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The association between health literacy and smoking (Hookah and Cigarette) among the young men in Sirjan, Iran

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ABSTRACT

Background: Smoking is one of the most important risk factors for chronic diseases in the world and its use is growing rapidly among the adolescents and youth. Health literacy is one of the major personal abilities in order to acquire, interpret and understand health information to prevent and control health problems. This study aimed to determine the association between health literacy and smoking among the young men in Sirjan, Iran.

Methods: The present study was a descriptive and analytical cross-sectional study done on 200 males aged 18–24 selected by *stratified random sampling*. Demographic and health literacy questionnaires were used for data collection. Data were analyzed by SPSS 18 and by chi-square test and logistic regression.

Results: The mean age of the subjects was 20.7 ± 2.4 years, 38% did not smoke, 16% used cigarettes and 46% used hookah. Only 16% of those who used hookah had adequate health literacy. All variables except father's occupation and residence showed a significant correlation with health literacy. Based on logistic regression, there was a significant association between smoking and health literacy and its constructs (accessing, reading skill, perception, evaluation, and usage).

Conclusion: The findings indicate that young men in Sirjan have inadequate health literacy about the dangers of smoking. Therefore, proper education based on the health education model is recommended to enhance health literacy and promote healthy behaviors.

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Health literacy; smoking; young; Iran

Introduction

Smoking is one of the major risk factors for chronic and non-communicable diseases such as cardiovascular and respiratory diseases, cancer and stroke (Cuo-Mu, Ren-Yong, Feng, Ping, & Qian, 2011). According to the report of the World Health Organization (WHO), tobacco was related to the death of 100 million people in the twentieth century, and if current trends continue, it can cause the death of one billion people in the twenty-first century (Mazloomy Mahmoodabad et al., 2018). It is expected that by the year 2030; mortality related to tobacco will increase to more than 8 million people annually, in which more than 80% of these deaths will occur in low-income or developing countries (WHO 2013).

Most smokers begin smoking regularly before they are 21 years old (Pasharavesh, Khoshbo, Rezaei, & Saiedi, 2010). Studies have revealed that if people start smoking in young age, their risk of nicotine dependence will be much larger (Karimi, Kaveh, Morowatisharifabad, Dehghani, & Dastjerdi, 2017). Resistance of youth against temptation is weaker, because they are under more pressure from their peers (Sadeghi, Mohseni, & Khanjani, 2014) and if their peers or older children smoke at school or university, they will intend to smoke, as well (WHO 2015).

Understanding the factors that affect the health of the youth is particularly important and one of these factors is health literacy and its effect on human health (Sajjadi, Hosseinpour, Sharifian Sani, & Mahmoodi, 2016). Health literacy refers to the ability of individuals to obtain, process, and understand basic health information and the services needed to make appropriate health-care decisions (Zarcadoolas, Pleasant, & Greer, 2005). The aims of health literacy are to facilitate effective health communication and improve health information technology and strategies in order to improve health care, establish justice in healthcare and thereby improve human health (Smith, Dixon, Trevena, Nutbeam, & McCaffery, 2009). The most important way for planning health services in a country is to first become aware of the status of health literacy in the community and try to overcome the adverse effects of insufficient health literacy (Chew, Bradley, & Boyko, 2004). Without measuring health literacy and its associated risk factors beforehand, interventions may not lead to favorable outcomes (La Vonne and Zun 2008).

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Studies in Iran showed low levels of health literacy among different groups (Peyman & Abdollahi, 2016; Sajjadi et al., 2016). People with inadequate health literacy and misunderstanding of health information usually have more health problems (McKinnell, 2015). These people try to seek health services only after they have reached a critical state (Ferguson, 2008).

Objectives

This study was conducted in order to evaluate the association between health literacy and smoking in young men in Sirjan, Iran in 2016.

Materials and methods

Study design

This study was a descriptive and analytical cross-sectional study.

Participants

Young men aged between 18 and 24 years in Sirjan, located in the southeast of Iran, were enrolled into this study in 2016.

Methods

Participants were selected from the health centers in Sirjan. According to a similar study (Mohseni, Khanjani, Iranpour, Tabe, & Borhaninejad, 2015), the sample size was calculated by assuming a 95% confidence level, $p = 30\%$ and the accuracy of 7% ($d = 0.07$) to be atleast 164 people. This study enrolled 200 people.

The method of sampling was stratified random sampling. Initially, Sirjan was divided into two parts, the North and South; and then from each part four health centers were selected; and 25 young men were chosen from each center by random sampling and through drawing numbers.

The inclusion criteria for this study were the willingness of individuals to participate in the study, and age between 18 and 24 years. The exclusion criteria were their unwillingness to participate in this research.

Ethical considerations

The study protocol was approved by the institutional review board (IRB Code: IR.SSU.SDH.REC.1396.134). All participants were informed about the aim of this study and informed consent was inquired from the participants.

Assessment tools

Two questionnaires were used in this study: 1. A demographic questionnaire which included nine questions about age, smoking (cigarettes and/or hookah), paternal education, maternal education, the parents' smoking status, the smoking status of friends, father's job, and place of residence.

2. A self-administered health literacy questionnaire was also used. This questionnaire was short and easily implemented. The questionnaire included; 6 questions about accessing health information, 4 questions about reading skills, 7 questions about perception, 4 questions about evaluation and 12 questions about usage that were scored on a Likert`s scale. The score of always, often, sometimes, rarely and never was from 4 to 0. The range of scores for accessing was 0–24, for reading skills was 0–16, for perception 0–28, for evaluation 0–16 and for usage 0–48. Total health literacy score was the sum of the 33 question scores and was 0–132. Health literacy was classified into insufficient (0–80), borderline (81–101) and sufficient (102–132) according to the final score.

The initial draft of the questionnaire was prepared by reviewing studies in this area. The content and face validity of the questionnaire was approved by 10 experts of health education (Montazeri et al., 2014; Sørensen et al., 2012; von Wagner, Knight, Steptoe, & Wardle, 2007). The test–retest method was used to determine the reliability of the questionnaire. The questionnaire was completed 2 times with a 2-week interval by 20 young men who were not part of the study group. The correlation coefficient between the answers of the two set of replies were calculated. The correlation for accessing questions was 0.85, for reading skills 0.73, for perception 0.77, for evaluation 0.83 and for usage 0.84.

Statistical analysis

Data analysis was done by SPSS 18. Descriptive statistics including the mean, standard deviation, or percent of demographic variables and health literacy levels were determined. Logistic regression and chi-square tests were used in order to determine the association between health literacy and individual characteristics. The significant level of the tests was less than 0.05.

Results

The average age of the participants was 20.7 ± 2.4 years and all were male; 38% were non-smokers, 16% smoked cigarettes and 46% smoked hookah.

Only 16% of people who smoked hookah had adequate health literacy. Among the demographic variables, father's occupation and place of residence did not show a significant relation with health literacy. Higher levels of paternal and maternal education showed a significant relation with health literacy. Other demographic variables are shown in (Table 1).

The average health literacy score of participants was 89.4 ± 2.6; 24% of the participants had adequate health literacy, 36% had borderline health literacy and 40% had inadequate health literacy.

The participants had lower health literacy in the areas of accessing and understanding health information than other areas of health literacy (Table 2).

The results represent a significant inverse relation between smoking and the health literacy constructs (accessing, reading skills, perception, evaluation, and usage). In other words, as health literacy increases the likelihood of smoking decreases. (Table 3)

Discussion

This study evaluated the relation between Health Literacy and Smoking (Hookah and Cigarette) among the young men in Sirjan, Iran. The results showed that their smoking was related

Table 1. The relation between personal characteristics and health information literacy rate in the young men of Sirjan.

Demographic characteristics		Number (%)	Inadequate health literacy number (%)	Borderline health literacy number (%)	Adequate health literacy number (%)	*P*-value*
Status of smoking in a student during last month	Not used	(38) 76	18 (24)	30 (40)	28 (36)	>0.001
	cigarette	(16) 32	8 (26)	15 (46)	9 (28)	
	hookah	(46) 92	42 (45)	36 (39)	14 (16)	
Paternal education	illiterate	(8) 16	7 (43.75)	6 (37.5)	3 (18.75)	0.003
	Elementary	(33.5) 67	27 (39)	24 (36)	16 (25)	
	Secondary education	(36) 72	24 (33.3)	27 (37.5)	21 (29.2)	
	Collegiate	(22.5) 45	9 (19)	19 (42)	17 (39)	
Maternal education	illiterate	(9) 18	7 (39)	6 (34)	5 (27)	0.007
	Elementary	(32.5) 65	23 (35)	22 (34)	20 (31)	
	Secondary education	(38) 76	20 (26)	35 (46)	11 (28)	
	Collegiate	(20.5) 41	6 (14.6)	20 (48.7)	15 (36.7)	
Smoking status of father	Yes	(33.5) 67	30 (44.7)	28 (41.8)	19 (13.5)	>0.001
	No	(66.5) 133	57 (42.8)	58 (43.6)	18 (13.6)	
Smoking status of mother	Yes	(24.5) 49	21 (42.8)	20 (40.8)	8 (16.4)	>0.001
	No	(75.5) 151	64 (42.3)	60 (39.7)	27 (18)	
Smoking status of friends	Yes	(43.5) 87	42 (48.2)	39 (44.8)	16 (7)	>0.001
	No	(56.5) 113	47 (41.5)	52 (46)	14 (12.5)	
Father's occupation	Employed	(86.5) 173	70 (40.6)	78 (45)	25 (14.4)	0.07
	Unemployed	(13.5) 27	11 (40.7)	12 (44.4)	4 (14.9)	
Place of residence	City	(53.5) 107	35 (33.3)	49 (45.7)	23 (21)	0.203
	Village	93 (46.5)	29 (31)	40 (43)	24 (26)	

* chi-square

Table 2. The level of health literacy in different health literacy constructs, in Sirjan city.

The scope of health literacy / The level of health literacy	Accessing number (%)	Reading skill number (%)	Perception number (%)	Evaluation number (%)	Usage	Total number (%)
Inadequate	87 (43.5)	85 (42.5)	86 (43)	85 (42.5)	84 (42)	80 (40)
Borderline	64 (32)	80 (40)	79 (39.5)	73 (36.5)	77 (38.5)	72 (36)
Adequate	49 (24.5)	35 (17.5)	35 (17.5)	38 (19)	39 (19.5)	48 (24)

Table 3. The relation between smoking (smoking versus non-smoking) and the constructs of health literacy.

	Crude OR (95% CI)	p-Value*	Adjusted OR (95% CI)	p-Value *
Accessing	0.53	0.001	0.64	0.003
Reading skill	0.72	0.028	0.61	0.001
Perception	0.95	0.075	0.89	0.039
Evaluation	0.87	0.041	0.73	0.024
Usage	0.97	0.098	0.91	0.049

with inadequate health literacy. Also, it appeared that there were statistically significant associations between health literacy and parent's education and the smoking status of parents and friends. The results of Cho's study also revealed a relation between inadequate health literacy and some demographic variables which were age, gender, education and health status (Cho, Lee, Arozullah, & Crittenden, 2008).

The results of this study showed that most participants had borderline or inadequate health literacy. Lee et al. showed that 30% of adults in Taiwan had inadequate or borderline health literacy (Lee, Tsai, Tsai, & Kuo, 2010) and a study in seven provinces of Iran in 2007, showed that 56.6% of people had inadequate health literacy (Tehrani Banihashemi et al., 2007). Researchers believe health literacy affects health status and health-care behaviors (Paasche-Orlow et al. 2006). Therefore, inadequate or borderline health literacy can threat public health.

Also, there is a significant relation between smoking and the constructs of health literacy (accessing, reading skills, perception, evaluation and usage). The study of the La Vonne et al. in the USA (Vonne et al., 2008) and Wagner and et al. in England showed a relation between smoking and health literacy (von Wagner et al., 2007) and are similar to the results of this research. Health staff and then mass communication media (radio and television) are important health information resources that can increase people's health literacy.

Illiterates often gain their necessary information from non-print sources, including friends, family, radio and television (Andrus & Roth, 2002). Health literacy is the result of literacy, training, and experience; and teaching and training the youth appropriately should be made mandatory in the educational system of countries (Sanders, Shaw, Guez, Baur, & Rudd, 2009).

Regular communication of health professionals with vulnerable groups, particularly the young men and spending more time and energy to promote their health literacy, designing theory-based educational interventions with the assistance of health education specialists, health promotion, education and culture-building practices through mass media, especially TV and radio can be an effective way to increase health literacy among individuals and the society.

Limitations

This study had limitations. We were not aware about the cultural and social backgrounds of the individuals. The lack of some administrators and parent cooperation was another

limitation, in which we tried to attract their cooperation by justifying the benefits of the research. In this study, the computer and internet literacy of individuals was not considered.

Conclusion

The level of health literacy about the harms of smoking was insufficient among the young men in Sirjan. Health education and health promotion programs should be implemented to increase people's health literacy levels and eventually reduce smoking among young men.

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Disclosure of potential conflicts of interest

The authors have no conflicts of interest to declare for this study.

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Authors' contributions

RS helped design the study, carried out data collection, data analysis, and drafted the manuscript. NK carried out the statistical analysis and interpretation. SM conceived the study, supervised the data collection and analyses, and helped draft the manuscript. HF and MR edited and commented on the final draft. All authors read and approved the final manuscript.

References

Andrus, M. R., & Roth, M. T. (2002). Health literacy: A review. *Pharmacotherapy: the Journal of Human Pharmacology and Drug Therapy*, *22*(3), 282–302. doi:10.1592/phco.22.5.282.33191

Banihashemi, T., Seyed-Arash, M., Amirkhani, A., Haghdoost, A. A., Alavian, S.-M., Asgharifard, H., … Ranjbar, S. F. (2007). Health literacy and the influencing factors: A study in five provinces of Iran. *Strides in Development of Medical Education*, *4*(1), 1–9.

Chew, L. D., Bradley, K. A., & Boyko, E. J. (2004). Brief questions to identify patients with inadequate health literacy. *Health No*, *11*, 12.

Cho, Y. I., Lee, S.-Y. D., Arozullah, A. M., & Crittenden, K. S. (2008). Effects of health literacy on health status and health service utilization amongst the elderly. *Social Science & Medicine*, *66*(8), 1809–1816. doi:10.1016/j.socscimed.2008.01.003

Cuo-Mu, Z. H. A. X. I., Ren-Yong, L. I., Feng, J. I. N., Ping, S. U. N., & Qian, Z. H. A. N. G. (2011). Overweight, physical activity, tobacco and alcohol consumption in a cross-sectional random sample of adults of Tibeten China with gallstone disease. *Chinese Journal of Clinicians*, *5*(2), 431–434.

Ferguson, B. (2008). Health literacy and health disparities: The role they play in maternal and child health. *Nursing for Women's Health*, *12*(4), 286–298. doi:10.1111/j.1751-486X.2008.00343.x

Karimi, M., Kaveh, M. H., Morowatisharifabad, M. A., Dehghani, A., & Dastjerdi, G. (2017). Cigarette smoking experience and its related socio-demographic and environmental risk factors in high school boy students, Shiraz-Iran. *International Journal of Pediatrics*, *5*(2), 4263–4274.

Lee, S.-Y. D., Tsai, T.-I., Tsai, Y.-W., & Kuo, K. N. (2010). Health literacy, health status, and healthcare utilization of Taiwanese adults: Results from a national survey. *BMC Public Health*, *10*(1), 614. doi:10.1186/1471-2458-10-614

Mahmoodabad, M., Saeed, S., Sadeghi, R., Fallahzadeh, H., Rezaeian, M., Bidaki, R., & Khanjani, N. (2018). Validity and reliability of the Preventing Hookah Smoking (PHS) questionnaire in adolescents based on the protection motivation theory. *International Journal of Pediatrics*, *6*(10), 8327–8337.

McKinnell, R. G. (2015). *The understanding, prevention and control of human cancer: The historic work and lives of Elizabeth Cavert Miller and James A. Miller*. Netherlands: Brill.

Mohseni, M., Khanjani, N., Iranpour, A., Tabe, R., & Borhaninejad, V. R. (2015). The relationship between health literacy and health status among elderly people in Kerman. *Iranian Journal of Ageing*, *10*(2), 146–155.

Montazeri, A. L. I., Tavousi, M., Rakhshani, F. A. T. E. M. E. H., Azin, S. A., Jahangiri, K., Ebadi, M., … Motamedi, A. M. I. R. (2014). *Health Literacy for Iranian Adults (HELIA): Development and psychometric properties*.

Paasche Orlow, M. K., Cheng, D. M., Palepu, A., Meli, S., Faber, V., & Samet, J. H. (2006). Health literacy, antiretroviral adherence, and HIV-RNA suppression: A longitudinal perspective. *Journal of General Internal Medicine*, *21*(8), 835–840. doi:10.1111/j.1525-1497.2006.00527.x

Pasharavesh, L., Khoshbo, S., Rezaei, M., & Saiedi, M. R. (2010). Frequency and related factors of smoking in high school girls in Kermanshah (2004). *Journal of Kermanshah University of Medical Sciences (J Kermanshah Univ Med Sci)*, *13*(4), 309.

Peyman, N., & Abdollahi, M. (2016). The relationship between health literacy and self-efficacy physical activity in postpartum women. *Journal of Health Literacy*, *1*(1), 5–12.

Sadeghi, R., Mohseni, M., & Khanjani, N. (2014). The effect of an educational intervention according to hygienic belief model in improving care and controlling among patients with hypertension. *Journal of Rafsanjan University of Medical Sciences*, *13*(4), 383–394.

Sajjadi, H., Hosseinpour, N., Sharifian Sani, M., & Mahmoodi, Z. (2016). Association between health literacy and life style in married rural women in Izeh, Iran. *Journal of Health*, *7*(4), 479–489.

Sanders, L. M., Shaw, J. S., Guez, G., Baur, C., & Rudd, R. (2009). Health literacy and child health promotion: Implications for research, clinical care, and public policy. *Pediatrics*, *124*(Supplement 3), S306–S314. doi:10.1542/peds.2009-1162G

Smith, S. K., Dixon, A., Trevena, L., Nutbeam, D., & McCaffery, K. J. (2009). Exploring patient involvement in healthcare decision making across different education and functional health literacy groups. *Social Science & Medicine*, *69*(12), 1805–1812. doi:10.1016/j.socscimed.2009.09.056

Sørensen, K., Van Den Broucke, S., Fullam, J., Doyle, G., Pelikan, J., Slonska, Z., & Brand, H. (2012). Health literacy and public health: A systematic review and integration of definitions and models. *BMC Public Health*, *12*(1), 80. doi:10.1186/1471-2458-12-80

von Wagner, C., Knight, K., Steptoe, A., & Wardle, J. (2007). Functional health literacy and health-promoting behaviour in a national sample of British adults. *Journal of Epidemiology & Community Health*, *61*(12), 1086–1090. doi:10.1136/jech.2006.053967

Vonne, L., Downey, A., & Zun, L. S. (2008). Assessing adult health literacy in urban healthcare settings. *Journal of the National Medical Association*, *100*(11), 1304–1308.

World Health Organization. 2013. *Tobacco fact sheet No 339*. Updated July 2013.

World Health Organization. 2015. *WHO report on the global tobacco epidemic 2015: raising taxes on tobacco*: World Health Organization.

Zarcadoolas, C., Pleasant, A., & Greer, D. S. (2005). Understanding health literacy: An expanded model. *Health Promotion International*, *20*(2), 195–203. doi:10.1093/heapro/dah609