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Assessing patients' comprehension of discharge instructions from the emergency department (ED) in Makkah, Saudi Arabia; do emergency department patients receive appropriate instructions before discharge?

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ABSTRACT

Background: Patients visiting the emergency departments (ED) must fully comprehend their discharge instructions and ensure that they fully understood their diagnoses and medical management. In this study, we aimed to estimate the factors influencing the comprehension of patients during their ED visits alongside reviewing the physicians' methods of delivering discharge instructions. *Methods:* This was a cross-sectional study conducted in Makkah, Saudi Arabia targeting all patients visiting the ED in five of the largest hospitals in the city. The data was collected through an interview-based questionnaire via well-trained data collectors and supervised by the authors of this study. *Results:* A total of 425 individuals were interviewed; 80.70% of patients were satisfied about the understanding of the management they received in the ED. Females significantly comprehended their diagnosis more than male patients (OR= 1.432, p= 0.023,). Lower satisfaction rates with handling their concerns seriously in the ED were found among non-Arabic speakers (OR=0.91, p=0.008) and non-Saudi patients. *Conclusions:* Emergency medical staff may consider the factors discussed in this study to better enhance the patients care in ED settings; we found that those with poor education require more attention and those who do not speak Arabic as a main language were taken lightly in ED settings compared to Arabic speakers. The findings listed in this study may help catalyzing the improvement of patients' satisfaction in ED settings.

Keywords: Emergency department, Comprehension, Satisfaction, Discharge

1. INTRODUCTION

Patient counseling and education are important aspects of giving proper healthcare service. Providing patients with adequate knowledge and information about their condition may help them make informed decisions and achieve better clinical outcomes. On the other side, healthcare providers must ensure effective communication and full comprehension of the information they offer patients during patient education. Previous reports indicated that positive communication between patients and their healthcare providers is linked with patient satisfaction and patients' perception of high-quality healthcare (American Academy of Family Physicians, 2000; De-Voe et al., 2009; Gold and Mc-Clung, 2005; Kessels, 2003).

In normal outpatient settings, patient education can be a challenging process. According to a previous study, patients have difficulty recalling 40% to 80% of the medical information they learn from a healthcare provider. Furthermore, almost half of the recalled information is inaccurate (Hoek et al., 2020; Kessels, 2003).

Effective communication in the ED between patients and their healthcare providers depends on several factors. These factors may be related to physicians such as using difficult terminology, the mode of delivering information, whether written or verbal instructions or patient-related factors, such as educational level and emotional state (Hoek et al., 2020; Kessels, 2003).

Moreover, previous studies showed that verbal instructions may not be sufficient for patients to comprehend and recall discharge instructions. Institutions and researchers are trying to explore different approaches to delivering discharge instructions in an attempt to improve patient outcomes (Clarke et al., 2005).

The emergency department (ED) is a primary destination for patients with acute health complaints and is considered the primary contact point between patients and healthcare givers. Moreover, receiving treatment at EDs can be considered a "teachable moment" for uncontrolled chronic patients (Clarke et al., 2005).

Physicians must provide patients with a summary of crucial information regarding their visits, clear instructions regarding self-care and medications, advise them to seek medicalcare when necessary, verify their comprehension and address questions and concerns to avoid further ED visits (Wei and Camargo, 2000).

Furthermore, deciding to discharge a patient from the ED is complex and multifactorial. However, once that decision has been taken, patients must understand how to efficiently continue their care at home. Discharge instructions are considered an important part of emergency patient medical management. Successful discharge from the emergency department requires patients' good understanding of their follow-up, return instructions, diagnosis and treatment. Non-proper patient education at discharge is linked to an increased likelihood of hospital readmission and decreased patient satisfaction (Hoek et al., 2020).

To the best of our knowledge, in Saudi Arabia, there was a lack of accurate assessment regarding patients' understanding of emergency department discharge instructions. Thus, we needed to assess EDs patients' comprehension of discharge instructions and reviewed physicians' methods of delivering discharge instructions to EDs patients in Makkah, Saudi Arabia.

2. METHODOLOGY

Study design and setting

This is a descriptive single-blinded cross-sectional study conducted from October to November 2022 in the ED of five hospitals in Makkah city, Kingdom of Saudi Arabia, including Al-Noor hospital, Heraa hospital, King Abdullah hospital, King Faisal hospital, and King Abdul-Aziz hospital.

Study population

The study included patients discharged home from EDs and aged 18 years or more. On the other hand, the study excluded patients who were discharged against medical advice.

Sample size

It was calculated using the Raosoft online sample size calculator, considering a marginal error of 5%, a confidence level of 95% and maximum uncertainty (50% of positive responses), a minimum of 377 participants were needed to be included in this study.

Data collection

Data was collected using a structured questionnaire by interviewing the patients or one of their relatives. The medical staff was blind to research goals to prevent bias. The data collection tool was divided into the demographic characteristics of the participants, and questions assessed the patients' comprehension of discharge from the ED and patients' satisfaction in the ED.

Ethical approval

The IRB of the directorate of health affairs, Makkah region, approved this study. Before data collection, each participant was informed about the study focus while confirming that all collected data will be kept confidential and will be used for research purposes only. Verbal consent was obtained from each subject before completing the questionnaire shared as a Google form.

Statistical analysis

Data were analyzed using Statistical Package for Social Studies (SPSS 22; IBM Corp., New York, NY, USA). Numerical variables were expressed as mean and standard deviation, while categorical variables were presented as counts and percentages. The Chi-square test was used for categorical variables. Logistic regression was used to estimate the odds ratio. Univariate and multivariate analyses were conducted to assess the correlation between different participant variables and the satisfaction of the experience in the emergency department. The authors listed only relevant satisfaction data to the topic of the research. A p-value of <0.05 was considered statistically significant.

3. RESULTS

The study included 425 participants, including patients, family members and translators (73.9%, 22.6% or 3.5%, respectively). Most participants were from Saudi Arabia, with a mean (±SD) age of 42.1 (± 19.3) years and more than half of the patients were males (55.5%) (Table 1).

Table 1 Demographic characteristics of the patients (N=425)

Variable	Category	Data
Age (years)	Mean± SD	42.1± 19.3
	Median (IQR)	40 (55)
	Interquartile range (IQR)	55
Gender	Male	236 (55.5%)
	Female	189 (44.5%)
Nationality	Saudi	320 (75.3%)
	Non-Saudi	105 (23.7%)
Native Language	Arabic	398 (93.6%)
	Others	27 (6.4%)
Educational Level	Bachelor's degree	162 (38.1%)
	Diploma	31 (7.3%)
	Elementary education	61 (14.4%)
	High school education	98 (23.1%)
	Post-grad Education	19 (4.5%)
	Secondary school education	54 (12.7%)
Subject Identity	Family member	96 (22.6%)
	The patient	314 (73.9%)
	The patient's translator	15 (3.5%)
Previous Conditions	Diabetes mellitus	142 (33.4%)
	Hypertension	134 (31.5%)
	Cardiovascular disease	35 (8.2%)
	Others	114 (26.8%)

The results showed that 78.4% of participants were exposed to the discharge instructions. Most of the instructions were verbal instructions (69.4%), 8.9% were written and only 0.2% was both written and verbal instructions (Table 2) (Figure 1).

Additionally, most patients knew their diagnosis and were prescribed medications for their illness. Meanwhile, only 43% were instructed about the side effects of their prescribed medication and more than 55% were not provided any specific instructions about other treatments (e.g., leg elevating, warm pads, etc.). Moreover, about 68% of the interviewed patients were instructed about the reasons for seeking ED help in the future (Table 2).

Table 2 Assessing patients' comprehension of discharge from emergency department (N=425)

Questions	Category	Count (%)
Do you know your diagnosis/health issue?	Yes	379 (89.2%)
	No	46 (10.8%)
Were you prescribed any medications today?	Yes	373 (87.8%)
	No	41 (9.6%)
	I don't know	11 (2.6%)
Have you been notified of your prescribed medications' side effects and negative effects?	Yes	185 (43.5%)
	No	204 (48.0%)
	No medication prescribed	36 (8.5%)
Were any special instructions given to you about other treatments?	Yes	173 (40.7%)
	No	252 (59.3%)
Were you told about a follow-up plan after your ED visit?	Yes	275 (64.7%)
	No	150 (35.3%)
If so, what was the follow-up plan?	ER visit	64 (15.1%)
	Outpatient clinic visit	117 (27.5%)
	Primary care visit	97 (22.8%)
Were you told of the reasons that you should return to the Emergency Department?	Yes	289 (68.0%)
	No	136 (32.0%)
Did you visit the ED for the same illness before?	Yes	132 (31.1%)
	No	293 (68.9%)
If so, when was the last time you visited the ED for the same illness?	Within the last 24 hours	6 (1.4%)
	Within the last three days	13 (3.1%)
	Within the last week	10 (2.4%)
	Within the last month	22 (5.2%)
	Within the last three months	22 (5.2%)
	Within the last six months	30 (7.1%)
	More than six months	56 (13.2%)
Did the medical team provide you with discharge instructions?	Yes	333 (78.4%)
	No	92 (21.6%)
If so, what were they?	Written Instructions	38 (8.9%)
	Verbal Instructions	295 (69.4%)
	Written\Verbal Instructions	1 (0.2%)
	No	91 (21.2%)

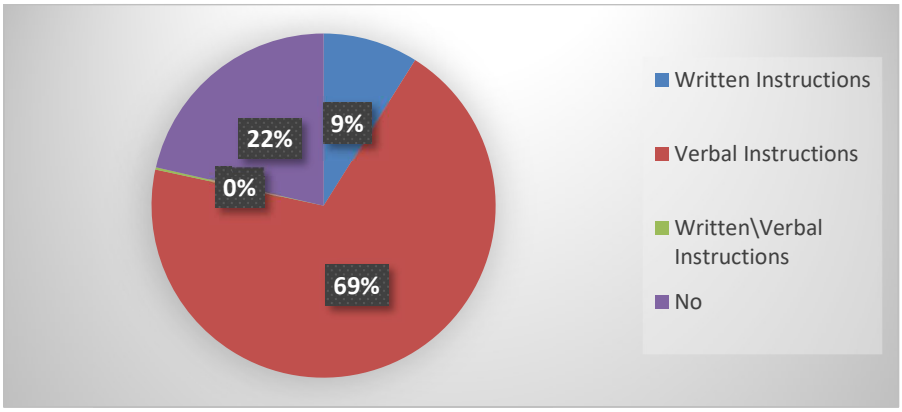

Figure 1 Details about the types of instructions provided in the Emergency Department

Regarding patients' satisfaction during their ED visits; most participants were satisfied with how instructions were introduced by the medical team in the ED. Furthermore, 80.70% of the participants were satisfied with their understanding of the management they received in ED (Table 3).

Table 3 Assessing patients' satisfaction in the emergency department (N=425)

Variables	Level of Satisfaction		
	Satisfied	Neutral	Not Satisfied
The medical team explained information to you in words that you could understand	370 (87.05%)	24 (5.64%)	31 (7.29%)
The medical team spoke at a reasonable rate of speed	366 (86.11%)	37 (8.70%)	5.17 (87.05%)
The medical team gave you enough time to say what you thought was important	336 (79.05%)	44 (10.3%)	45 (10.58%)
The medical team listened carefully to what you had to say	341 (80.23%)	43 (10.1%)	41 (9.64%)
The medical team took your concerns seriously	320 (75.29%)	51 (12%)	54 (12.70%)
The medical team gave you enough information about your medical problem	336 (79.05%)	39 (9.17%)	50 (11.76%)
How would you rate your understanding of the management you received in ED?	343 (80.70%)	44 (10.3%)	38 (8.94%)

The logistic regression analysis showed no significant correlation between understanding the medical condition, management and discharge summary in the ED and each of the patient's age, educational level or native language. On the other hand, there was a significant correlation between the comprehension of the overall ED experience and the gender (p-value=0.023), as females reported that they comprehended their diagnosis, health issue and medical instructions more than male patients (OR= 1.432) (Table 4)

Table 4 Univariate analysis for the correlation between different variables and the comprehension of the emergency department experience (N=425)

Variable	Correlated to	ORs	p-value
Do you understand your diagnosis/ health issue and the management instructions provided in the Emergency Department?	Age	0.543	0.241
	Gender	1.432	0.023*
	Native Language	0.874	0.196
	Educational Level	0.983	0.171

*P-value less than 0.05 is considered significant

When assessing the factors affecting patients' satisfaction with their ED experience through univariate analysis, it was shown that the native language (OR=0.99, p<0.001) and nationality (OR=0.93, p=0.003) affected the ED experience, as non-Arabic speakers and non-Saudis showed lower understating rates of the information they received from the medical staff in the ED. The same goes for taking the patients complains and concerns seriously, where non-Arabic speakers (OR=0.91, p=0.008) and non-Saudis (OR=0.698, p=0.021) were less satisfied with the way of handling their concerns in the ED (Table 5).

Table 5 The correlation between different variables and the satisfaction level with the experience in the emergency department (N=425)

Variable	Factors	P-value	ORs
The medical team explained information to you in words that you could understand.	Education level	0.952	0.343
	Native language	<0.001*	0.99
	Nationality	0.003*	0.93
	Gender	0.1615	1.01
The medical team took your concerns seriously.	Education level	0.557	0.874
	Native language	0.008*	0.91
	Nationality	0.021*	0.698
	Gender	0.286	0.925

*P-value less than 0.05 is considered significant

4. DISCUSSION

Hospital discharge is a multidisciplinary process involving complex medical information and follow-up instructions for discharged patients. At discharge, medical professionals must integrate patients' illnesses, perspectives and needs. In addition, they should explain crucial information, such as diagnosis and treatments. However, patients might not comprehend or retain the information given, which leads to misunderstanding, incorrect interpretation and improper administration of the treatment regimen (Becker et al., 2021). Thus, this study is an important step in exploring ED patients' comprehension of discharge instructions and reviewing physicians' methods of delivering discharge instructions to ED patients in Makkah, Saudi Arabia.

Patients in the ED need to comprehend their discharge information and instructions that could include pieces of advice concerning the management of clinical disorders, appropriate medications use and required follow-up (Gignon et al., 2014). In our survey, 21.2% of the patients did not receive any discharge instructions and a large population was not notified of full instructions, including the medication side effects, the follow-up plan and clear reasons for ED readmission necessity. In a similar study, less than half (42%) of the patients mentioned that they did not receive comprehensive instructions, with the most common domain missed being ED return instructions (20.0%) (Sheikh et al., 2018).

We found that the highest aspects where lack of comprehension occurs are the treatment, medication side effects and follow-up plans. This is similar to a previous study that revealed that most defects in comprehension levels were related to post-ED care medications, ancillary measures and follow-up (Engel et al., 2009). Further similar results were reported in previously published studies that have indicated that patients have higher difficulty in recalling information about their medications and home care (Crane, 1997; Logan et al., 1996).

In addition, in this study, the education level was not a significant factor and had no impact on instruction understanding. However, there were some issues among the non-Arabic speakers and non-Saudis as they were less satisfied with the sufficient explanation of the medical staff about their disorders in the ED. In a similar study, the patients could not understand the instructions due to the language barrier (Carrasquillo et al., 1999). On the contrary, a study by Sheikh H et al., (2018) showed that patients who did not complete high school reported a poor understanding of discharge instructions. Moreover, another study demonstrated that greater than 90% of patients indicated that they had been provided with adequate explanations of instructions after the ED visit (Engel et al., 2009).

ED healthcare providers face challenges in trying to provide high-quality care in the absence of knowledge about the patients' medical history and the most comprehensive instructions could not be clearly understood (Gignon et al., 2014). However, patients must understand the medical instructions and information provided to them to manage their condition after discharge from the ED effectively (Taylor and Cameron, 2000). It was assumed in previous research that patients often have difficulty understanding the discharge instructions provided in the ED. Frequently, written materials may lead to confusion due to patients' literacy (Engel et al.,

2009). Additionally, effective communication between the medical team and patients is an essential aspect of high-quality patient care (Lin et al., 2015).

On the same principle, our results reported that most of the instructions introduced were through verbal ways to be adequately understood by all patients with different education levels. On the contrary, results reported by a previous study indicated that verbal instructions introduced to patients in the ED were not sufficient and written information instructions showed promising results for ED patients (Hoek et al., 2020). In addition, another study by Jolly et al., (1995) indicated that written materials could help patients who cannot understand the standard materials.

Patient satisfaction is an essential measure of healthcare quality because it reveals if the medical staff is successful in exceeding the patients' expectations. Patient satisfaction is also correlated with significant outcomes, including superior compliance, limited medical services utilization and better prognosis. With the present era of elevating medical consumption, assessment of patient satisfaction has become highly important for healthcare providers (Huang et al., 2004). Thus, we assessed the patients' satisfaction with the instruction introduced by the medical team in the ED to highlight their comprehension level. It is of great concern that the findings showed that most patients leave the ED with adequate satisfaction levels, which indicates that the medical care providers succeeded in professionally providing the instructions.

Limitations

Our study assessed the patients' comprehension without exploring the physicians' ability to introduce the appropriate instructions efficiently. In addition, there was no concern about investigating if the time in which the instructions were illustrated is adequate or not. Further studies should assess the defect practice points among the healthcare providers that may contribute to understanding issues and the time in which the instructions were illustrated.

5. CONCLUSION

Reducing ED readmissions has become a priority. Thus, patient guidance is an essential part of reducing readmission interventions. Overall, our study results suggest that we need better strategies to identify patients who have difficulty understanding their cases and instructions in the ED. Furthermore, patients with poor educational levels should be paid more attention to, considering their background. The healthcare provider also should confirm that the patients or one of the relatives understand all the instructions and that there are no issues before discharge. It is recommended to provide videos and recorded instructions and use recent technologies as the audio-visual record in parallel with verbal and written instructions to facilitate understanding of these instructions.

Author contribution

SA: Concept, design, definition of intellectual content, literature search, clinical studies, data acquisition, data analysis, statistical analysis, manuscript editing and manuscript review. SK: Concept, design, definition of intellectual content, literature search, clinical studies, experimental studies, manuscript editing and manuscript review. GA: Literature search, clinical studies, manuscript preparation, manuscript editing and manuscript review. RB: Concept, design, definition of intellectual content, literature search, clinical studies, data acquisition, data analysis, statistical analysis, manuscript editing and manuscript review. MA: Literature search, clinical studies, manuscript preparation, manuscript editing and manuscript review. RA: Supervising the project and reviewing and modifying the manuscript as required.

Ethical approval

This study was approved by the Ethics and Research Review Committee of the Institutional Review Board (IRB), Makkah before starting the study (H-02-K-076-1022-817).

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Informed consent

Written & Oral informed consent was obtained from all individual participants included in the study. Additional informed consent was obtained from all individual participants for whom identifying information is included in this manuscript.

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Conflict of interest

The authors declare that there is no conflict of interests.

Data and materials availability

All data sets collected during this study are available upon reasonable request from the corresponding author.

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