

## Health Literacy Program about Health Risk Behaviors among the Elderly in Geriatric Clubs at Assiut City, Egypt

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### Abstract:

**Background:** Elderly people with inadequate health literacy are less mindful of health behaviors significance.

**Study aim:** to detect the effect of health literacy program on health risk behaviors among the elderly.

**Methodology:** Quasi-experimental design was used; the study was carried out at two geriatric clubs (Geriatric club in Legitimacy Assembly and Geriatric club of Islamic cultural center). The program was conducted on participants with low health literacy level; their number was 150 older adults. **Tools:** four tools were utilized.

**Tool I:** Self-administered questionnaire: It includes the socio-demographic characteristics and questions related to health risk behaviors. **Tool II:** Body mass index calculation. **Tool III:** Health Literacy Assessment Scale. **Tool IV:** Rapid Estimate of Adult Literacy in Medicine Scale (REALM). **Results:** adequate health literacy level score increases from 0 at pretest to 78.7%, 76% respectively at post test & follow up test. Also, there was a significant difference between pre and post-test regarding health literacy level  $P < 0.0001$ . **Conclusion:** Low health literacy is associated with health behaviors and poor adherence of prescribed medications. **Recommendation:** Evidence-based communication strategies as 'teach back' method are more effective with clients.

**Key Words:** Health literacy, Elderly, Health risk behaviors, Promotion.

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### I. Introduction

In Egypt, nowadays the percentage of elder people in 2017 is 6.9% and it is expected to rise to 11.5% in 2031. The expected rate of increase of total population from 1996 to 2026 is about 57% while throughout the same period the expected rate of increase among older individuals is about 79% (Central Statistical Processing Center Egypt, 2017).

"Health literacy is the degree to which persons have the capacity to get, understand and process basic health facilities and data so as to create informed and applicable health decisions" (Healthy people association, 2010). Wolf et al., 2015 mention that health literacy is related with problems as preventive services use, delayed diagnoses, understanding one's medical condition, and medical instructions adherence.

The consequences of little health literacy on individuals' health during the past decades received appreciable attention, and the relationship between health and education was more sophisticated (Husson et al., 2015).

Human behavior had a main role within the maintenance of health and the prevention of diseases. Health-risk behavior is defined as any activity done by people with intensity or frequency that increases disease or injury risk. It clusters together into a risky lifestyle. Behavioral patterns of individual poverty or polluted environment may cause much morbidity and mortality; it influences cognitive performance and total quality of life (Hawkins & Anderson, 2014).

More studies documented an association between health risk behaviors higher prevalence and lower educational attainment (i.e., smoking, physical inactivity, over counter medications, Excessive caffeine intake and body mass index [BMI]) as indicator for healthy eating habits. (Wray et al., 2015).

Nursing role in helping to improve health literacy among elderly population involves more than the transmission of health information, helping people to develop confidence to act on that knowledge and support others through personal communication forms. It means also to promote empowerment and greater independence among the elderly individuals and to focus on overcoming barriers to health promotion (Miller, 2015).

### **Significance of the study:**

Inadequate HL is most prevalent among elderly people (Kobayashi et al., 2015). The relation between health outcomes and HL could be shown through health behaviors, elderly individuals with inadequate HL are less mindful of health behaviors significance (Södergren & Salmon, 2012). The prevalence of low HL among older adults' care givers in Egypt is 75.0%. Also, low HL is associated with increasing incidence of health risk behaviors (Abd Al-Rahman, 2014). The percentage of limited comprehensive health literacy was 81% among attendees' of outpatient clinics at Hospitals of Ain Shams University, Egypt (Almaleh et al., 2017). So, this study was suggested to study the effect of health literacy program for old adults about health risk behaviors.

**Study aim:** To improve health literacy among older adults about health risk behaviors.

### **Study hypothesis:**

- Improve health literacy level (HLL) of elderly people after program implementation.
- Reduce health risk behaviors among elderly people after program implementation.
- Increase awareness regarding hazards of health risk behaviors among elderly people.

## **II. Methodology**

**Research design:** Quasi-experimental design.

**Setting:** The study was conducted in two geriatric clubs at Assiut city (The Geriatric club in Legitimacy Assembly and the Geriatric club of Islamic cultural center).

### **Sampling:**

Convenient sample was used to assess HLL among elderly participants. The assessment was done for 200 elderly participants. The program was conducted on participants who had low health literacy level. Their number was 150 and they were taken from the previous mentioned settings.

**Study tools: four tools were used in data collection: -**

**Tool I: Self-Administered Questionnaire:** It was developed by the researchers, based on relevant literature, *It*

*includes five parts: Part one:* Socio-demographic data as, age, gender, marital status, income,....etc. **Part two:** Chronic diseases assessment as diabetes, hypertension, and cardiovascular disease. **Part three:** Questions to assess the poly-pharmacy as number of drugs used per day, self use of drugs, and self-stopping of drugs ...etc.

**Part four:** Questions to assess the eating habits among elderly participants as frequency of meals, vegetables, fruits, caffeine and amount of water per day. **Part five:** Questions to assess the physical exercises as practice regular exercises & frequency of exercise /week (1, 2, 3, 4 times / week) (NHIS 1995 and modified in 2013).

**Tool II: Body mass index calculation (BMI):** By measuring height & weight then calculate body mass index by divided weight in kilograms on height in squared meters (WHO, 2015). Underweight (<18.5), Overweight (25.0-29.9), Normal (18.5-24.9) and Obesity ( $\geq 30.0$ ).

**Tool III: Health Literacy assessment questions: -** to assess HLL using three self-report screening questions, from a confirmed health literacy tools (Chew et al., 2008).

1. How often do you have someone helps you read hospital resources?
2. How self-assured are you when you are filling out medical formulae by yourself?
3. How often do you have problems learning about your medical?

**Scoring system:** Participants answered questions on a 3-point Likert scale, (always, sometimes, and never) scores ranging (0, 1, and 2) respectively. The participants were classified into a group with adequate health literacy and a group with inadequate health literacy.

**Tool IV: Rapid Estimate of Adult Literacy in Medicine (REALM):- Davis, et al. (1993):** This tool includes 66 words that elderly read aloud & pronounce correctly, each within five seconds.

**Scoring system:** score was added up the number of words pronounced correctly, 0-18 words 3<sup>rd</sup> grade or below, while 19-44 words 4<sup>th</sup> to 6<sup>th</sup> grade, also 45-60 words 7<sup>th</sup> to 8<sup>th</sup> grade and 61-66 words high grade of health literacy. Elderly with high education were clever to read most patient-education supplies.

### **Validity & Reliability of the tools: -**

Tools were tested for their content validity by a group of five experts in community and gerontological health nursing. The required modifications were done. Testing reliability of the study tools was done by to alpha Cronbach test and the test result was  $r = 0.8$ .

### **I. Administrative stage**

Official letter of approval was attained from the Dean of the Nursing Faculty, to managers of geriatric clubs in Assiut city. The letter included an approval to carry out the study, the nature and purpose of the study.

### **II. Pilot study**

A pilot study was carried out on 10 older adults who were excluded from the sample to test tools clarity and to estimate the time needed for fulfilling it. Based on the pilot study results, the necessary modifications in sheets were done.

### **III. Ethical Consideration**

The proposal of research was approved by the ethical committee at Faculty of Nursing, Assiut University. There was no risk for participants during research application. Elderly participants had right to agree or refuse to participate in the study without any rational at any time.

### **IV. Data collection stage**

The study started from 15<sup>th</sup> of March 2017 to 30<sup>th</sup> of December 2017. The assessment began from 15<sup>th</sup> of March 2017 to 15<sup>th</sup> of April 2017. The assessment was done on all the study sample (200) elderly participants; the data was collected 3 days per week. The self-administered questionnaire filled by the elderly themselves. The length of each interview took from 25-30 minutes. The researcher was available in the club to answer any questions and for further explanations. The educational program and follow up were implemented in eight months (from the 1<sup>st</sup> of May to the end of December 2017) for 75% (150 elderly) who were divided into 30-38 groups with low health literacy, each group consist of 4-5 participants. One group was met every three days/week to implement the program at 3 sessions each session took 3-4 hours, there was a break between each hour.

#### **Educational program:**

The educational program was developed based on relevant literatures. Brochure and an educational booklet was prepared which included a summarized simple information about definition, types, impact of health risk behaviors, and health promotion of healthy behaviors.

#### **1. General objective of the Health Literacy Program:**

- ❖ To improve healthy behaviors among elderly patients.

#### **2. Specific objectives:**

- ❖ Detect the health risk behaviors among elderly before the implementation of the program.
- ❖ Plan health literacy program about health risk behaviors.
- ❖ Implement & evaluate health literacy program about health risk behaviors.

#### **3. Content of the Health Literacy Program:** The program includes 2 parts:

##### **A. Theoretical part:**

It includes definition, types, impact of health risk behaviors, health promotion of healthy behavior and recommendations for health risk behavior change.

##### **B. Practical part:**

It includes calculation of (BMI) and physical exercise as; balance, stretching, and flexibility exercise.

#### **Program stages:**

**I- Assessment stage:** Assessment of health risk behaviors among elderly participants. At this stage the educational program was designed.

**II- Planning stage:** Arrangement of program conducting was done; sessions and time of the program decided, other facilities were checked as teaching place, handout and audiovisual aids.

**Teaching Time:** decided according to clubs' time table & elderly time.

**Teaching place:** the program was conducted in clubs' garden, clubs' halls and some days in Paradise Park. This arrangement was done with the directors of the clubs.

**Teaching methods and materials:** include simple teaching methods; as lectures, discussions power-point, demonstration, re-demonstration, media as pictures, handouts, posters & videos.

III- **Implementation phase:** Before beginning the first session, an orientation to the program and its purpose was done to elderly participants, each session started by a revision about what was given during the previous session and the objectives of the new topics.

**Number of sessions and time:**

*The health literacy program was given in three sessions.*

- The 1<sup>st</sup> session included definitions, types and impact of health risk behaviors on health.
- The 2<sup>nd</sup> session included health promotion of healthy behaviors and recommendations for health risk behavior change as physical activity, good healthy eating habits, poly-pharmacy prevention, caffeine and smoking cessation.
- The 3<sup>rd</sup> session included calculation of BMI and physical exercises as general exercises for elderly which include; balance, stretching, and strengthening exercise.

IV- **Evaluation phase:** to evaluate the elderly health risk behaviors through immediate posttest.

V- **Follow up:** was done after one month to evaluate the health risk behaviors among elderly.

**III. Results**

**Table (1):** showed that 94.7% of the studied elderly participants aged 60-69 years, with mean 65.58±3.31. Also, 60.7% and 2.0% respectively of them had secondary education, and university education.

**Figure (1):** Revealed that 70.0% of the studied participants were hypertensive.

**Table (2):** Illustrated that adequate health literacy level score increases from 0.0% in pre test to 78.7%, 76% respectively in post & follow up test for the studied sample.

**Figure (2):** Showed that there is a significant difference between pre and post test for studied sample concerning health literacy level  $P < 0.0001$ .

**Table (3):** stated that there was a significant relation between age & inadequate health literacy in pre and post-test  $P = 0.009$ , moreover, there was a significant difference between inadequate health literacy and the educational level, current occupation and income in pre and follow up test  $P = 0.000$ ,  $P = 0.036$   $P = 0.000$  respectively.

**Table (4):** Illustrated that there was a significant relation between practicing exercise regularly, body mass index, poly-pharmacy and inadequate health literacy & in pre and post- test  $P = 0.016$ ,  $P = 0.006$ ,  $P = 0.016$  respectively.

**Table (1): Distribution of studied elderly according socio-demographic data in geriatric clubs at Assiut city, 2017 (N=150).**

Socio-demographic data	No.	%
<b>Age (years)</b>		
60-69	142	94.7
>70	8	5.3
<b>Mean±SD</b>	<b>65.58±3.31</b>	
<b>Sex</b>		
Male	12	8.0
Female	138	92.0
<b>Marital status</b>		
Married	134	89.3
Divorced	6	4.0
Widowed	10	6.7
<b>Level of education</b>		
Read & Write	16	10.7
Primary education	40	26.6
Secondary education	91	60.7
University education	3	2.0
<b>Current occupation</b>		
Free business	42	28.0
House wife	28	18.7
Retired	72	48.0
Employer	8	5.3

Residential state		
Spouse	95	63.3
Son	46	30.7
Daughter	2	1.3
Alone	7	4.7
Income		
< 1000 LE	39	26.0
> 1000 LE	111	74.0
Smoking status		
Yes	12	8.0
No	138	92.0

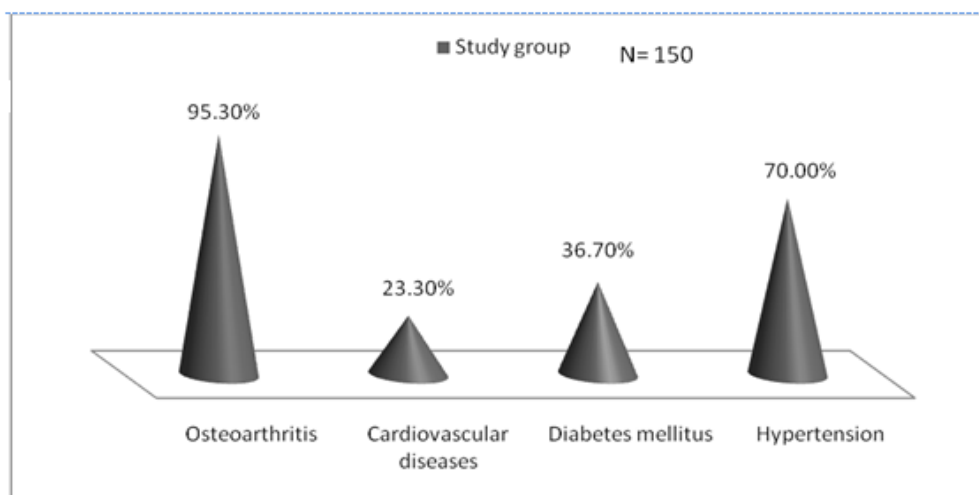


Figure (1) Chronic diseases among elderly participants for study group in geriatric club sat Assiut City, 2017.

Health literacy level (HLL)	No=150						P value 1	P value 2
	Pre test		Post test		Follow up			
	No.	%	No.	%	No.	%		
Adequate health literacy level (High health literacy)	0	0.0	118	78.7	114	76.0	0.000	0.000
Inadequate health literacy level (Low health literacy)	150	100	32	21.3	36	24.0		

\*There is significant difference - Significant at P < 0.05

P1: between pre- test and post -test.

P2: between pre- test and follow up

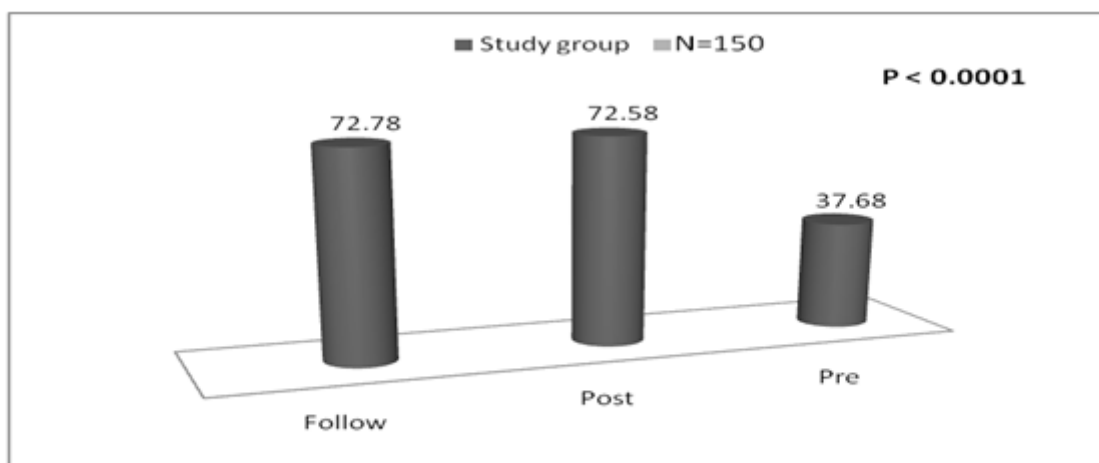


Figure 2: Health literacy level mean score among pre, post and follow up test for study elderly in Geriatric clubs at Assiut city, 2017.

Table (3): Relation between health literacy level and socio-demographic characteristics for study group in geriatric clubs at Assiut city, 2017.

Socio-demographic data	Pre	Health literacy level for study group (N=150)										P 2	P 3	
		Adequate				P 1	Inadequate							
		Post		Follow up			Pre		Post		Follow up			
		No.	%	No.	%		No.	%	No.	%	No.			%
<b>Age (years)</b>														
60-69		116	98.3	110	96.5	0.009*	142	94.7	26	81.3	32	88.9	0.384	0.205
≥70		2	1.7	4	3.5		8	5.3	6	18.7	4	11.1		
<b>Sex</b>														
Male		10	8.5	10	8.8	0.735		.0	2	6.3	2	5.6	0.205	0.617
Female		108	91.5	104	91.2		138	92.0	30	93.7	34	94.4		
<b>Residence</b>														
Urban		117	99.2	113	99.1	0.012*	144	96.0	27	84.4	31	86.1	0.980	0.023*
Rural		1	0.8	1	0.9		6	4.0	5	15.6	5	13.9		
<b>Education</b>														
Read & Write		5	3.3	4	3.5	0.000*	16	10.7	11	34.4	12	33.3	0.930	0.000*
Primary		22	18.6	18	15.8		40	26.7	18	56.3	22	61.1		
Secondary		89	75.4	90	78.9		91	60.6	2	6.3	1	2.8		
University		2	1.7	2	1.8		3	2.0	1	3.1	1	2.8		
<b>Occupation</b>														
Free business		33	28	33	28.9	0.225	42	28.0	9	28.1	9	25.0	0.933	0.036*
House wife		18	15.3	14	12.3		28	18.7	10	31.3	14	38.9		
Retired		62	52.5	62	54.4		72	48.0	10	31.3	10	27.8		
Employer		5	4.2	5	4.4		8	5.3	3	9.3	3	8.3		
<b>Living with</b>														
Spouse		76	64.4	72	63.2	0.153	95	63.3	19	59.4	23	63.9	0.997	0.139
Son		39	33.1	39	34.2		46	30.7	7	21.9	7	19.4		
Daughter		1	0.8	1	0.9		2	1.3	1	3.1	1	2.8		
Alone		2	1.7	2	1.7		7	4.7	5	15.6	5	13.9		
<b>Income</b>														
< 1000 LE		13	95.8	9	7.9	0.000*	39	26.0	26	81.3	30	83.3	0.417	0.000*
> 1000 LE		105	4.2	105	92.1		111	74.0	6	18.7	6	16.7		

\* Significant at P < 0.05

P 1: between post and follow up test.

P 2: between pre and post test.

P 3: between pre and follow up test.

**Table (4):** Relation between health literacy level and health risk behaviors among elderly participants in geriatric clubs at Assiut city, 2017.

Health risk behaviors	Health literacy level for study group (n=150)																										
	Adequate						P 1	Inadequate						P2	P3												
	Pre		Post N=118		Follow up			Pre		Post		Follow up															
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%															
<b>Practicing regular exercise</b>	Not applicable -																										
Yes															86	72.9	64	56.1	0.0162*	45	30.0	3	9.4	4	11.1	0.007	0.020*
No															32	27.1	50	43.9		105	70.0	29	90.6	32	88.9		
<b>BMI</b>	Not applicable -																										
<18.5															10	8.5	10	8.8	0.999	12	8.0	2	6.3	2	5.6	0.006	0.028*
18.5-24.9															29	24.6	28	24.6		30	20.0	1	3.1	2	5.6		
25-29.9															36	30.5	34	29.8		40	26.7	4	12.5	6	16.6		
>30															43	36.4	42	36.8		68	45.3	25	78.1	26	72.2		
<b>Smoking status</b>	Not applicable -																										
Smoker															10	8.5	10	8.8	0.735	12	80.0	2	6.3	2	5.6	0.935	0.617
Non smoker															108	91.5	104	91.2		138	20.0	30	93.7	34	94.4		
<b>Poly-pharmacy</b>	Not applicable -																										
Yes															50	42.4	52	45.6	0.016*	73	48.7	23	71.9	21	58.3	0.619	0.297
No															68	57.6	62	54.4		77	51.3	9	28.1	15	41.7		
<b>Caffeine consumption</b>	Not applicable -																										
Heavy (>3 cups/day)															10	8.5	8	47.4	0.260	53	35.3	8	25.0	10	27.8	0.678	0.389
Light (1-2 cups/day)															108	91.5	106	52.6		97	64.7	24	75.0	26	72.2		

\* Significant at P < 0.05

P1: between post and follow up test.

P 2: between pre and post test.

P 3: between pre and follow up test.

#### IV. Discussion

Inadequate health literacy (HL) is proficiency adversely connected with social factors and health behaviors among elderly, numerous individuals in developed countries had low level of health literacy, which is related with different unwanted outcomes, as poorer self-appraised wellbeing (Taylor et al., 2016).

According to Abou Faddan et al., 2013 who found that most of the studied sample aged 60-69 years with mean age 66 ± 4.6, this in the same line with the current study which explained that most of the studied elderly aged 60-69 years, with mean age 65.58±3.31.

The current study delineated that there was a significant difference between inadequate health literacy & age in pre and post -test, this may be because as people age became not motivated to gain more health information compared to younger ones, this agree with Bas Geboers et al., 2016 who reported that respondents with insufficient health literacy were more expected to be older.

Regarding gender, the current study illustrated that the majority of the studied elderly were females. This result is in contrast with David et al., 2017 who mentioned that the majority of the studied participants were males.

Concerning the level of education, it was observed that only one -tenth of the studied group were only read & write and one quarter of them had primary education. This is similar to Sayied & Abd-Elaziz, 2015 who found that 12.3% of the studied group were only read and write while one- fifth of them had primary education.

Also, the present study showed that there is a statistical significant effect between the educational level of the studied group & inadequate health literacy, as more than half of primary educated participants had inadequate health literacy level, this may be because the educated people had health awareness regarding their health and seeking help as early as possible in reverse to illiterate ones. Furthermore, the current study agrees with David et al., 2017 who found that inadequate health literacy is more common in uneducated elderly people

where less than one-third of participants did not complete high school education compared to those with higher educational attainment.

Also, the present study is in the same line with **Seyed 2012**, who found that inadequate HL was more prevalent among illiterate or could only read and write and reported that there is a significant difference between the educational level & HL level.

Regarding the residential state, it was observed that nearly two third of the studied sample lived with their spouse. This result agrees with **Abd AL-Rahman, 2014** who reported that less than half of the participants lived with their husbands.

Concerning the health literacy level for the studied older adults, the current results reflected that the adequate health literacy level score increased from 0.0% in pre test to 78.7%, 76% in post & follow up test respectively. This result agrees with **Wong, 2012** who studied health literacy programs for older adults and reported that there was improved knowledge related health literacy on post-test scores over pre-test scores.

Also, the present study is in the same line with **Bas Geboers et al., 2016** who reported an increase in the level of participants' health literacy and an increase in the understanding of health condition to make health-related decisions. Also six-month follow-up results demonstrated that participants were still seeking health-related information.

The current study illustrated that, there was a statistical significant effect between inadequate health literacy & practicing regular exercise in pre & post –test. This result agrees with **Bas Geboers et al., 2016** who reported that respondents with insufficient health literacy were significantly more likely to report activity limitations.

Also, the current study agrees with **Bas Geboers et al., 2016** who reported that there was a statistically significant correlation of low health literacy with deficient physical activity. In addition, this result is similar to results reported by **Ahmed 2015**, who reported that low levels of health literacy had negative impact on physical health.

The current study found that there was a significant relation between inadequate health literacy & body mass index in pre & post- test. This is similar to results reported by **Husson et al., 2015** who reported there was a statistical significant effect between inadequate health literacy & BMI.

The current study revealed that there were no significant variances between smoking, caffeine consumption and inadequate health literacy in pre & post- test. This study is in the same line with **Bas Geboers et al., 2016** who reported that there were no statistical significant differences between inadequate health literacy and smoking status.

## V. Conclusion& Recommendations

The present study concluded that: Low health literacy increases with age and with people who had low educational level. Inadequate health literacy had a significant effect on health behaviors and is associated with improper medications use. There is a significant improvement in health literacy level about health risk behaviors among elderly participants in post and follow up test. We can recommend that:

- Use HL assessment tool that assists understanding and responding to clients' needs.
- Teach back effective communication method in learning within consultations with clients.
- Periodic follow up for elderly people to assure understanding health information.
- Health education about health literacy through using effective teaching media as videos, role play, demonstration & re-demonstration.

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