-related changes. It has been divided into 2 phases: early geripause (65–85 years age) and late geripause (above 85 years) (Liu & Eden 2008) [12].

Vaginal atrophy is caused by a decrease in estrogen production. Less estrogen makes vaginal tissues thinner, drier, less elastic and more fragile. A drop in estrogen levels may occur after menopause, during the years leading up to menopause, after surgical removal of both ovaries (surgical menopause), after pelvic radiation therapy for cancer, after chemotherapy for cancer, as a side effect of breast cancer hormonal treatment (Hafiz *et al.*, 2007) [10].

Certain factors may contribute to vaginal atrophy, such as smoking that affects blood circulation, resulting in the vagina and other tissues not getting enough oxygen. Smoking also reduces the effects of naturally occurring estrogens in the body. In addition, women who smoke typically experience an earlier menopause, also no vaginal births. Researchers have observed that women who have never given birth vaginally are more likely to develop vaginal atrophy than women who have had vaginal deliveries, and no sexual activity (Junyan, *et al.*, 2019).

Topical estrogen as vaginal estrogen cream which is directly applied into the vagina, usually at bedtime. Typically, women use it daily for one to three weeks and then one to three times a week thereafter. Although creams may offer faster relief than do other forms of vaginal estrogen, they can be messier. And vaginal estrogen ring, it is a soft, flexible ring into the upper part of the vagina. The ring releases a consistent dose of estrogen while in place and needs to be replaced about every three months. Many women like the convenience this offers. A different, higher dose ring is considered a systemic rather than a topical treatment (Matthew, *et al.* 2015).

Complications of vaginal atrophy increase the risk of vaginal infections. Changes in the acid balance of the vagina make vaginal infections more likely. Regular sexual activity, may prevent of vaginal atrophy. Sexual activity increases blood flow to the vagina, which helps keep vaginal tissues more elastic and healthy (Freitas, *et al.* 2009) [9].

Health literacy defined as the degree to which individuals have the capacity to obtain, process and understand basic health information and services in order to make informed and appropriate health decisions. Low health literacy is considered a worldwide health threat. Gerontological nurses have an advocator role for interventions to promote health literacy and improve health outcomes of older people to maximize their capacity to self-manage (Mahnoosh *et al.*, 2012) [13].

1.1 Significance of the study

Vaginal atrophy is a common symptom of menopause. It has been estimated that over 50% of menopausal women will develop atrophy. Some estimates are even higher at 75-90%. Almost 10 to 40 % of patients experience urogenital

atrophy after menopause, although only 25 % of these report with symptoms to the gynecologist (Moreira *et al.*, 2008). Elderly women with low health literacy may be less aware of the importance of health care about vaginal atrophy. Additionally, having an adequate level of health literacy is often needed in order to make appropriate decisions with regard to vaginal atrophy (Eden & Wylie 2009).

Low health literacy is most prevalent among older adults. It is negatively associated with health behaviors and social factors in older adults, many people in developed countries have low health literacy, which is associated with various undesirable outcomes, such as poorer self-rated health, higher rates of hospitalization and higher rates of mortality (Taylor, 2016).

1.2 Aim of the study: To determine the effect of health literacy on improving of elderly women awareness and self-practice about vaginal atrophy.

2. Subjects and Method

2.1 Research design: The quasi-experimental research design was used in the study.

2.1.1 Setting: The study was conducted in two geriatric clubs at Assiut City (Geriatric club of Legitimacy Assembly and Geriatric club of Islamic Cultural Center) which provides social, recreational and health services for the elderly.

2.1.2 Sample: The total number of elderly women attending to previous mentioned settings (200) it was taken to assessment of health literacy. The program which was conducted on participants who had low level of health literacy (100) was using purposive sampling.

2.2 Inclusion criteria

- Elderly women aged 60 years and above.
- Alert and able to communicate.
- Not suffering from confusion, Alzheimer and dementia.

2.3 Study hypothesis

There was a positive or negative relationship between educational level and health literacy awareness of elderly women.

2.4 Tools of the study

2.4.1 There are two tools which were used in this study

2.4.2 Tool one: Interview Structured Questionnaire: It was developed by the researcher for the collecting of data. It was based on relevant literature. It includes three parts:

Part I: it included demographics characteristics of the elderly women as, age, residence, marital status and education.

Part II: it included past and present history of suffering vaginal atrophy, number of frequency times and history of chronic illness.

Part III: it included risk factors as to the relationship between hypertension, genetics factors, recurrent pregnancy, diabetes and vaginal atrophy.

Tool two: it was divided into two parts

First part: Questionnaire to assess the awareness of elderly women about vaginal atrophy. This part included ten questions such as: definition, causes, symptoms, types,

vaginal atrophy leading to cancer, early treatment to prevent complication, diagnostic tests, early diagnosis and treatment by doctors. The grading of elderly according to their awareness total score was interpreted as the following: unsatisfactory (less than 60%) and satisfactory (60% and more). (Abd-Elmohsen, 2013)^[1].

Second part: Self-practice assessment regarding to vaginal atrophy includes five questions. Such as, making vaginal douche during day, keeping dryness of the vaginal area after douche, wearing cotton under wear, taking healthy food properly, and making vaginal examination periodically every six months or annually. The grading of elderly according to their self-practice total score was interpreted as the following: inadequate (less than 60%) and adequate (60% and more) (Abd-Elmohsen, 2013)^[1].

2.5 Method of data collection included

1. A written permission to carry out the study was obtained from the directors of each geriatric club to collect the necessary data after explanation of the aim and nature of the present study.
2. A **pilot study** was carried out before data collection on 10% of elderly women drawn from the previous settings, who were excluded from the actual study sample. The aim of the pilot study was done to evaluate the validity and reliability of the tools and to assure its applicability and clarity. Accordingly, the necessary modifications were done. Kappa test for inter-rater agreement was 0.77.
3. **Validity of the tools:** Tools were tested for their content validity by a group of five experts in the gerontological nursing and gynecological Nursing. The required modifications were done.
4. **Reliability of the tools:** Testing the reliability of the study tools was done by alpha Cronbach's test and the test result was $r=0.8\%$.
5. **Ethical consideration:** Research proposal were approved from Ethical Research Committee in the Faculty of Nursing. There is no risk for the study subjects during the application of research. Oral informed consent was obtained from patients or guidance that is willing to participate in the study, after explaining its nature and purpose. Confidentiality and anonymity were assured. Study subjects had the right to refuse to participate or withdraw from the study at any time.
6. **Field work:** The period of data collection was about seven months from (May to the end of November 2018). Interviewed by the prepared sheet to assess awareness, each elderly woman was interviewed individually, the questionnaires were filled by the researcher who was asking the participants & documenting their answers & the sheet was filled and completed in 30 minutes.

2.6 The health literacy program

The program phases included (assessment phase, planning, implementation and evaluation phase).

A. Assessment phase: Based on pre-test awareness assessment of the elderly women about vaginal atrophy was done and recorded.

B. Planning phase: The arrangements of conducting the program were done during this phase. The sessions and time of the program were decided. The chosen facilities were checked and arranged during this phase as the program place, methods such as audiovisual aids and handout.

- **Program time:** the time of teaching was decided according to coordination between the researchers and each elderly women individually.
- **Program place:** The study program was conducted in the clubs' garden or clubs library as elderly women were sitting.
- **Program methods and materials:** it was important, before implementing the health literacy program, to prepare teaching material and audiovisual aids to be used; as Arabic booklet it were given to each studied women at first time after filling the pre assessment tools by the researchers.

C. Implementation phase: The health literacy program had been implemented during a period of 7 months starting from the first of May until the end of November 2018.

2.7 Health literacy program sessions: The sessions were conducted for each woman, teaching aids and media (pictures, Arabic handout) were given. Each session took (30) minutes.

- **The first session:** It included discussing the definition of postmenopausal period and its manifestations, definition of vaginal atrophy, risk factors, causes, signs and symptoms, types, diagnosis, warning signs, complication, treatment, prevention and role of gerontological nurse.
- **The second session:** It included self-practice regarding vaginal hygienic care which included questions, such as, making vaginal douche during day, keeping dryness of the vaginal area after douche, nail care, wearing cotton under wear, taking healthy food properly and making vaginal examination periodically every six months or annually.
- After each session, there was a 5 minute break for discussion and giving feedback.

D. Evaluation phase: After implementing the health literacy program sessions for women, a reassessment was done by the post-test to assess participants' awareness and self-practice about vaginal atrophy.

2.8 Statistical Analysis

Data were analyzed using the software, Statistical Package for Social Science, (SPSS) version 20. Frequency distribution with its percentage and descriptive statistics with mean and standard deviation were calculated. Chi-square, t-test, correlations were done whenever needed. P values of less than 0.05 were considered significant.

3. Results

Table 1: Demographics characteristics of the elderly women (n=100).

	No.	%
1- Age		
60-<65	38	38.0
65-<70	44	44.0
70-80	18	18.0
Range	60 – 80	
Mean ± SD	66.2±5.0	
2- Residence		
Urban	81	81.0
Rural	19	19.0
3- Marital status		
Married	62	62.0
Widow	34	34.0
Divorced	4	4.0
4- Educational level		
Illiterate or read & write	74	74.0
Primary and Preparatory	17	17.0
Secondary and University	9	9.0

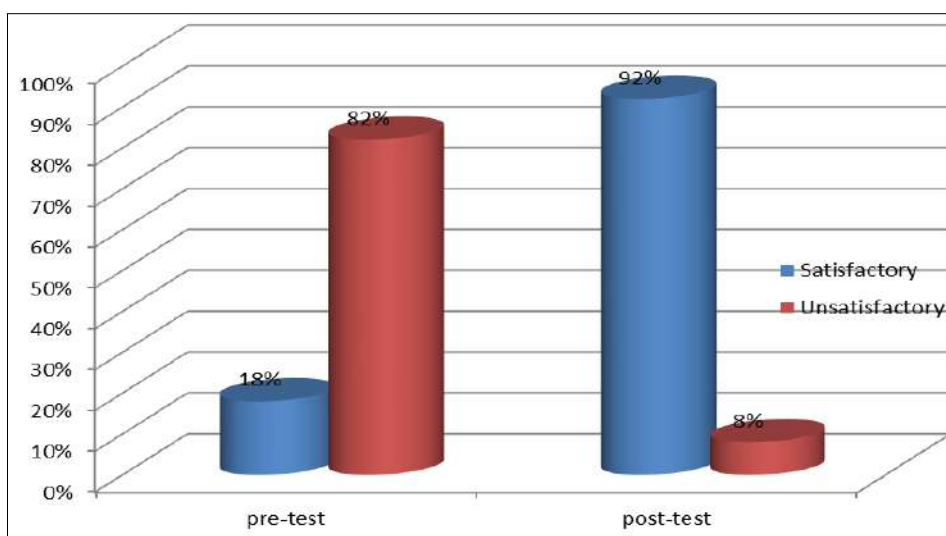


Fig 1: Frequency distribution of awareness level for studied sample in pre & post health literacy program.

Table 2: Relation between awareness level about vaginal atrophy and their demographic characteristics.

demographic characteristics	Awareness level									
	Pre-test				P. value	Post-test				P. value
	Satisfactory		Unsatisfactory			Satisfactory		Unsatisfactory		
No.	%	No.	%	No.	%	No.	%			
Total No.	18	18.0	82	82.0		92	92.0	8	8.0	
Age groups					0.073					0.048*
60-<65	3	16.6	35	26.8		36	39.1	2	25.0	
65-<70	12	66.7	32	54.8		42	45.7	2	25.0	
70-80	3	16.7	15	18.4		14	15.2	4	50.0	
Residence					0.167					0.985
Urban	12	66.7	69	13.7		75	81.5	6	75.0	
Rural	6	33.3	13	86.3		17	18.5	2	25.0	
Marital status					0.000**					0.006**
Married	3	16.6	59	72.0		58	63.0	4	50.0	
Widow	13	72.3	21	25.6		32	34.8	2	25.0	
Divorced	2	11.1	2	2.4		2	3.2	2	25.0	
Education					<0.001**					0.894
Illiterate or read & write	5	27.8	69	84.2		68	73.9	6	75.0	
Primary and Preparatory	10	55.6	7	8.5		16	17.4	1	12.5	
Secondary and University	3	16.6	6	7.3		8	8.7	1	12.5	

Chi-square test, * Significant difference at p. value<0.05, ** Significant difference at p. value<0.01

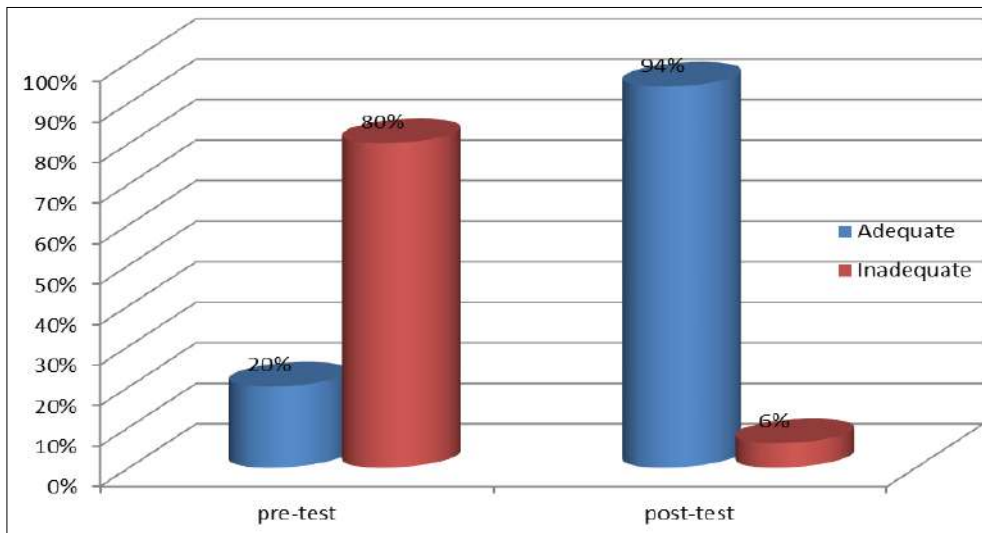


Fig 2: Frequency distribution of self-practice for studied sample in pre & post health literacy program.

Table 3: Relation between self-practice about vaginal atrophy and their demographic characteristics.

demographic characteristics	Self-practice								P. value
	Pre-test				Post-test				
	Adequate		Inadequate		inadequate		Adequate		
	No.	%	No.	%	%	No.	%	No.	
Total No.	20	20.0	80	80.0	94	94.0	6	6.0	
Age groups									0.260
60-<65	5	25.0	33	41.3	36	38.3	2	33.3	
65-<70	12	60.0	32	40.0	42	44.7	2	33.3	
70-80	3	15.0	15	18.7	16	17.0	2	33.4	
Residence									0.699
Urban	14	70.0	67	83.7	76	80.9	5	83.4	
Rural	6	33.3	13	16.3	18	19.1	1	16.6	
Marital status									0.000**
Married	4	20.0	58	72.5	59	62.8	3	50.0	
Widow	14	70.0	20	25.0	32	34.0	2	33.3	
Divorced	2	10.0	2	2.5	3	3.2	1	16.7	
Education									<0.001**
Illiterate or read & write	7	35.0	67	83.6	72	76.6	2	33.3	
Primary and Preparatory	10	50.0	7	8.8	15	15.9	2	33.3	
Secondary and University	3	15.0	6	7.6	7	7.5	2	33.4	0.036*

Chi-square test, * Significant difference at p. value<0.05, ** Significant difference at p. value<0.01

Table 1: Showed that, the age range (60–80) year, mean age was (66.2±5.0), while (81.0%) of them from urban areas. Also (62.0 %) of them were married and (74.0 %) of them were illiterate or could read & write.

Figure 1: Showed that (82.0%) of women were unsatisfactory awareness before the application of health literacy program, while only 18.0% of them were satisfactory awareness before the application of health literacy program. Also, (92.0%) of women were satisfactory awareness after the application of health literacy program, while only 8.0% of them were unsatisfactory awareness after application of health literacy program.

Table 2: Represented that there is a statistical significant difference between awareness level about vaginal atrophy and their marital status and education before the program ($P < 0.000^{**}$), ($P < 0.001^{**}$) respectively. But is a statistical significant difference between awareness level and their age and marital status in post-test ($P < 0.048^*$), ($P < 0.006^{**}$) respectively.

Figure 2: Showed that (80.0%) of women were inadequate

self-practice before the application of health literacy program; while only 20.0% of them were adequate self-practice before application of health literacy program. Also, (94.0%) of women were adequate self-practice after the application of health literacy program; while only 6.0% of them were inadequate self-practice after application of health literacy program.

Table 3: Demonstrates that there was a statistically significant difference between self-practice about vaginal atrophy and their marital status and education before the program ($P < 0.000^{**}$), ($P < 0.001^{**}$) respectively. But there was a statistically significant difference between self-practice about vaginal atrophy and their education $P < 0.036^*$ in post-test.

4. Discussion

Health Literacy is defined as the ability to understand, obtain and appraise health information in order to make appropriate decisions that promote health (Carollo, 2015) [5]. Low health literacy means lacking the ability to understand,

obtain and appraise health information successfully, consequently causing decisions become difficult to make. It is important to improve the health literacy of those with the worst health outcomes in order to minimize health inequalities (Heijmans *et al.*, 2014)^[11].

The present study showed that the vast majority of elderly women aged (60-80) years with mean age (66.2±5.0), came from urban areas. Also, the present study illustrated that most of the studied sample were married and it was observed that less than two quarters of them had illiterate or could read & write education.

The present study showed that the vast majority of elderly women aged (60-80) years with mean age (66.2±5.0), which is agreement with the study done by Abou Faddan *et al.*, 2013^[4]. Who reported that 79.8% of the studied sample were in the age 60-79 years. Mean age was 66 ± 4.6. While this disagrees with David *et al.*, 2017^[7]. Who studied the association between age and health literacy among elderly persons and reported that the majority of the studied sample aged 85 years & over.

Regarding to residence the current study revealed that the vast majority of the elderly participants lived in urban areas. This may be owing to the fact that elderly people who lived in rural areas had transportation difficulties and needed more added cost to become club members. This is similar to the results reported by Wray *et al.*, 2015^[16]. Who studied the social status and risky healthy behaviors after retirement among older adults and found that most of the studied sample lived in urban areas with median health care. Also, this agrees with Abou Faddan *et al.*, 2013^[4]. Who reported that most of the studied sample comes from urban areas. This disagrees with Awad, S., *et al.*, 2019 it was observed that less than two third two thirds of the study participants lived with their spouses. This agrees with Abd El-Rahman, 2014^[3]. Who reported that 46% of the participants were married and lived with their husbands.

Concerning the level of education it was observed that less than two quarters of them had illiterate or had a read & write education, this may be because the illiteracy level among the elderly in the past was high. This disagrees with Awad, S., *et al.*, 2019 It was observed that less than one tenth of the study group were only able to read & write and more than one quarter of them had primary school education. This is similar to Sayied & Abd-Elaziz, 2015^[15]. Who reported that 12.3% of the studied group were only read and write while one fifth of them had primary education.

In the USA (Current Population Survey, Annual Social and Economic Supplement, 2010)^[6]. Showed that the educational level of the older population is increasing. Between 1970 and 2010, the percentage of older persons who had completed high school rose from 28% to 79.5%, about 22.5% in 2010 had a bachelor's degree or higher.

Also, the present study illustrated that the majority of elderly women had unsatisfactory awareness before the application of health literacy program, while only a minority of them had satisfactory awareness before the application of health literacy program. This may be related to the fact that elderly people growing up didn't seek medical and health advice. This agree with Awad, S., *et al.*, 2019 it was observed three quarters of elderly participants had inadequate level of health literacy, and only one quarter of them had adequate health literacy level. But this agree with

Fahad *et al.*, 2015^[8]. it was found that more than half of the studied participants had low level of health literacy, and this is similar to results reported by Abd-El Rahman, 2014^[3]. it was found that three quarters of the studied sample had low health literacy.

According to correlation between health literacy level and socio-demographic characteristics among elderly participants in the current study, it was observed that there was a statistically significant difference between age and health literacy awareness levels $P=0.048^*$, this agree with Awad, S., *et al.*, 2019 it was reported that there was statistical significant difference between age and health literacy level $P=0.043$. Also the vast majority of elderly participants with inadequate HL aged from 60-69 years, this may be owing to the fact that as one gets older, she had no capacity or interest to be more knowledgeable, this agreed with Michael *et al.*, 2007^[14]. Who studied health literacy and functional health status among older adults and reported that there was a statistically significant difference between age and HL level $P=0.001$.

In the present study regarding to the correlation between the health literacy level about self-practice and socio-demographic characteristics among elderly participants, it was noticed that there was a statistically significant difference between the health literacy level about self-practice and the educational level $P=<0.001^{**}$, this may be related to the educational level of the studied sample the majority of elderly participants had illiterate or a read & write education and had inadequate health literacy. This similar to Zofia *et al.*, 2015^[17]. Who studied of the health literacy and health among the elderly: status and challenges in the context of the Polish population aging process and reported that 61.3% of the elderly aged 65 and over had an inadequate level of health literacy.

5. Conclusion

This study concluded that the health literacy program was effective on improving the awareness and self-practice about vaginal atrophy for elderly women. There was a statistically significant difference between pre and post-tests regarding awareness and self-practice for the studied sample.

6. Recommendation

- Re application of this study for another sample acquired from different age & areas for generalization in Egypt.
- Further studies to improve health literacy awareness and self-practice about vaginal atrophy for elderly women.
- Providing an educational program for nurses to increase awareness and self-practice about vaginal atrophy.

7. References

1. Abd-Elmohsen S. Rehabilitation guidelines for patients undergoing arthroscopic knee surgery for meniscal trimming, Doctorate Thesis, Faculty of Nursing Assiut University, 2013, 70-8.
2. Abd-El Rahman SA, Zainudin SR, Kar Mun VL. Assessment of menopausal symptoms using modified Menopause Rating Scale (MRS) among middle age women in Kuching, Sarawak, Malaysia. *Asia Pacific Family Medicine*. 2010; 9:5.

3. Abd El-Rahman TT. Health Literacy Prevalence among Elderly Care Givers and Its Impact on the Frequency of Elderly Hospitalization and Elderly Health Related Quality of Life in Ain Shams, Egypt. *Advances in Aging Research*. 2014; (3):380-387.
4. Abou Faddan HH, Mohammed HM, Darwish MM, Ali HZ. Morbidity Profile and its Relationship with Disability among Elderly People Residing Geriatric Homes and Geriatric Clubs in Assiut City, Egypt. *AAMJ*. 2013; (11)3:49-79.
5. Carollo CK. Health literacy: Communication for the public good. *Health Promotion International*. 2015; 2(16):207-214. DOI:10.1093/heapro/16.2.207.
6. Current Population Survey & Annual Social and Economic Supplement, 2010. Available at: <https://www.census.gov/programs-surveys/saie/guidance/model-input-data/cpsasec.html>.
7. David DW, Wolf MS, Feinglass J, Thompson JA. Association between Age and Health Literacy among Elderly Persons: a position paper from the PROT-AGE Study Group. *J Am Med Dir. Assoc*. 2013-2017; 14(5):42-59. Search PubMed.
8. Fahad S, Furqan K, Naveel A, Nadeem IB, Muhammad A, Hamid S *et al*. A Cross Sectional Assessment of Health Literacy among Cardiovascular Patients in Karachi, Pakistan, *Health Econ Outcome*. 2015; 1(1):1-10.
9. Freitas LV *et al*. Prevalence of post-menopausal symptoms in aged women who are staying at homes for old people: a descriptive study. *Brazilin Journal of Nursing*. 2010-2009; 8:1.
10. Hafiz I, Liu J, Eden J. A quantitative analysis of the menopause experience of Indian women living in Sydney. *Australian and New Zealand Journal of Obstetrics and Gynaecology*. 2007; 47:329-334.
11. Heijmans M, Waverijin G, Rademakers J, Van Der Vaart R. Functional, communicative, critical health literacy and chronic disease patients and their importance for self-management. *Journal of patient education and counseling*. 2014; (98)1:41-48.
12. Liu J, Eden J. The menopausal experience of Greek women living in Sydney. *Menopause*. 2008; 15(3):476-481.
13. Mahnoosh R, Seyed HJ, Firoozeh M, Gholamreza S, Akbar H. Relationship between health literacy, health status, and healthy behaviors among older adults in Isfahan, Iran, *J Edu Health Promot*, 2012, 1(3).
14. Michael K, Paasche MD, Ruth M, Parker MD. Health Literacy and Functional Health Status among Older Adults, *general internal medicine journal*. 2007; 5(2):175-184.
15. Sayied NI, Abd-Elaziz NM. Effect of Counseling Sessions as a Nursing Intervention on Depression and Loneliness among Elderly at Assiut City *IOSR Journal of Nursing and Health Science (IOSR-JNHS)*. 2015; (4)6:16-22. e-ISSN: 2320-1959.
16. Wray LA, Alwin DF, McCammon RJ. Social status and risky healthy behaviors: results from the health and retirement study. *J Gerontol*. 2015; (60):85-92.
17. Zofia AS, Agnieszka AB, Anita EA. Health literacy and health among the elderly: status and challenges in the context of the Polish population aging process. 2015;

78:3. Published Online: 2015-12-17 | DOI: <https://doi.org/10.1515/anre-2015-0023>.