Incident Reporting and its Impact on Quality of Health Care Services in Riyadh, Kingdom of Saudi Arabia

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ABSTRACT

Background: The diversity, scope and variation of in structure of primary health care (PHC) give more opportunity of errors. Awareness of errors and reporting incident's is one key to improve quality of care. This study aimed to assess the PHC provider's awareness and attitude in addition to identify the barriers of reporting the incidents.

Methods: This observational cross-sectional study conducted between February 2013 and November 2014at (Al Wazarat HC) Primary Health Center in Prince Sultan Military Medical City (PSMMC). A sample size of 400 participants was selected using Stratified random sampling technique.

Results: This study shows majority of participants (91%) were aware of the meaning of the incident in health care but only 37.1% had correct knowledge of the definition. The major barrier of reporting was lack of knowledge of whose responsibility to report (55.9%). Overall 91.6% of the participants had attitude that reporting the incidents was important.

Conclusion: Despite of high awareness of PHC providers, their true knowledge and actual practice are low. The lack of knowledge and system factors is main barriers identified.Improving the systems of reporting and staff development and training is an important factor to improve the quality of health services in PHC.

Key words: Incident Reporting. Primary Care Services, Quality, Cross sectional study

{Citation: Al joharah Al obaikan, Ashraf Zayed Al Benayan, Hesham I Al khashan, Ahmed Al awwad, Aboud F Al aboud, Maha Bassim, Adel Mishriky, Umar Yagoub. Incident reporting and its impact on quality of health care services in Riyadh, Kingdom of Saudi Arabia. American Journal of Research Communication, 2015, 3(1): 1-14} www.usa-journals.com, ISSN: 2325-4076.

Introduction

An incident is an unplanned, undesired event that hinders completion of a task and may cause injury or other damage[1]. According to the Concise Dictionary of Modern Medicine,an incident is defined as an event or happening occurring in a health care facility that causes unanticipated harm due to a marked negative deviation from the standard of care[2]. Hence, an incident may result or could have resulted in injury to people or damage to property. If such incidents are reported immediately and properly, this would lead to better management of the consequences, and better planning for prevention of recurrence[3].

The incident reporting behavior differs between medical and nursing professional groups, with nurses reporting significantly more often than doctors[4].Other factors may influence this behavior, which may include personal as well as workplace variables.Moreover, the subjective nature of reports, the lack of consistently and validation of incident data classification, and underreporting constrain incident reporting from being used as a reliable tool to measure the frequency of events and whether interventions are effective in improving patient safety [1, 4-6]The situation is even worse in Primary Health Care settings, where the deficiency of incident reporting and related studies is more prominent[7]. Hence, with the increasing interest in patient

safety issues in the accreditation process, there is a call for more research, action and leadership to promote safety in primary care.

Primary health care is characterized by customized care that responds to individual patient needs, values and preference across a broad spectrum of health care services. Its diversity, scope, and variation in structures and infrastructure may offer more opportunity for errors[8, 9].

The health care system in Saudi Arabia has its unique features that are likely to affect patient safety and reporting culture including its rapid growth and multinational heterogeneous nature of its staffing with their different cultural and training backgrounds[8, 10, 11].Meanwhile, in response to the rising problem of medical errors and increasing media attention and public pressure, the health care organizations have been actively pursuing efforts to improve the quality and safety of their services[12, 13]. Several initiatives have been implemented to improve safety mainly through establishing standards and initiating accreditation schemes. However, despite the rising emphasis on patient safety, little is known about safety culture in Saudi hospitals and primary care settings, and few attempts have been made to evaluate the extent to which safety is a strategic priority or that organizational culture supports patient safety[7, 14, 15].Few studies were done on health care workers' awareness of incident reporting and the barriers hindering its practice in Saudi Arabia[16, 17].

Material and Methods

Study design & sampling method

This was an observational cross-sectional study which was conducted between February 2013 and November 2014 in A wazarat Health Center (a major primary Health Center). Al wazarat

Health Center is located in the Heart OF Riyadh City, the Capital City of Kingdom of Saudi Arabia. The center function under the authority of the Riyadh Military Hospital under the Medical Services Department, The Ministry of Defense. A lwazart Health Center provide health services for the military personnel and their dependents. A sample size of 400 participants was selected using Stratified random sampling technique to access incident reporting among health care providers (doctors, nurses and pharmacies) and its determinants as part of improving the quality of services in the military hospitals in KSA.

Study population

Most of the study participants were military services men and their dependents. They are Saudi national of both sexes. Ethical consideration was obtained from the research ethical committee at the Riyadh military Hospital (Reference Number: 486). This ethical committee is responsible for all ethical issues in all study projects under the military hospital in Riyadh. Approval of Alwazarat Health Center (study area) was obtained prior to the start of the study. All the participants agreed willingly and voluntary to participate and their Privacy and confidentiality were maintained throughout the study period.

Data Collection

Data was collected using self- administered study questionnaire developed by the research team using relevant literature and the experience of the research team. The study instruments consisted of three parts namely part1 for socio-demographic and the other part of the determinants of the incident reporting. The study instrument was in Arabic language, pre-tested on 25 participants who were not allowed to participate in the main study. The study instrument was also tested and retested and then validated before its use.

Data entry and analysis

Collected data was entered into SPSS version 17 for Windows, processed, cleaned and managed before its analysis. Data with missing values were discarded from the study and only data with completed values were analyzed. Descriptive statistics, frequencies and percentages were first calculated. Chi-square Test was used to determine the association between the socio-demographic characteristics, personnel information, job characteristics, qualifications and other relevant variable. P –values less than 0.05 are considered statistically significant.

Results

A total of 383 completed forms were received out of 400 distributed, accounting for a response rate of 95.8%. The participants had almost equal gender distribution as shown in Table 1, and approximately three-fourth of them were below age 40 years. The sample composed mainly of nurses (32.4%), followed by physicians (23.5%), while pharmacists were the least in number (10.2%). Almost one-third of the sample did not report their qualification. The median experience was 5 years, with 2-10 interquartile range.

The majority of participants (91%) were aware of the meaning of incident in health care practice and almost two thirds of them (64.8%) confirmed having read the reporting policy (Table 2). Meanwhile, approximately one-fourth had never seen the forms used for incident reporting. The responses regarding the definition of incident in health care were variable, with the highest percentage (25.8%) agreeing upon the correct definition of "*Event resulting from health care which could have or did lead to unnecessary harm to a person or property.*" At the other extreme, only 6.3% agreed upon the incorrect definition of "*Event or circumstance resulting from health care which led to unnecessary harm to a patient*."

Table 1: Sample description (n=383)

	No.	%
Age (years):		
<30	146	38.1
30-39	144	37.6
40-49	73	19.1
50+	20	5.2
Sex:		
Male	189	49.3
Female	194	50.7
Job position:		
Physician	90	23.5
Pharmacist	39	10.2
Nurse	124	32.4
Technician	57	14.9
Clerk/security	73	19.0
Qualification:[@]		
College	60	15.7
University	128	33.4
Postgraduate degree	71	18.5
Experience years:		
Mean (SD)	6.5 (6.2)	
Median (1^{st} 3^{rd} quartiles)	5.0 (2 10)	

(@) 124 missing

Concerning experience with reporting incidents, Table 3 shows that less than half (44.4%) of the sample mentioned having reported incidents before during their career. The median number of incidents reported during the last year was 2 with an inter-quartile range 1 to 4.

Table 2: Awareness of incident and knowledge of its definition in the study sample (n=383)

	No.	%
Aware of the meaning of incident in healthcare practice	349	91.1
Have read the Incident Reporting Policy in workplace	248	64.8
Have you seen the Forms used in Incident Reporting in workplace	289	75.5
Definition of incident:[@]		
– *Failure of a planned action to be completed*	*78*	*20.4*
– *Injury caused by medical management rather than by an underlying condition of the patient*	*37*	*9.7*
– *Event resulting from health care which could have or did lead to unnecessary harm to a person or property*	*99*	*25.8*
– *Event or circumstance resulting from health care which led to unnecessary harm to a patient*	*24*	*6.3*
– *Event or circumstance resulting from health care which could have or did lead to unnecessary harm to a patient*	*43*	*11.2*

(@) not mutually exclusive

Table 3: Experience with reporting incidents in the study sample (n=383)

	No.	%
Reported an incident before	170	44.4
No. of incidents reported during the last year		
Mean (SD)	3.1 (2.7)	
Median (1^{st} 3^{rd} quartiles)	2 (1 4)	

Table 4: Relation between respondents' awareness of incident definition and their personal and job characteristics

	Awareness of incident definition				Chi-square Test	p-value
	Unaware		Aware			
	No.	%	No.	%		
Age (years):						
<30	18	12.3	128	87.7		
30-39	11	7.6	133	92.4		
40-49	2	2.7	71	97.3		
50+	3	15.0	17	85.0	6.749	0.080
Sex:						
Male	17	9.0	172	91.0		
Female	17	8.8	177	91.2	0.006	0.936
Job position:						
Physician	5	5.6	85	94.4		
Pharmacist	2	5.1	37	94.9		
Nurse	9	7.3	115	92.7		
Technician	5	8.8	52	91.2		
Clerk/security	13	17.8	60	82.2	9.506	0.050
Qualification:[@]						
College	1	1.7	59	98.3		
University	8	6.3	120	93.8		
Postgraduate degree	4	5.6	67	94.4	1.878	0.391
Experience years:						
<=1	7	10.3	61	89.7		
2-5	10	7.4	126	92.6		
6-10	8	9.1	80	90.9		
11+	3	5.0	57	95.0	1.446	0.695
Had previous formal training in quality						
No	26	11.7	196	88.3		
Yes	8	5.0	153	95.0	5.245	0.022*

(*) Statistically significant at p<0.05

Table 5: Relation between respondents' attitude towards incident reporting and their personal and job characteristics

	Importance of incident reporting				Chi-square Test	p-value
	Yes		Uncertain/No			
	No.	%	No.	%		
Sex:						
Male	171	90.5	18	9.5		
Female	180	92.8	14	7.2	0.666	0.415
Age (years):						
<30	128	87.7	18	12.3		
30-39	134	93.1	10	6.9		
40-49	70	95.9	3	4.1		
50+	19	95.0	1	5.0	5.397	0.145
Job position:						
Physician	87	96.7	3	3.3		
Pharmacist	37	94.9	2	5.1		
Nurse	114	91.9	10	8.1		
Technician	50	87.7	7	12.3		
Clerk/security	63	86.3	10	13.7	7.378	0.117
Qualification:[@]	12		35			
College	58	96.7	2	3.3		
University	118	92.2	10	7.8		
Postgraduate degree	65	91.5	6	8.5	1.608	0.448
Experience years:	12		35			
<=1	61	89.7	7	10.3		
2-5	126	92.6	10	7.4		
6-10	80	90.9	8	9.1		
11+	57	95.0	3	5.0	1.446	0.695
Had previous formal training in quality	12		35			
No	200	90.1	22	9.9		
Yes	151	93.8	10	6.2	1.718	0.190

The assessment of the relation between participants' awareness of incident reporting and their socio-demographic characteristics revealed that those who had previous formal training in quality had more awareness, and the difference was statistically significant (p=0.022). Concerning job position, the table indicates that clerks and security had the lowest awareness, but the difference was at p=0.05. The awareness was also lowest at the two extremes of the age categories, but the difference could not reach statistical significance (p=0.080).

Discussion

The study results show that although a majority of the participants were aware of the meaning of incident in health care practice, the true knowledge of definitions and application is low, and less than half of them saw the incident reporting forms and/or used it. Their attitude towards reporting is high.

The current study has shown high awareness about incident reporting among participants. This was noticed in all staff categories, and might be explained by the fact that the study setting (Al Wazarat Health Center) has been recently accredited by the Joint Commission International (JCI) so that the safety culture is widespread among its staff. Thus, although the clerks and security had the lowest awareness, compared to other categories, the difference did not reach statistical significance. In this respect, the accreditation process has been described as challenging, but is a central act for promoting the quality of care in health care settings[18-20].

Despite such high levels of awareness, the true knowledge levels identified among participants is low. This applies to the ability to correctly define an incident and to distinguish a reportable situation. Such discrepancy is quite plausible and reflects the gap between superficial and in-depth knowledge. Moreover, more than one-third of the participants have no idea about the reporting policy, and have never seen or used the incident reporting forms. In congruence with these findings, Logio and Ramanujam in a USA study found even lower rates of participants who have knew how to locate an incident form (22.3%-31.5%)[21, 22].

Nonetheless, awareness and knowledge are inter-related, so that awareness turned to be higher among those who were able to correctly define an incident, and to apply this knowledge to

identify reportable situations. Moreover, the factors that increased participants' awareness of incident reporting are similar to those increasing their knowledge and its application. These factors include the reading of the center's incident reporting policy, and the actual practice of reporting incidents before. While it is clear that the reading of the reporting policy may increase knowledge, it is not as clear whether the practice improved the knowledge or the knowledge led to more practice given the cross-sectional design of the study that lacks temporal relationships[23, 24].

Concerning the present study participants' practice of incident reporting, the findings revealed that less than half of them were able to correctly identify all reportable situations presented to them, and actually practiced the reporting of incidents before. This shortage in the adequacy of simulated and actual practice is expected given the low level of satisfactory knowledge identified in the study sample. This is confirmed by the finding of a significant association between participants' knowledge and previous practice of incident reporting and those who had correct answers in reportable situations. In fact, the lack of knowledge and information was the barrier most frequently mentioned. Similarlywhere only approximately 6-20% of the participants had completed an incident form.[25] Certain personal characteristics were shown to have significant influences on participants' knowledge and practice in the present study. Female participants had more correct answers. For instance, female gender was found to have a positive association with knowledge and situational or simulated practice. This might be explained by more keenness to know among females. However, it might be confounded by other factors such as the job category given the differences in gender distribution in these categories, as well as the experience years. This association needs further study.

Other personal factors that were identified to be significantly related to participants' knowledge are the level of qualification and experience years. Knowledge tended to have an increasing trend with both factors. This is quite plausible since the higher qualification provides the knowledge base, while the experience years accumulate and add to this knowledge base. These findings correlate with other studies that have found differences between doctors and nurses in the likelihood of incident reporting[26, 27].

Furthermore, the present study revealed that the ability of the participants to identify reportable situations was highest among nurses, followed by physicians and pharmacists. This might be explained by the fact that the nursing curricula give more emphasis to quality-related issues, including incident reporting. They also have better training in this area that they consider it primarily theirs. These findings are in congruence with Taylor et al (2004)[28, 29]. Whose study in Washington showed that nurses were almost threefold higher in reporting incidents compared to physicians Also in line with this, a study carried out in Australia demonstrated similar differences between doctors and nurses and attributed it to differences in the cultures of the two professions. The authors explained that as nurses reported more habitually than doctors due to the notion of security and they have a more tendency to follow protocols, while in contrast, the medical culture promotes privacy and is less directive compared with nursing.[29].

Conclusion and Recommendation

The study findings lead to the conclusion that although primary care providers in the study setting have high awareness of and willingness to report incidents, their true knowledge and actual practice are low. Nevertheless, the study findings should be interpreted taking into account its limitations. Thus, a non-responder bias cannot be excluded, as we are unable to collect information on non-respondents due to the anonymity of the survey. Moreover, our findings may only be generalized to similar family medicine health centers since the study setting is one of the largest health centers in Riyadh.

The study recommends the following, more staff development activities for clarification of the definition of incident, classification, criteria of reporting, and the process itself, improvement of the forms to make it anonymous and easier to fill out and the system of reporting should also be as simple as possible to guarantee prompt feedback and constructive changes;

Conflicts of Interests

The authors declare no conflicts of interest. The article reflects the research findings and does not necessarily represent the official views of the sponsors

Authors Contribution

AL joharah ALobaikan was the principle investigator she wrote the proposal, design the study while Aboud ALABOUD and MahaBassimcollected and entered the data Adel Mishriky, Ashraf Zayed Al Benayan , HishamAlkhashan, Ahmad Alawad and Umar Yagoub analyzed the data, wrote and edited the manuscript. All the authors read the final version of this paper and approved it before submission.

Acknowledgments

The authors gratefully thank the Department of Family and Community Medicine, Riyadh Military Hospital for fully funding this study. The authors would like to express their sincere appreciation to participants and staff who assisted in this study.

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