

Determinants of Understanding and Satisfaction with Health Education by Patients in Primary Healthcare

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Abstract

Objectives: The aim of the study is to measure the percentage of patients receiving health education services regarding diagnosis, treatment, prevention, health promotion, and its relation to the satisfaction level in primary healthcare (PHC) centers in Abu Dhabi, United Arab Emirates. **Patients and Methods:** This is a cross-sectional study using a questionnaire targeting the population aged 18 and above who attend PHC centers in Abu Dhabi Island. A total number of 333 participants were enrolled in this study. **Results:** About 89.6% of participants reported receiving health education regarding diagnosis, treatment, prevention, and health promotion. 81% of health education was delivered by the physician using verbal methods, 94.4% of the participants reported it to be the most preferred method. A relationship was found between health education and satisfaction level ($P = 0.000$). 86.4% were satisfied with the health education service they received. The main reasons of satisfaction included provider medical knowledge 43.6% and good communication skills 41.2% ($P = 0.045$). A correlation was found between patient satisfaction and the continuity of care of participants as 88.2% who are satisfied reported will revisit the same physician ($P = 0.000$). **Conclusions:** Majority of the patients received health education about diagnosis, treatment, prevention, and health promotion. Most of them preferred a verbal method to be delivered by a physician. Moreover, participants who received health education found to be more satisfied and complaint with their follow-up as well as recommend the physician to others. The main reason for dissatisfaction was the provider's poor medical knowledge and poor communication skills. Therefore, physicians may need training courses to achieve better communication skills and to improve medical knowledge delivered to patients.

Keywords: Abu Dhabi Island, health education, primary health care, satisfaction, United Arab Emirates

INTRODUCTION

Health education is recognized as an important factor in achieving better health-care outcomes. Higher patient satisfaction with the provided educational services has been linked to improvements in health outcomes and the overall quality of health care.^[1,2] Hence, health-care providers with knowledge on how patients perceive the provided health education and measuring their satisfaction helps in identifying areas of improvement making the system more effective as a whole.^[3,4] Assessing patient's satisfaction is important for physicians, health-care administrators, and patients to ensure the standards of health care are being met and maintained. Studies have shown that satisfied patients are not only more likely to return for further care but also to recommend the primary care center to others.^[3,5,6] Satisfied patients also tend to develop better relationships of trust with health-care providers that are linked to better adherence to physician treatment recommendations

leading to better health outcomes.^[7,8] Health education is an effective way to spread knowledge and encourage the population to lead better lifestyles, which in turn, prevents diseases as well as reduces the complications that follow. This approach, in particular, is cost-effective in improving the population's health status, but only a few studies have examined the link between patient education and satisfaction in primary care settings.^[6,9]

To our knowledge, studies in the Gulf countries on health education and satisfaction are scarce. Two studies from Saudi

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Arabia were most similar to what we are addressing, as they also measured patient satisfaction with health education services at primary health-care (PHC) centers in Riyadh.^[10,11] Studies were numerous at the international level. A study conducted in Taiwan measured patient satisfaction with the recommendation of primary care providers and highlighted associations of perceived quality and patient education. Patient education was related to both overall satisfaction and recommendation.^[6]

Due to the limited studies in the literature, we aimed to measure the proportion of patients being educated regarding diagnosis, treatment, prevention, and health promotion taking into consideration sociodemographic differences and to assess the correlation between satisfaction and health education.

PATIENTS AND METHODS

Study design and population

This cross-sectional study was conducted among the adult population attending the Ambulatory Healthcare Services' Primary Health-care Clinics in Abu Dhabi Island. The two primary care clinics in Abu Dhabi Island are Al Bateen and Al Rowdha. The target population were men and women above the age of 18 attending the primary care clinics for acute or chronic complaints. All participants voluntarily signed a consent form after receiving a clear explanation on the objectives of the study.

A sample of 367 participants was calculated using equation and estimation of satisfaction percentage 68% based on a previous study. The participants were distributed proportionally between both clinics based on the rate of attendance in each clinic per year. Nonprobability convenience sampling was used as participants were selected according to their availability in the primary health-care clinics.

The self-administered questionnaires were distributed proportionally to both primary care clinics. The nursing staff invited patients that met the inclusion criteria attending both clinics using a convenience nonrandom collection sampling until the required number of patients participated as mentioned above.

Study instrument

The questionnaire was adapted from two similar studies conducted in Saudi Arabia and Taiwan.^[6,10] An informed consent form was obtained before participation. Both the informed consent and questionnaire were in both Arabic and English. Both charge nurses in each clinic were briefed regarding the content of the questionnaire and trained to answer patient's inquiries if asked and asked to provide envelopes and to ensure the patients know that their anonymity, and the confidentiality of their information will be maintained.

The questionnaire included a total of 23 questions that began with seven questions addressing the sociodemographic information about the participating patients. Two questions documented the type of visit as this would affect the type of education received by the patient. This was followed by eight

questions assessing the health education during the visit and concluded with five questions relating to patient satisfaction.

Questions that intended to assess the type of visit inquired about whether this was the first visit or it was a follow-up appointment as well as the type of chief complaint, and whether the visit was for an acute or new complaint, chronic or continuing complaint, both, or for health promotion such as counseling or screening. The question then proceeded to ask whether education was received regarding the current medical condition or not. Those who answered know were asked to proceed toward the end of the questionnaire with question 15 to ask about different screening advice was given as advised by the most current family medicine guidelines globally. Those who did receive medical education regarding their condition were asked who provided the education and whether it was the doctor, health educator, nurse, dietician, or pharmacist, and later assessed who they preferred of them to provide the education. The questionnaire next inquired about the type of education was received and whether it was about the diagnosis, treatment (both pharmacological and nonpharmacological), as well as health promotion. The next question inquired about the different methods used by the health-care provider for the education and whether it was verbal, demonstration, drawing, brochure, or website and video, and later assessed what their preferred method of health education was. The section assessing the medical education provided ended with a scale rating their level of understanding from 0 meaning nothing was understood to 10 meaning the patient feels confident with what was explained and how much they understood. We considered (0–3) as poorly understood, (4–6) as somewhat understood, and (7–10) as well understood. We then asked those who answered no to whether health education was provided why they believe it was not, assessing whether they believed it was due to the health-care provider's lack of knowledge in the subject, time constraint, health education being unnecessary, the patient themselves being in a hurry, or they do not know why that happened.

The questionnaire then assesses the patient's satisfaction with the provided health education received during the consultation and asked to mark whether they were not satisfied, neutral, or satisfied. The next questions assessed the reason behind being satisfied or unsatisfied and inquired whether it was due to the health-care provider's medical knowledge, communication skills, methods of explanation, or confirming their understanding after the consultation. The questionnaire concluded with questions about whether they would return to see the same doctor in the next visit and recommend the doctor to someone else or not.

Data collection

The questionnaires were distributed to the charge nurse at each Al Bateen and Al Rowdha clinics proportionally. Both charge nurses in each clinic were briefed regarding the content of questionnaire and trained to answer participant inquiries if asked and to provide envelopes and to ensure the participants know that their anonymity, and the confidentiality of their information will be maintained. The charge nurse then collected them at the end of the shift. The questionnaires were

periodically collected until the target number of participants was reached. Data collection process took place between December 2016 and May 2017.

Data analysis

Data were transferred to a Microsoft Excel Sheet and later analyzed using the Statistical Package for the Social Sciences (SPSS Inc. Released 2009. PASW Statistics for Windows, Version 18.0. Chicago: SPSS Inc.). The means and standard deviation were used for numerical variables, and percentages were used for categorical variables. $P < 0.05$ was taken to indicate statistical significance.

RESULTS

Sociodemographic and clinical aspects

A total of 367 questionnaires disturbed, 333 participants returned completed questionnaires (90.7%). One-third of the participants in the study sample were aged 31–40 years, 68.7% were female. 71% are married, and 53.3% had bachelor or diploma. Among participant, 45% were UAE nationals [Table 1]. Majority of participants (71.4%) attended to clinic for follow-up, while the other (28.6%) came for the first visit new complain. About one third of participants came seeking help for an acute condition, and over one quarter of them presented for health promotion [Table 1].

Health education and level of understanding

Majority of patients 89.6% received health education; Most of this education was provided by doctor (81%), followed by nurses, pharmacist, health educator and dietitians 3.7% [Table 2]. About two thirds of the participants (63.2%) received education regarding their diagnosis and health prevention/promotion, while under half received education regarding pharmacological treatment and quarter on nonpharmacological treatment [Table 2]. The most commonly used method of education is verbally (94.4%), followed by brochure, demonstration, web/video, and drawing [Table 2]. Most of participants (87.8%) understood the education they received well, while 9.9% had some understanding, and a few participants had a poor understanding [Table 2].

Factors affecting understanding

Factors affecting the understanding of the education provided are detailed in Table 3. Those aged 60 and above had a better understanding from their point of view than younger ages 18–30-year-old (100% compares to 83.7%; $P = 0.46$). Gender, as well as education level, did not affect the understanding level of participants ($P = 0.83, 0.29$, respectively). Understanding among UAE national (82.6%) was less compared to expats (91.2%; $P = 0.007$). Moreover, unemployed have a better understanding than others ($P = 0.001$). On the other hand, the type of visit either acute or chronic, health promotion, or both is not affecting the level of understanding ($P = 0.29$).

Participants level of education affected their level of understanding, 89.5% of those who have above bachelor degree have good understanding compared to 79.2% who have

Table 1: Sociodemographic and clinical characteristics of the study participants (n=333)

Characteristics	n (%)
Age (years)	
18-30	96 (28.9)
31-40	108 (32.5)
41-50	73 (22)
51-60	32 (9.6)
61+	23 (6.9)
Gender (male/female)	104/228 (31.3/68.7)
Nationality (UAE/Expat)	149/182 (45/55)
Highest formal education	
Below high school	26 (7.9)
High school	86 (26.1)
Diploma/bachelor	176 (53.5)
Postgraduate	41 (12.5)
Marital status	
Single	71 (21.5)
Married	237 (71.6)
Widowed/divorced	23 (6.9)
Occupation	
Student	30 (9.1)
Employed	206 (62.8)
Unemployed	71 (21.6)
Retired	21 (6.4)
Type of encounter	
First visit	94 (28.6)
Follow-up	235 (71.4)
Condition description	
Acute/new complain	103 (34.1)
Chronic	74 (24.5)
Both	38 (12.6)
Health promotion	87 (28.8)

UAE: United Arab Emirates

below high school degree ($P = 0.29$). There was a significant relationship between verbal and web method of education and understanding ($P = 0.003, 0.005$), respectively. Participants with a higher level of understanding of their health problem were more satisfied ($P = 0.002$). Most (89.8%) of those who had a higher level of understanding regarding their health were satisfied compared with some who were neutral and a few who were not satisfied [Table 3].

Factors affecting satisfaction

Factors that affect satisfaction among participants are given in detail in Table 4. Age affects satisfaction level. Satisfaction among 60 years of age and above was reported to be 100% which is higher than younger ages ($P = 0.019$). However, the satisfaction level is not related to gender, education level, and type of visit ($P = 0.62, 0.66, \text{ and } 0.29$, respectively). 88.7% of participants who received education are satisfied ($P = 0.000$). Medical knowledge of health education provider playing a major role in satisfaction level of the participant, 43.6% of them satisfied because of providing good medical knowledge followed by provider good communication skills 41.2%,

Table 2: Health Education and level of understanding of participants (n=333)

Variable	Number (valid %)	
	Yes	No
Received education	294 (89.6)	34 (10.4)
Health-care provider		
Doctors	238 (81)	56 (19)
Health educators	12 (4.1)	281 (95.1)
Nurses	180 (61.2)	114 (38.8)
Dietitians	11 (3.7)	283 (96.3)
Pharmacists	47 (16)	247 (84)
Health education content		
Diagnosis	193 (63.9)	109 (36.1)
Pharmacological treatment	131 (43.4)	171 (56.6)
Nonpharmacological treatment	74 (24.5)	228 (75.5)
Prevention/health promotion	191 (63.2)	111 (36.8)
Mode of delivery of health education		
Verbal communication	285 (94.4)	17 (5.6)
Demonstration	29 (9.6)	273 (90.4)
Drawings and illustrations	12 (4)	290 (96)
Brochure	46 (15.2)	256 (84.8)
Using website/video	15 (5)	287 (95)

confirmation patient understanding 12.7%, and 2.4% other methods used by providers for explanation ($P = 0.045$). On the other hand, half of participants were not satisfied due to poor medical knowledge of the health-care provider, the other reason of dissatisfaction is poor communication skills 25%, and 25% of participant dissatisfied as there is no confirmation of patient understanding about his/her health condition ($P = 0.48$). 88.2% of participants who visit the same doctor have a higher satisfaction rate compared to 53.3% who visited other doctor ($P = 0.000$) [Figure 1 and Table 5].

DISCUSSION

At the end of the visit, 86.4% who attended PHC centers in Abu Dhabi were satisfied with health education service that they received, while 12.4% neutral and 1.2% were not satisfied. UAE has a higher satisfaction rate compared to the satisfaction level in one study conducted in Saudi Arabia 67%.^[10] The majority of participants preferred the physician as a health education provider; this finding is compatible with the study in Saudi Arabia.^[10] Since physicians seemed to be the preferred primary source of health education by patients, it becomes of paramount importance to improve the physician health education knowledge and communication skills to yield higher satisfaction

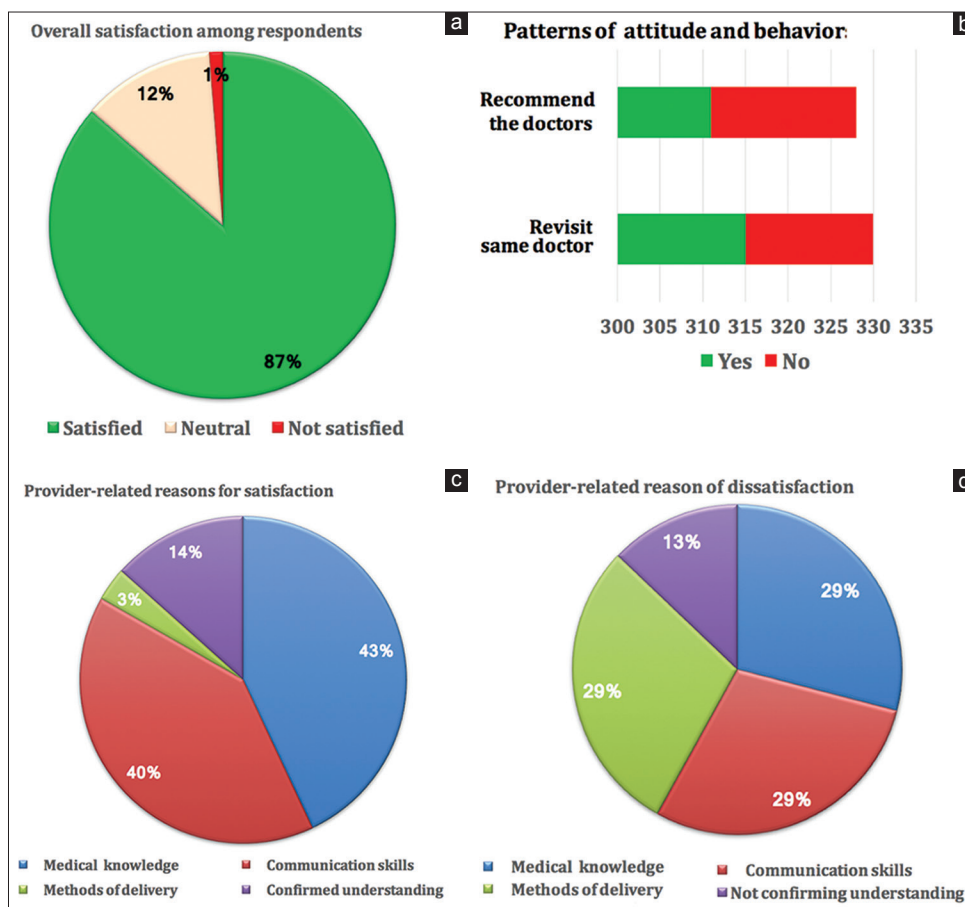


Figure 1: The overall level of satisfaction (a) implications of future attitudes and behaviors toward provider choice (b) and the provider-related reasons of satisfaction (c) and dissatisfaction (d) of participants (N333)

Table 3: Factors affecting extent of understanding among participants (n=333)

Variable	Poorly understood (0-3)	Somewhat understood (4-6)	Well understood (7-9)	P
Participants	7 (2.3)	30 (9.9)	267 (87.8)	
Age (years)				
18-30	0	14 (16.3)	72 (83.7)	0.46
31-40	2 (1.9)	11 (10.7)	90 (87.4)	
41-50	4 (6.6)	3 (4.9)	54 (88.5)	
51-60	1 (3.3)	2 (6.7)	27 (90)	
61+	0	0	23 (100)	
Gender: male/female	2 (2.1)/5 (2.4)	11 (11.3)/19 (9.2)	84 (86.6)/182 (88.3)	0.835
Nationality (UAE/Expat)	2 (15.9)/5 (2.9)	21 (15.9)/9 (5.3)	109 (82.6)/156 (91.8)	0.007
Educational level				
Below high school	1 (4.2)	4 (16.7)	19 (79.2)	0.294
High school	2 (2.7)	12 (16.2)	60 (81.1)	
Diploma/bachelor	3 (1.8)	11 (6.7)	150 (91.5)	
Above bachelor	1 (2.6)	3 (7.9)	34 (89.5)	
Marital status				
Single	0	9 (14.5)	53 (85.5)	0.376
Married	6 (2.7)	18 (8.2)	195 (89)	
Divorced/widow	1 (4.8)	2 (9.5)	18 (85.7)	
Occupation				
Student	0	9 (36)	16 (64)	0.001
Employed	4 (2.1)	16 (8.3)	172 (89.6)	
Unemployed	2 (3.2)	3 (4.8)	57 (91.9)	
Retired	0	2 (10)	18 (90)	
Visit type				
First visit	3 (3.6)	7 (8.4)	73 (88)	0.610
Follow-up	4 (1.8)	22 (10.1)	191 (88)	
Condition description				
Acute	0	8 (8.3)	88 (91.7)	0.292
Chronic	1 (1.4)	4 (5.6)	66 (93)	
Both	1 (2.7)	5 (13.5)	31 (83.8)	
Health promotion	3 (4.2)	9 (12.5)	60 (83.3)	
Education provider (yes/no)				
Received education (any)	7 (2.4)/0	25 (8.7)/4 (33.3)	256 (88.9)/8 (66.7)	0.017
Doctors	5 (2.1)/2 (3.6)	21 (9)/3 (5.5)	207 (88.8)/50 (90.9)	
Health educator	2 (18.2)/5 (1.8)	0/24 (8.7)	9 (81.8)/247 (89.5)	
Nurse	2 (1.1)/5 (4.5)	16 (9)/8 (7.3)	160 (89.9)/97 (88.2)	
Dietician	0/7 (2.5)	1 (11.1)/23 (8.2)	8 (88.9)/249 (89.2)	
Pharmacist	1 (2.2)/6 (2.5)	3 (6.5)/21 (8.7)	42 (91.3)/215 (88.8)	
Education methods (yes/no)				
Verbal	5 (1.8)/2 (11.8)	25 (8.9)/4 (23.5)	251 (89.3)/11 (64.7)	0.003
Demonstration	0/7 (2.6)	2 (6.9)/27 (10)	27 (93.1)/235 (87.4)	
Drawing	0/7 (2.4)	2 (16.7)/27 (9.4)	10 (83.3)/252 (88.1)	
Brochure	1 (2.2)/6 (2.4)	6 (13)/23 (9.1)	39 (84.8)/223 (88.5)	
Web/video	2 (13.3)/5 (1.8)	3 (20)/26 (9.2)	10 (66.7)/252 (89)	
Preferred method of education				
Verbal	2 (1.3)	13 (8.7)	134 (89.9)	0.001
Demonstration	0	2 (13.3)	13 (86.7)	
Drawing	1 (33.3)	1 (33.3)	1 (33.3)	
Brochure	1 (12.5)	0	7 (87.5)	
Web/video	0	3 (30)	7 (70)	
Preferred education provider				
Doctor	4 (3.9)	12 (11.7)	87 (84.5)	0.701
Health educator	0	1 (20)	4 (80)	
Nurse	0	0	15 (100)	

Contd...

Table 3: Contd...

Variable	Poorly understood (0-3)	Somewhat understood (4-6)	Well understood (7-9)	P
Dietitian	0	0	0	0.701
Pharmacist	0	0	0	
Level of satisfaction				
Not satisfied	0	2 (50)	2 (50)	0.002
Neutral	0	8 (23.5)	26 (76.5)	
Satisfied	7 (2.7)	20 (7.6)	237 (89.8)	
Satisfaction-dependent behaviors (yes/no)				
Revisit same doctor	6 (2.1)/1 (8.3)	29 (10)/1 (8.3)	256 (88)/10 (83.3)	0.364
Recommend same doctor	7 (2.5)/0	30 (10.6)/0	246 (86.9) 17 (100)	0.281

Data are given as *n* (%). UAE: United Arab Emirates**Table 4: Factors affecting satisfaction among participants (n=333)**

Variable	Not satisfied	Neutral	Satisfied	P
Participants	4 (1.2)	41 (12.4)	286 (86.4)	
Age (years)				
18-30	0	21 (21.9)	75 (78.1)	0.019
31-40	1 (0.9)	12 (11.2)	94 (87.9)	
41-50	2 (2.8)	5 (6.9)	65 (90.3)	
51-60	1 (3.1)	2 (6.2)	29 (90.6)	
61+	0	0	23 (100)	
Gender (male/female)	2 (1.9)/2 (0.9)	11 (10.6)/29 (12.8)	91 (87.5)/195 (86.3)	0.624
Nationality (UAE/Expat)	2 (1.4)/2 (1.1)	20 (13.6)/21 (11.5)	125 (85)/159 (87.4)	0.829
Educational level				
Below high school	0	4 (15.4)	22 (84.6)	0.665
High school	2 (2.3)	11 (12.8)	73 (84.9)	
Diploma/bachelor	1 (0.6)	19 (10.9)	154 (88.5)	
Above bachelor	0	7 (17.1)	34 (82.9)	
Marital status				
Single	0	7 (9.9)	64 (90.1)	0.712
Married	4 (1.7)	30 (12.8)	201 (85.5)	
Divorced/widow	0	3 (13)	20 (87)	
Occupation				
Student	0	6 (20)	24 (80)	0.353
Employed	1 (0.5)	25 (12.2)	179 (87.3)	
Unemployed	2 (2.9)	8 (11.4)	60 (85.7)	
Retired	1 (4.8)	2 (9.5)	18 (85.7)	
Visit type				
1 st visit	0	6 (20)	24 (80)	0.846
Follow-up	1 (0.5)	25 (12.2)	179 (87.3)	
Condition description				
Acute	1 (1)	17 (16.7)	84 (82.4)	0.292
Chronic	2 (2.7)	7 (9.5)	65 (87.8)	
Both	1 (2.6)	6 (15.8)	31 (81.6)	
Health promotion	0	10 (11.5)	77 (88.5)	
Education provider (yes/no)				
Received education (by any)	2 (0.7)/2 (5.9)	31 (10.6)/10 (29.4)	260 (88.7)/22 (64.7)	0.000
Doctors	1 (0.4)/0 (0)	24 (10.2)/5 (8.9)	211 (89.4)/51 (91.1)	0.852
Health educator	0/1 (0.4)	1 (8.3)/28 (10)	11 (91.7)/250 (89.6)	0.960
Nurse	1 (0.6)/0	17 (9.5)/12 (10.6)	161 (89.9)/101 (89.4)	0.697
Dietician	0/1 (0.4)	1 (9.1)/28 (10)	10 (90.9)/252 (89.7)	0.976
Pharmacist	0/1 (0.4)	2 (4.3)/27 (11)	44 (95.7)/218 (88.6)	0.347
Education method (yes/no)				
Verbal	3 (1.1)/1 (6.2)	29 (10.2)/3 (18.8)	252 (88.7)/12 (75)	0.109

Contd...

Table 4: Contd...

Variable	Not satisfied	Neutral	Satisfied	P
Demonstration	1 (3.6)/3 (1.1)	2 (7.1)/30 (11)	25 (89.3)/239 (87.9)	0.466
Drawing	0/4 (14)	0/32 (11.1)	12 (100)/252 (87.5)	0.426
Brochure	1 (2.2)/3 (1.2)	4 (8.7)/28 (11)	41 (89.1)/223 (87.8)	0.781
Web/video	0/4 (1.4)	4 (26.7)/28 (9.8)	11 (73.3)/253 (88.8)	0.112
Preferred education method				
Verbal	1 (0.6)	17 (10.8)	140 (88.6)	0.000
Demonstration	0	1 (5.6)	17 (94.4)	
Drawing	1 (33.3)	1 (33.3)	1 (33.3)	
Brochure	0	2 (20)	8 (80)	
Web/video	0	3 (25)	9 (75)	
Preferred education provider				
Doctor	1 (0.8)	18 (14.5)	105 (84.7)	0.60
Health educator	1 (14.3)	2 (28.6)	4 (57.1)	
Nurse	0	2 (12.5)	14 (87.5)	
Dietitian	0	2 (28.6)	5 (71.4)	0.60
Pharmacist	0	0	0	
Extent of understanding of education				
Poor (0-3)	0	0	7 (100)	0.002
Intermediate (4-6)	2 (6.7)	8 (26.7)	20 (66.7)	
Good (7-10)	2 (0.8)	26 (9.8)	237 (89.4)	
Understanding-dependent behaviors (yes/no)				
Revisit same doctor	3 (1)/1 (6.7)	34 (10.9)/6 (40)	276 (88.2)/271 (87.4)	0.000
Recommend same doctor	4 (1.3)/0	35 (11.3)/5 (31.2)	271 (87.4)/11 (68.8)	0.056

Data are given as *n* (%). UAE: United Arab Emirates

Table 5: Provider-related factors affecting the level of satisfaction and dissatisfaction among participants (n=333)

Nature of response	Knowledge	Communication	Methods	Confirm understanding	P
Satisfaction					
Neutral	5 (38.5)	3 (23.1)	2 (15.4)	3 (23.1)	0.045
Satisfied	72 (43.6)	68 (41.2)	4 (2.4)	21 (12.7)	
Dissatisfaction					
Neutral	7 (26.9)	7 (26.9)	9 (34.6)	3 (11.5)	0.480
Dissatisfied	2 (50)	1 (25)	-	1 (25)	

Data are given as *n* (%)

rates. The participants preferred the verbal method of education which is consistent with findings in other articles studies.^[8-10] The main reason of satisfaction was the health education provider's good medical knowledge regarding the patient condition. In contrast to the study from Saudi Arabia, in which the quality of printed education material was perceived by patients as the main reason of satisfaction. Furthermore, in the same study^[10], the main reasons of dissatisfaction were long waiting time and issue of continuity of care, while in our study, the main reasons of dissatisfaction, were the provider's poor medical knowledge, poor communication skills, and lack of confirmation on the patient's understanding. The present study found that age had an effect on satisfaction level, satisfaction among elderly is significantly high, similar to the study of Riyadh, Saudi Arabia that showed patient with older age are more satisfied than the younger ages. However, no relation was found between satisfaction and patient gender, and education level, which is a similar finding with other studies. The results of another study

from Saudi Arabia showed that the patients were moderately satisfied with the services. Most interestingly however, they were most satisfied with the effectiveness and humane aspects of care, and least satisfied with the thoroughness and continuity aspects of care.^[11] In the present study, majority of the satisfied participants will revisit the same physician. Patient satisfaction improves continuity of care, strengthens the relationship between physician and patients, which help improve patient compliance, reduces doctor shopping improving quality of care, and results in better health outcome. The outcome of this study is objective based on what the volunteer received during his physician visit. On the other hand, there is no validated scale used to measure the outcome to make it more objective.

The study has some noteworthy limitation. Firstly, the type of sample used being convenience sampling, which may make the results prone to volunteer bias, because those who volunteer to take part may be different from those who choose

not to. Moreover, the sample may not be representative of other characteristics, such as age or sex. Secondly, the survey instrument was adapted from two previous studies^[6,10] and was not subjected to any validation.^[7]

CONCLUSIONS

This study was conducted to assess the health education and satisfaction level for the patient who presented to PHC centers in Abu Dhabi. The results of the study showed most of the participants who attended received health education regarding their problem either acute, chronic, or health promotion. The majority of education was given by the physician through a verbal method, which is the preferred method of participants. The study showed Emirati national participants need more effort and time for a better explanation to improve their level of understanding compared to expats. Younger participants require more attention and time to improve their satisfaction level. Thus, physicians need to address the patient concern and provide adequate knowledge on health problem. Moreover, more awareness is needed regarding the importance of communication skills and primary care center health-care providers may possibly require specific training to improve it. In addition, the study concludes that satisfaction affects the continuity of care, and the satisfied patients would visit and recommend the same doctor.

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Authors' contributions

All authors contributed to the perception, planning, and conduct of the study. They all reviewed and approved the final version of the manuscript.

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Conflicts of interest

There are no conflicts of interest.

Compliance with ethical principles

The study was approved by the Institutional Review Board of Sheikh Khalifa Medical City, and all participants provided written informed consent. Data were stored and analyzed anonymously.

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