

# Assessment of Comprehensive Health Literacy between the Employees at the Faculty of Medicine Zagazig University

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## **Abstract**

**Background:** Health literacy level is an important indicator and a main corner in determining and improving individual's health status. It has a role in promoting the individuals' awareness with their health problems and increases their ability to gain information about health in order to be empowered and involved in the process of health care. This study aimed to promote health among the administrative of Faculty of Medicine Zagazig University through assessing the level of health literacy among them and identifying factors affecting the level health literacy.

**Method:** The study surveyed a comprehensive sample of the employees at the faculty of medicine. Comprehensive health literacy level was assessed by the Arabic version of the modified European Health Literacy Survey Questionnaire (HLS-EU-Q16).

**Results:** The present study declared that 43.9% of the employees were in the age group  $\geq 50$  years with mean age  $46.2 \pm 10.89$ , female employees represented 52.4% of the studied participants, 69.3% were higher education and 59.8% were high social class. Nearly half of the employees (47.7%) had problematic comprehensive health literacy level. There was significant association between gender, residence, social class and occupational degree and the level of comprehensive health literacy.

**Conclusion:** The employees of the faculty of medicine had problematic comprehensive health literacy level. Gender, residence, social class and occupational degree affect the level of comprehensive health literacy. Gender, residence, internet use and taking medication without prescription constitute 37.1% of the factors that predict CHL score.

**Keywords:** Comprehensive health literacy (CHL); HLS-EU-Q16; Employees.

## **I. Introduction:**

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Health Literacy (HL) has been defined by the WHO as “The cognitive and social skills which determine the motivation and ability of individuals to gain access to, understand and use information in ways which promote and maintain good health”[1] **Glassman, 2010**. The origin of health literacy returned back to the national literacy movement in India under the supervision of Gandhi in order to help groups working in Africa to advocate education and health[2] (**Hernandez, 2013**) whereas the notion of health literacy has been emerged in the united states (US) for more than a few decades[3] (**Rajah et al., 2019**). The term was originally used in US and Canada since 2008 in the health care system and within the public health context[4] (**Pleasant and Kuruvilla, 2008**).

Assessment of Health literacy is crucial because it is directed towards both personal health regarding changing in personal lifestyles and living conditions and towards community health regarding participation in community planning and discussions about issues affecting health[5] (**Batterham, 2016**). People with adequate HL have the ability to read and comprehend health care information[6] (**Wu et al., 2017**). They show better compliance and improvement in self-management of their disease[7] (**Ousseineet al., 2019**). Limited HL has been associated with diminished use of health care services, poor health and increased mortality. Increased hospitalization rates, reduced rates of adherence to medication, decreased capacity to HL [8] (**Berkman et al., 2011**). People with limited health literacy skills reported negative psychological effects as sense of shame and fear about their skill level which leads to ineffective communication with health care providers which can influence health care [9] (**Stewart et al., 2014**). So they may hide the difficulties facing them while reading the vocabularies in order not to feel shame and to maintain their dignity which can lead to poor health outcome [10] (**Noor et al., 2019**).

Comprehensive health literacy (CHL) which represents ability of the individuals to access, obtain, understand, appraise, process and apply health-related information to promote health and/or prevent diseases” [11] (**Wångdahlet al., 2020**). By acquiring these skills individuals can navigate health system through three life events representing the three domains of health:

- a) Health care: being a patient. (during disease)
- b) Disease prevention: being a person at risk of disease. (during risk)
- c) Health promotion: being a person in health. (during health) (**Sørensen et al. 2012**)[12]

In this century, health literacy becomes a global public health goal to enhance health promotion through improving education and communication strategies [13] (**Kim and Lee, 2016**), so it is an important matter to identify the level of health literacy among different countries. This study is concerned with the assessment of HL in Sharkia governorate as there is minimal data regarding measuring health literacy in Egypt.

#### ➤ **Aim of the work:**

This work aimed to promote health status among the employees of the faculty of medicine – Zagazig University through assessing comprehensive health literacy levels and identifying factors affecting its levels.

## **II. Subject and methods:**

### **1- Design and Sample**

A Cross-sectional study was conducted in the faculty of medicine- Zagazig university-Egypt. The study included a comprehensive sample of the employees of the faculty who were 189 employees. Inclusion criteria: all the administrative employees who were at workforce. Exclusion criteria: the administrative employees refused to participate in the research.

## **2- Study tools:**

All subjects, participated in the study, fulfilled the following questionnaires which took about 20-30 minutes to be completed.

a) Socio-demographic data Questionnaire using the socioeconomic scale developed and validated by **Fahmy et al., (2015)** [14]. It includes eight domains with total score of 48. The domains are: subject and partner education, subject and partner past occupation, use of computer, per-capita income, size of family, crowding index, sewage disposal and finally refuse disposal.

b) The Arabic version of the modified European Health Literacy Survey Questionnaire short version (HLS-EU-Q16) to assess CHL [15](**Wångdahl et al., 2014**). This tool consists of 16 items derived from the longer European Health Literacy Survey Questionnaire (HLS-EU-Q47). Valid answer groups were categorized as 'very easy', 'fairly easy', 'fairly difficult', and 'very difficult' with the choice to give an answer of 'do not know' in the modified origin that were analyzed as not answering the question. The scoring consisted of assorting the valid answer groups of the 16 items as:

- Both groups 'very easy' and 'fairly easy' got the value of 'one'.
- Both groups 'fairly difficult' and 'very difficult' got 'zero'

Then overall sum score were calculated and categorized into 'sufficient', 'problematic', and 'inadequate' HL as the following: [11] (**Wångdahl et al., 2020**).

- 1- Scores equal to or more than 13 ( $\geq 81.2\%$ ) denoted sufficient HL.
- 2- Scores from 9 to 12 (56.2% - 75%) denoted problematic HL.
- 3- Scores below or equal to 8 ( $\leq 50\%$ ) denoted inadequate HL.
- 4- Limited HL = problematic HL + inadequate HL.

## **3-Ethical Approvals:**

\*An oral consent was taken from participants in the study.

\*An official written administrative permission letter was obtained from the manager of the faculty. The title and objectives of the study were explained to them to ensure their cooperation.

## **4- Ethical committee:**

Permission from Institutional Review Board (IRB) for medical research ethics, Zagazig University, Faculty of Medicine (ZU-IRB) was taken. ZU-IRB #5288/6-3-2019

## **5- Statistical analysis:**

- Data was collected, tabulated and analyzed statistically by computer using by computer using Statistical Package of Social Services version 22 (SPSS).

- Qualitative data were represented as frequencies and relative percentages.
- Chi square test was used to calculate difference between qualitative variables
- Quantitative data were expressed as mean  $\pm$  SD (Standard deviation).
- The significance Level for all above mentioned statistical tests done, the threshold of significance is fixed at 5% level (P-value). P value of  $>0.05$  indicates non-significant results. P value of  $\leq 0.05$  indicates significant results. P value of  $<0.01$  indicates highly significant results.

### III. Results:

The present study comprised of 189 administrative employees, 43.9% of them were in the age group  $\geq 50$  years with mean age  $46.2 \pm 10.89$ , female employees represented 52.4% of the studied participants, 84.7% were married, 56.1% were from rural areas, 69.3% were higher education, 36.5% were on the general manager occupational degree, 59.8% were high social class and 38.1% had experience more than 30 years (**Table 1**). **Figure 1** cleared that 47.7% of the employees had problematic CHL and 44.4% had sufficient CHL. Regarding to the factors that influence the level of CHL, there was significant statistical relation among gender, residence, social class and occupational degree and the level of CHL (**Table 2**). Residence and social level was positively correlated with the HLQ-EU-16 score (**Table 3**).

### IV. Discussion:

Health literacy is a new area of research that focus on the ability of individuals to access health-related information that promote and maintain good health [16] (**Hæsumet al., 2017**). It is a significant predictor of healthy behaviors and self-care actions [17] (**Miller et al., 2018**). Health literacy is crucial for understanding instructions from doctors, instructions on drug bottles, and includes the capacity to filter important information during the negotiation of the healthcare systems [18] (**Verneyet al., 2019**). The current study was accomplished among the employees of the faculty of medicine and aimed to evaluate the level of HL among the employees and possible risk factors affecting its level.

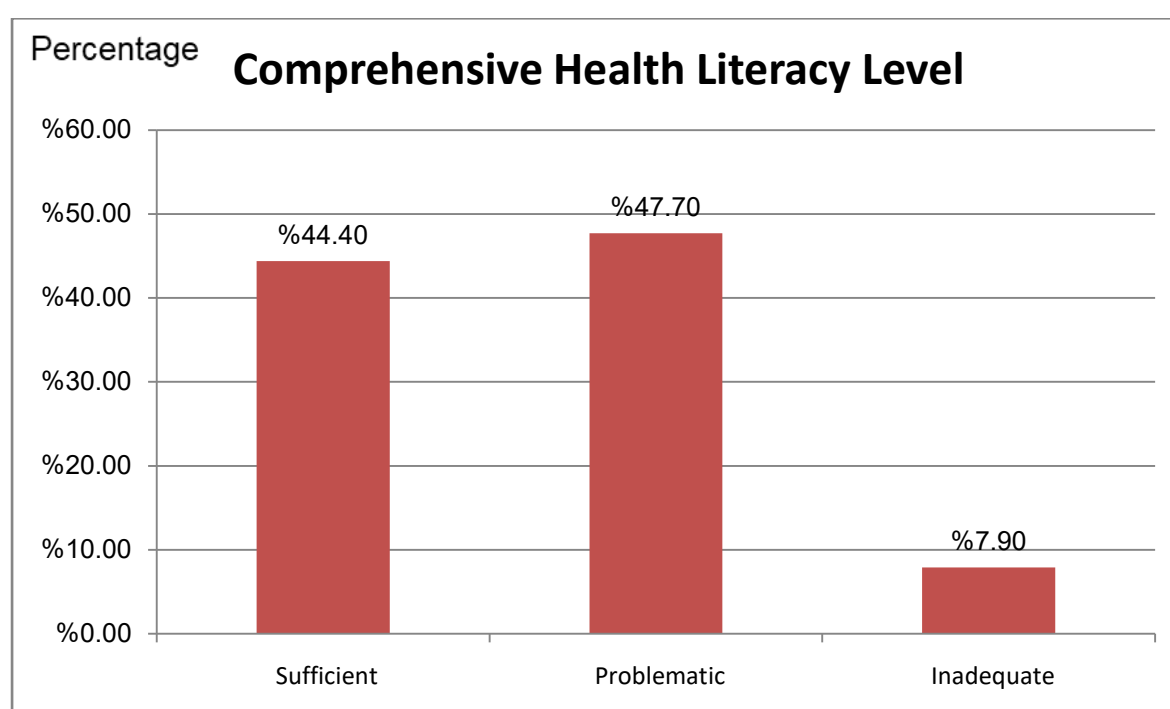
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**Table (1): Socio-demographic characteristics of the studied group:**

Variables	Employees No (189)	
	N	%
Age		

<ul style="list-style-type: none"> <li>• <b>Mean(±)SD</b></li> <li>• <b>Range</b></li> <li>• <b>24-36</b></li> <li>• <b>37-49</b></li> <li>• <b>≥50</b></li> </ul>	46.2±10.89	
	24-60	
	43	22.8
	63	33.3
	83	43.9
<b>Gender</b> <ul style="list-style-type: none"> <li>• <b>Male</b></li> <li>• <b>Female</b></li> </ul>	90	47.6
	99	52.4
<b>Marital status</b> <ul style="list-style-type: none"> <li>• <b>Single</b></li> <li>• <b>Married</b></li> <li>• <b>Widow</b></li> <li>• <b>Divorced</b></li> </ul>	15	7.9
	160	84.7
	10	5.3
	4	2.1
<b>Residence</b> <ul style="list-style-type: none"> <li>• <b>Urban</b></li> <li>• <b>Rural</b></li> </ul>	83	43.9
	106	56.1
<b>Social class</b> <ul style="list-style-type: none"> <li>• <b>High</b></li> <li>• <b>Moderate</b></li> <li>• <b>Low</b></li> </ul>	113	59.8
	74	39.1
	2	1.1
<b>Education</b> <ul style="list-style-type: none"> <li>• <b>Can read and write</b></li> <li>• <b>Secondary or diploma</b></li> <li>• <b>Higher education</b></li> </ul>	4	2.1
	54	28.6
	131	69.3
<b>Occupational degree</b> <ul style="list-style-type: none"> <li>• <b>General manager</b></li> <li>• <b>1<sup>st</sup> degree</b></li> <li>• <b>2<sup>nd</sup> degree</b></li> <li>• <b>3<sup>rd</sup> degree</b></li> </ul>	69	36.5
	21	11.1
	25	13.2

• 4 <sup>th</sup> degree	61	32.3
	13	6.9
<b>Years of experience</b>		
• < 10	33	17.5
• 10- <20	46	24.3
• 20- <30	38	20.1
• >30	72	38.1



**Figure (1): The level of comprehensive health literacy of the studied group.**

**Wångdahl et al. (2018)** revealed that 32.6% of his participants had sufficient CHL level while 67.4% had limited CHL [19]. This is in line with the current study which demonstrated that slightly less than half of the employees (44.4%) had sufficient CHL level while 55.6% of the employees had limited CHL level (**Figure 1**). Our findings are against the study of **Nurjanah and Manglapy (2014)** which reported that more than half of the participants (68.1%) had sufficient CHL, while 31.9% had limited CHL and this can be explained by that the participants were students of the faculty of health science and their curriculum are related to health that helped them to have high health literacy level [20].

The current study is consistent with **Sørensen et al. (2015)** who declared that men had lower level of health literacy than females [21]. **Almaleh et al. (2017)** reported that this difference between male and female may be explained by that mostly females are concerned with the matter of health and diseases than males and females are usually the caregivers for their families and had more experience due to frequent exposure to

healthcare services and more adapted with medical information, so they perceived less difficulty than males in the matters related to disease prevention and health promotion [22]. The findings are compatible with **Haghdooost et al. (2015)** who demonstrated a high statistical significant relation among gender, residence, occupation and the level of health literacy of the participants (**Table 2**)[23].

**Table (2): Relationship between socio-demographic factors and level of CHL of the employees:**

Variables	Comprehensive health literacy level							
	Sufficient		Problematic		Inadequate		$\chi^2$	P value
	(N=84)		(N=90)		(N=15)			
	N	%	N	%	N	%		
Age								
• 24-36 (n=43)	15	34.9	25	58.1	3	7.0	5.423	0.256
• 37-49 (n=63)	26	41.3	33	52.4	4	6.3		
• ≥50 (n=83)	43	51.8	32	38.6	8	9.6		
Gender								
• Male (n=90)	25	27.8	55	61.1	10	11.1	19.489	<0.001
• Female (n=99)	59	59.6	35	35.3	5	5.1		
Marital status								
• Single (n=15)	5	33.3	10	66.7	0	0.0	4.502	0.609
• Married (n=160)	71	44.4	75	46.9	14	8.8		
• Widow (n=10)	6	60.0	3	30.0	1	10.0		
• Divorced (n=4)	2	50.0	2	50.0	0	0.0		
Residence								
• Urban (n=106)	63	59.4	38	35.8	5	4.8	22.377	<0.001
• Rural (n=83)	21	25.3	52	62.7	10	12.0		

Social class									
<ul style="list-style-type: none"> <li>• <b>High</b> (n=113)</li> <li>• <b>Mode</b> rate (n=74)</li> <li>• <b>Low</b> (n=2)</li> </ul>	59	52.2	48	42.5	6	5.3	29.750	<0.001	
	25	33.8	42	56.8	7	9.5			
	0	0.0	0	0.0	2	100.0			
Occupational degree									
<ul style="list-style-type: none"> <li>• <b>General manager</b> (n=69)</li> <li>• <b>1<sup>st</sup> degree</b> (n=21)</li> <li>• <b>2<sup>nd</sup> degree</b> (n=25)</li> <li>• <b>3<sup>rd</sup> degree</b> (n=61)</li> <li>• <b>4<sup>th</sup> degree</b> (n=13)</li> </ul>	35	50.7	30	43.5	4	5.8	24.640	0.002	
	15	71.4	4	19.0	2	9.5			
	13	52.0	12	48.0	0	0.0			
	14	23.0	38	62.3	9	14.8			
	7	53.8	6	46.2	0	0.0			

Variables	Comprehensive health literacy level							$\chi^2$	P value
	Sufficient (N=84)		Problematic (N=90)		Inadequate (N=15)				
	N	%	N	%	N	%			
<b>Educational level :</b>  • <b>Can read and write</b> (n=4)  • <b>Secondary or diploma</b> (n=54)  • <b>Higher education</b> (n=131)	1	25.0	2	50.0	1	25.0	6.325	0.176	
	18	33.3	32	59.3	4	7.4			
	65	49.6	56	42.7	10	7.6			



Years of experience								
• < 10 (n=33)	13	39.4	17	51.5	3	9.1	4.943	0.551
• 10- <20 (n=46)	19	41.3	25	54.3	2	4.3		
• 20- <30 (n=38)	14	36.8	20	52.6	4	10.5		
• >30 (n=72)	38	52.8	28	38.9	6	8.3		

**Table (3): Correlation between total score of HLQ-EU-16 items and factors affecting health literacy level:**

Variables	HLQ-EU-16 score	
	r	P
1- Marital status	0.064	0.384
2- Residence	0.317	<0.001
3- Social level	0.255	<0.001
4- Occupational degree	0.079	0.299

The current study revealed that there was statistically significant strong positive correlation between residence and social level and the HLQ-EU-16 score (**Table 3**). This is in line with **Sorensen et al. (2015)** who reported in the European survey that social status was positively correlated with the level of health literacy[21].

## V. Conclusion:

From the previous results we concluded that 47.7% of the employees of the faculty of medicine had problematic CHL, while 44% had sufficient CHL.

Gender, residence, social class and occupational degree are significantly associated with the level of CHL of the employees.

## VI. Recommendations:

- Further studies are needed to assess health literacy in other areas in order to identify other factors that affect the level of health literacy.

- Assessment of the customer's level of satisfaction with the health insurance services is needed.
- Further health promotion activities are needed to improve the individuals' level of HL.

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