Utilization of Emergency Department from the Perspectives of Saudi Population

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Abstract

Background: *Emergency department (ED) is referred to as a vital component of healthcare system. Due to the quality of medical services, which are provided through emergency department, a wide majority of individuals prefer utilizing ED services, despite having access to primary care centers (PCCs). Visiting ED in non-emergent situations might also cause significant economic burden on the healthcare sector. Moreover, over-crowding and over-utilization of resources might also negatively influence the quality of care services. Aim and objectives: This research aimed to analyze potential factors leading towards the overutilization of the ED resources in Saudi Arabia. The fundamental objective of this research is to quantify the proportion of adult population of Saudi Arabia, who prefer utilization of ED and analyze factors, which are considered by the Saudi population for preferring the utilization of ED services.*

Methodology: *This research was conducted by utilizing the cross-sectional descriptive approach. This approach was most suitable for this research, because it assisted in analyzing the rates of prevalence of diseases or certain health related practices adopted by a particular population. Sample population consisting of approximately 1600 adults of Saudi Arabia were considered for this research. A questionnaire survey was conducted for data collection, such that responses of research participants were acquired from telephone interview.*

Results: *Research outcomes declared that a wide majority of research participants prefer utilizing ED services, because of having high accessibility and improved quality of these services. Moreover, in the light of opinions extracted by other research participants, they prefer utilizing ED services on referral. Research outcomes also demonstrated that despite having access towards services provided by PCC, Saudi adults prefer utilizing ED services.*

Keywords: *Emergency department (ED), Healthcare system, Medical services, Saudi Arabia*

1. Introduction

1.1. Research Significance

Emergency department (ED) is referred to as a vital component of healthcare system. Similar to other departments of healthcare systems, ED also assists in diagnosing and treating individuals. ED is also integral to provide rapid care to individuals suffering from acute medical complications. All departments of healthcare setup are engaged in caring for patients; however, this department is specifically considered to ensure the provision of high quality care to patients. The frequent utilization of ED is challenging situation; therefore, policy makers of healthcare systems specifically focuses on improving the quality of care delivered through that particular platform (Pines et al., 2011). The ED patient population is commonly referred to as the' ED users'. These ED users often possess complex medical needs, which might not be always catered within ED; however, still, individuals suffering from all sorts of medical complications are still initially cared at ED (LaCalle, & Rabin, 2010).

Some researchers argued that frequent visits to ED might lead towards misuse of ED services. Moreover, visiting ED in non-emergent situations might also cause significant economic burden on the healthcare sector (Althaus et al., 2011; Bieler et al., 2012; Kumar, & Klein, 2013). In a similar manner, over-crowding and over-utilization of resources might also suppress care opportunities of individuals, having real requirement to be cared. On the contrary, due to over-crowding, ED users might be mishandled or might go unnoticed within the episodic setting, as well as transactional care of the ED.

The similar situation is observed in Saudi Arabia, which is ultimately leading towards over-utilization of ED resources. The overall number of emergency cases in the Saudi Arabia was reported to reach approximately 17.8 million in 2009, which is almost twice higher than in US per 100,000 population. In terms of comparison, only 4.5% of all patients applied to ED of King Khalid University Hospital (KKUH), a well-known healthcare organization of the KSA were admitted to the hospital in contrast to 19.2% in US. This research was conducted for revealing factors

which might influence the overutilization of ED care services in Saudi Arabia. This research also included evidence based information for improving ED care services seeking behaviors of the residents of Saudi Arabia.

1.2. Aims and Objectives of Research

This research aimed to analyze potential factors leading towards the overutilization of the ED resources in Saudi Arabia. The fundamental objective of this research is to quantify the proportion of adult population (≥18 years old) of Saudi Arabia, who prefer utilization of ED. This research was also conducted to analyze factors, which are considered by the Saudi population for preferring the utilization of ED services.

Sub-objectives of this research include;

1. To quantify the proportion of residents of Saudi Arabia who had attended ED during previous 12 months.
2. To identify reasons for ED visits within previous 12 months.
3. To examine the channels utilized by Saudi population for receiving care, in case of sickness of having requirement of taking health advice.
4. To identify reasons behind preferring ED care, despite of having opportunities of acquiring the usual source of care.

1.3. Research Hypothesis

H1: There is a strong association between having a usual source of care and level of attendance of emergency among the study population

H0: A strong association does not exist between having a usual source of care and level of attendance of emergency among the study population

2. Literature Review

2.1 Significance of ED

The ED is one of the most significant departments of healthcare organizations and play a fundamental role in diagnosing as well treating patients. Clinics as well as other primary healthcare setups provide improved quality of services to service users; however, EDs of healthcare organizations are intended to provide quality care services to service users 24 hours a day. The ED of healthcare organizations are specifically designed within an intention of readily catering the needs of individuals suffering from diversified medical complications (Trzeciak and Rivers, 2003; Lateef, 2011). Despite ED, primary healthcare setups are also an important setting for the provision of continuous care services for patients (Rask et al., 1998; Nteta, MokgatleNthabu, & Oguntibeju, 2010). Majority of healthcare organizations specifically focus on improving the quality of services delivered through this platform, because continuity of care might assist in improving treatment adherence and treatment follow up and assist patients in acquiring speedy recovery for medical complications. Emergency services which are delivered through the platform of primary care clinics might also cause a significant decrement in inappropriate utilization of the emergency services and frequency of hospitalization. Moreover, the delivery of care services by primary care clinics might also assist in preventing wastage of resources. For this reason, despite the utilization of resources of EDs of healthcare organizations established over a large scale, non-emergent treatments could also be utilized from the platform of primary care clinics (Rask et al., 1998; Gill, Mainous, Nsereko, 2000).

2.2 Utilization of ED Services in Different Countries

A wide majority of individuals prefer acquiring healthcare services from the platforms of ED. Analyzing from the context of healthcare setup of the United States (US), it was reported that EDs tend to face approximately 115.3 million visits per year. It was also reported that in 23 states of the US, only 19.2 % individuals who availed emergency services from EDs were admitted for further cure of medical complications faced by them. On the contrary, about 80.8 % individuals who visited EDs were treated and released immediately (Merrill, Owens, & Stocks, 2008).

On the contrary, the research conducted by Tsai, Chen and Liang (2011) analyzed extents of utilization of emergency care services in Taiwan. Research outcomes demonstrated that approximately 15% of all ED visits in Taiwan were associated to non-urgent conditions. Moreover, about 20% of all ED visits were found to be caused due to situations, which could be prevented from primary care (Tsai, Chen, &Liang, 2011).

2.3 Utilization of ED Services in Saudi Arabia

Similar to the residents of other countries, Saudi population also prefer utilizing emergency care services even in non-emergent situations. The report presented by Heath Statistical Yearbook of Saudi Arabia revealed that in the year 2009, approximately 17.8 million visits to ED were reported. The statistics presented by this report revealed that there is overutilization of ED resources in Saudi Arabia, which is enhancing the care giving burden on the economy of Saudi Arabia. The statistical analysis revealed the

over-utilization of EDs by Saudi population (Siddiqui, & Ogbeide; 2002; Rehmani, & Norain, 2007). The statistics analyses conducted by Merrill, Owens, and Stocks (2005), the statistical yearbook of Saudi Arabia, and World Bank Development Indicators (2011) also revealed that the number of emergency cases per 100,000 population in Saudi Arabia is almost twice as higher (1.86 times) than in US. Detailed analysis of emergency services utilized in Saudi Arabia revealed that over-utilization of emergency services is more in the eastern region of country. Nearly, 60% of the ED cases in this region belonged to individuals suffering from the urgency levels IV and V. Individuals at levels IV and V of urgency might not require to be treated by ED. Research conducted by Rehmani, and Norain (2007) also revealed that some patients suffering from non-urgent medical complications were also found to perform multiple visits to the ED.

In a similar manner, the research conducted by Siddiqui, and Ogbeide (2002) also identified that about 59.4% of patients applied for the emergency care in Alkharj Military hospital were suffering from non-urgent conditions. For instance, these patients were suffering from allergic rash, minor burns, mild conjunctivitis, respiratory tract infections and represcription of medications. In a similar manner, the annual statistics in the KKUH Riyadh revealed significant increment in the trend of utilization of emergency services. In the year 1987, approximately 66,340 emergency cases were catered in the ED of KKUH; however, in the year 2010, the number of emergency cases reached to 123,669. Analyzing overutilization of the ED services in the KKUH, it is also imperative to evaluate this burden in other regions of country. The statistics of utilization of emergency services in KKUH revealed that about 46 % individuals suffering from level III, IV and V of emergency situations usually visit ED. On the contrary, research conducted by Merrill, Owens, and Stocks (2005) revealed that only 30.4 % of patients contacting ED were found to require serious emergency requirement. In the US, approximately 19.2 % patients who contacted Ed were admitted (Merrill, Owens, & Stocks 2005). On the other hand, the report presented by Department of Emergency Medicine (KKUH), in the year 2010, revealed that the rate of admission of patients acquiring emergency services in Saudi Arabia is only confined to 4.5 %.

2.4 Reasons behind Overutilization of Emergency Services

Similar to other counties, Saudi Arabia is also facing overcrowding of EDs by patients with non-urgent medication conditions. This overcrowding might negatively influence the effectiveness of patient care, cause wastage of resources, serve as a reason of increment in stress levels among emergency room staff s. Moreover, overcrowding might also cause a significant increment in waiting time for patients requiring attention (Siddiqui, & Ogbeide, 2002; Trzeciak, E P Rivers, 2003; Tsai, Chen, &Liang, 2011). Researchers conducted in EDs of different counties revealed that there are certain factors which are responsible for causing overutilization of emergency care. Efforts for being in a regular contact with physicians, healthcare provider referral, prolonged waiting hours in primary care clinics, accessibility to the ED, as well as perceived advantage of quality of care (Baker, Stevens, & Brook, 1994; Kini, & Strait, 1998; Petersen et al., 1998; Koziol-McLain, 2000; Afilalo et al., 2004) Petersen et al. (1998) conducted research by considering five Quebec tertiary care hospitals to identify potential reasons behind the utilization of services from EDs. Research outcomes revealed that fundamental factors due to which a wide majority of individuals prefer utilizing ED services are accessibility to services, perceptions of needs and referral of follow up to the ED services. In the light of outcomes of this research most of individuals prefer ED services because of having accessibility to these services. This trend is then followed by perception of need as well as follow-up to the ED (Petersen et al., 1998). Considering five urban teaching hospitals in the northeast of USA, it was found that the absence of relationship with a regular physician was a predicting factor, which leads individuals for visiting ED for non-urgent medical complications (Petersen et al., 1998). Analyzing continuous increment in the trend of overburdening of the ED and limited number of studies highlighting this potential issue, it was decided to analyze potential reasons behind over-utilization of ED in Saudi Arabia. The utilization of emergency care services is strongly influenced by health seeking behaviors of population. For this reason, common health seeking behaviors of Saudi population were also considered in this research. Revealing these factors is anticipated to assist in acquiring evidences for improving health seeking behaviors of Saudi population.

3. Research Methodology

3.1. Research Design

This research was conducted by utilizing the cross-sectional descriptive approach for analyzing potential reasons behind over-utilization of the EDs by adult population (≥18 years old) of Saudi Arabia. The cross-sectional research approach is considered as most suitable approach for analyzing the rates of prevalence of diseases or certain health related practices adopted by a particular population. This research approach is appropriate for reflecting the situation of utilization of

healthcare services at a particular moment in particular population (Süt, 2014).

3.2. Sample Population

This research was conducted to analyze the extent to which the adult population of Saudi Arabia has been utilizing medical services from ED. Moreover, this research was also focused towards the identification of potential factors which lead Saudi population towards the utilization of services from EDs. Sample population for this research was selected by utilizing appropriate inclusion criteria. Only those participants were eligible for being enrolled in this research, who were ≥18 years old. On the other hand, exclusion criteria for this research were individuals having other than the nationality of Saudi Arabia, non-speakers of Arabic and English.

Moreover, the adult population is able to make decisions for them as well as for their immediate families. Individuals having non-Saudi Arabian residency were excluded because of difference in health coverage for them. Moreover, diversified other factors were also found to influence their health related choices.

3.3. Sampling Methods

This research was conducted by utilizing a randomized sampling design. The mobile phone network of the Kingdom was utilized as a sampling frame. Sampling elements for this research were random number generator of the MS Excel program. A sampling unit for this research was adult residents of the Kingdom of Saudi Arabia who were meeting the pre-defined inclusion criteria. A major disadvantage of this sampling design is that there was low response rate due to unavailable subscribers.

3.4. Sample Size

The sample size for this research was calculated using StatCalc application of Epi Info package. The sample population for this research consisted of approximately 1600 adult individuals. The fundamental reason behind considering relatively large sample size in this research was that the research outcomes could be generalized for the entire adult population of Saudi Arabia (Kukull, & Ganguli, 2012).

The sample size calculation for this research was conducted by assuming that the proportion of study population who has no usual source of care is approximately 20%. On the contrary, about 23% the sample population had attended the healthcare services from ED at least once during last 12 months. The initial statistics were acquired from the National Health Interview Survey, which was conducted in 2009 in US (CDC, 2009). Considering that rate of attendance to ED in Saudi Arabian population as compared to the US; therefore, it was assumed that the calculated sample size would provide sufficient power for acquiring statistically significant results to research questions. The odds ratio of 1.5 was utilized for an independent correlate of presentation for a non-urgent ED visit among the research participants having regular source of medical care. For reaching to the desired sample size, a random sample of mobile phone numbers was generated until the required number of interviews was ensured.

3.5. Data Collection Tool

An interviewer-administered questionnaire was utilized for conducting survey (Appendix 1).The investigators team modified the valid and reliable questionnaire developed by the National Health Interview Survey team (CDC, 2009). One relevant section of the questionnaire was translated into Arabic and then was again translated into English for ensuring the accuracy of translation. The questionnaire was pre-tested among 15 randomly chosen respondents and appropriate modifications were made in the light of their responses. Interviewers were hired and trained before conducting survey.

3.6. Variables of Research

The dependent variable for this research was the proportion of population applying to ED. On the contrary, the independent variable of interest was having a usual source of care.

3.7. Data Analysis

The data was analyzed with Statistical Package for the Social Sciences (SPSS). Descriptive statistics was utilized for exploring distributions and patterns in the level of attendance of Saudi Arabia population in EDs. The study utilized scatter plots and categorized continuous data. Bivariate analysis was conducted for investigate possible associations between having a usual source of care and level of attendance of ED among the study population.

4. Results

An estimated sample size of 1636 was determined by Epi-info software. Bearing with 10% non-compliance, more than 1830 telephonic surveys were conducted for this research; however, the data collected from 1636 respondents was included in this research.

4.1 Socio-demographic Characteristics of Participants

The socio-demographic characteristics of research participants are presented in Appendix 2.Approximately, 75.7% research participants were males. Minimum and maximum ages of the

respondents were between 18 and 97 years, such that mean age was 38.8 ± 16.4 years. Family size of research participants varied between 1 and 17 members, having median representation of 3 members in a family. The cross sectional survey fetched representation from all the 13 regions of Saudi Arabia. About 46.1% respondents were from Riyadh region, whereas 0.3% to 4.8% respondents belonged from the remaining 12 regions. Marital status was not revealed by 1.6% participants, 62.6% were married and 22.4% were single. Approximately 74.1% research participants were full time workers, having income level of 6000-15000 Saudi Riyal and 54.4% of them were medically insured.

As can be seen from the table, only 12% of participants had selected a medical degree, while a further 49% had chosen a more general scientific course. A smaller minority of 39% had selected a course within the humanities section at the university. The analysis of the raw data for the course chosen and the average age of the student helped to underline that the participants were young adults, with a preference for scientific education.

Table 1 : Socio demographic characteristics

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		n (n %)
Age	mean ± SD (min, max) median (min, max) median (min, max)	38.8 ± 16.4 (18, 97)
Number of children		2 (0, 4)
Family members		3 (0, 17)
Gender	Male	1239 (75.7%)
	Female	397 (24.3%)
Residency	Yes	1617 (99.1%)
	No	13 (0.8%)
	I don't know	2 (0.1%)
Nationality	Saudi	1281 (78.3%)
	Egyptian	54 (3.3%)
	Yamani	5 (0.3%)
	Indian	3 (0.2%)
	Pakistani	3 (0.2%)
	Filippino	2 (0.1%)
	Others	288 (17.6%)
Nationality	Saudi	1281 (78.3%)
	Non-Saudi	355 (21.7%)
Iqama holder	Yes	283 (17.3%)
	No	1353 (82.7%)
Living Area	Abha	62 (3.8%)
	Northern boarder	78 (4.8%)
	Jouf	24 (1.5%)
	Madinah	18 (1.1%)
	Qassem	46 (2.8%)
	Haeel	32 (2.0%)
	Asser	56 (3.4%)
	Eastern area	15 (0.9%)
	Riyadh	1245 (76.1%)
	Tabouk	12 (0.7%)
	Najran	24 (1.5%)
	Makkah	19 (1.2%)
	Jezan	5 (0.3%)
Educational background	Medical	536 (32.8%)
	Non medical	1100 (67.2%)
Marital status	single	367 (22.4%)
	married	1024 (62.6%)
	divorce	202 (12.3%)
	widowed	17 (1.0%)
	Rejected	26 (1.6%)
Education level	primary school	32 (2.0%)
	intermediate school	161 (9.8%)
	secondary school	183 (11.2%)
	Bsc degree	1189 (72.7%)
	master degree	39 (2.4%)
	phd	9 (0.6%)
	reject	14 (0.9%)
	i dont know	9 (0.6%)
Working	full time	1213 (74.1%)
	part time	222 (13.6%)
	full time in hous	19 (1.2%)
	not working	21 (1.3%)
	retired	55 (3.4%)
	student	77 (4.7%)
	disable to work	1 (0.1%)
	reject	28 (1.7%)
	i dont know	0 (0.0%)
Insurance	Yes	954 (58.3%)
	No	650 (39.7%)
	Reject	32 (2.0%)
	I don't know	0 (0.0%)
Income	less than 3000	161 (9.8%)
	3000-5999	205 (12.5%)
	6000-8999	244 (14.9%)
	9000-11999	378 (23.1%)
	12000-14999	105 (6.4%)
	more than 15000	364 (22.2%)
	reject	179 0.9%)

4.2. Utilization of PCC Health Services

Outcomes of statistical analysis revealed that approximately 82.8 % research participants possessed knowledge about PCC in their residential area. About 64.3 % research participants declared that they utilize healthcare services from PCC. When respondents were interrogated about the quality of healthcare services delivered by nearby PCC, only 24 % researchers rated quality of services as excellent. On the other hand, approximately 14.8 % and 32.2 % respondents declared that quality of services of PCC as very good and good, respectively. Approximately 71.7% research participants declared that they would not recommend others to visit PCC. In this regard, 71.4 % research participants reported difficulties in acquiring treatments for the routine illness from PCCs.

Table 2: Primary Care Centre (PCC) Utilization

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		n (n %)
PCC in your area	Yes	1355 (82.8%)
	No	216 (13.2%)
	I don't know	65 (4.0%)
Known PCC location	Yes	1113 (68.0%)
	No	483 (29.5%)
	I don't know	40 (2.4%)
Type of PCC	area health center	965 (59.0%)
	primary healthcare hospital	247 (15.1%)
	private healthcare hospital	28 (1.7%)
	military healthcare center	42 (2.6%)
	national guard healthcare center	20 (1.2%)
	security forces healthcare center	22 (1.3%)
	others	258 (15.8%)
	I don't know	54 (3.3%)
Follow in PCC	Yes	1052 (64.3%)
	No	558 (34.1%)
	I don't know	26 (1.6%)
Last time of visit	Immediately	28 (1.7%)
	Day	1180 (72.1%)
	One week	86 (5.3%)
	One month	108 (6.6%)
	One year	21 (1.3%)
	I don't know	213 (13.0%)
Evaluation of quality services in your primary care center	Excellent	394 (24.1%)
	Very good	242 (14.8%)
	Good	527 (32.2%)
	Weak	316 (19.3%)
	I don't know	157 (9.6%)

Table 3: Knowledge about utilization of Primary Care Centre (PCC)

		n (n %)
Do you advise others to go to primary care clinic	Yes	386 (23.6%)
	No	1173 (71.7%)
	I don't know	77 (4.7%)
In the last 12 months did you need immediate care for simple problem	Yes	903 (55.2%)
	No	704 (43.0%)
	I don't know	29 (1.8%)
Difficulties for simple	Yes	1168 (71.4%)
	No	424 (25.9%)
	I don't know	44 (2.7%)
I don't know where I should contact for treatment	Yes	83 (5.1%)
	No	1543 (94.3%)
	I don't know	10 (.6%)
Transportation problems	Yes	37 (2.3%)
	No	1589 (97.1%)
	I don't know	10 (.6%)
Language barriers	Yes	46 (2.8%)
	No	1580 (96.6%)
	I don't know	10 (.6%)
Long waiting time to get appointment	Yes	561 (34.3%)
	No	1065 (65.1%)
	I don't know	10 (.6%)
Long waiting time to see physician	Yes	146 (8.9%)
	No	1480 (90.5%)
	I don't know	10 (.6%)
Disabilities	Yes	266 (16.3%)
	No	1360 (83.1%)
	I don't know	10 (.6%)
Others	Yes	286 (17.5%)
	No	1340 (81.9%)
	I don't know	10 (.6%)

Table 4:Previous Experience about Primary Care Centre (PCC) Visit

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		n (n %)
Where you get healthcare for Non-emergency	You did not go any where	0 (.0%)
	Primary care clinic	834 (51.0%)
	Private clinic	320 (19.6%)
	Emergency department	257 (15.7%)
	Outpatient clinic	50 (3.1%)
	Others	24 (1.5%)
	I don't know	151 (9.2%)
For the previous visit time between appointment and seeing physician	Immediately	0 (.0%)
	hours	811 (52.2%)
	day	609 (39.2%)
	week	27 (1.7%)
	month	48 (3.1%)
	year	0 (.0%)
	I don't know	58 (3.7%)
Waiting time before seeing physician	Immediately	0 (.0%)
	minutes	505 (32.5%)
	hours	965 (62.1%)
	I don't know	84 (5.4%)
Last 12 months are you visit any consultant	Yes	965 (59.3%)
	No	605 (37.2%)
	I don't know	57 (3.5%)
	Yes	1109 (70.7%)

Last 12 months are you face any difficulties to get specialized care or consultation	No	420 (26.8%)
	I don't know	40 (2.5%)
I don't know where I shall go	Yes	330 (20.5%)
	No	1275 (79.1%)
	I don't know	6 (.4%)
Transportation problem	Yes	391 (24.3%)
	No	1214 (75.3%)
	I don't know	7 (.4%)
Language barrier	Yes	364 (22.6%)
	No	1243 (77.1%)
	I don't know	5 (.3%)
Long waiting time to get appointment	Yes	747 (46.3%)
	No	859 (53.3%)
	I don't know	6 (.4%)
Long waiting time to see physician	Yes	897 (55.6%)
	No	710 (44.0%)
	I don't know	5 (.3%)
Disabilities	Yes	415 (25.7%)
	No	1192 (73.9%)
	I don't know	5 (.3%)
Where you get consultation	not visit any clinic	476 (30.7%)
	primary care clinic	221 (14.2%)
	Specialized clinic	255 (16.4%)
	emergency medicine	480 (30.9%)
	others	66 (4.3%)
	I don't know	53 (3.4%)
Appointment to physician time	Immediately	122 (8.1%)
	hours	1113 (73.8%)
	days	124 (8.2%)
	weeks	22 (1.5%)
	months	56 (3.7%)
	I don't know	72 (4.8%)
	Immediately	44 (3.0%)
Waiting time before seeing physician	minutes	836 (56.1%)
	hours	535 (35.9%)
	I don't know	75 (5.0%)

4.3. Factors Influencing ED Visits

Factors which influence individuals to visit ED are demonstrated in table. Approximately 51.7 % research participants visited ER in the previous 12 months; however, only 15.1 % respondents were admitted after the ER visit. About 67.4 % respondents declared they could also visit Primary Care Centers (PCC); however, they prefer utilizing emergency care services. Approximately 48.3 % respondents declared that they visited ER on referral. On the contrary, about 63.3% respondents declared preferring ER because it is closed space. Approximately 72.3% individuals responded that care services provided from the platform of ED might also be treated at PCC and other healthcare organizations. About 55.4% respondents the condition for which they visited ER could also be treated at PCC. Approximately 43.9 % individuals declared to visit ER due to blood pressure, whereas, 26.4 % individuals visited ED due to cardiac problems.

Table 6: ER Visiting in the state of co-morbidities

Number of ER visits/12 months	0	663 (41.3%)
	1	508 (31.6%)
	2	181 (11.3%)
	3	48 (3.0%)
	4	45 (2.8%)
	5	20 (1.2%)
	6	9 (.6%)
	7	5 (.3%)
	8	9 (.6%)
	9	2 (.1%)
	10	5 (.3%)
	11	2 (.1%)
	12	2 (.1%)
	I don't know	107 (6.7%)

4.4. Bivariate Analysis

The dependent and independent variables for this research were the proportion of population applying to ED, and individuals having a usual source of care.

Table 6: Bivariate Analysis

		Follow in PCC	ER visits during last 12 months
Follow in PCC	Pearson Correlation	1	.937**
	Sig. (2-tailed)		.000
	N	1600	1600
ER visits during last 12 months	Pearson Correlation	.937**	1
	Sig. (2-tailed)	.000	
	N	1600	1600

**. Correlation is significant at the 0.01 level (2-tailed).

The value of Pearson's r in this case was found as 0.937, which is very close to 1. This value determined that there exists a strong relationship between these two variables. The value of Pearson's r is positive; therefore, there exists positive correlation between these two variables. There is strong and positive correlation between dependent and independent variables, which declared that individuals possessing usual source of care prefer utilizing ED services. Our

hypothesis that there is a strong association between having a usual source of care and level of attendance of emergency among the study population.

5. Analysis and Conclusion

5.1 Analysis

In the light of research outcomes, it was found that despite having opportunities to be cared by PCC, a wide majority of Saudi population prefer utilizing ED services. The public healthcare sector of Saudi Arabia was found to provide quality care to patients; however, Saudi adults prefer ED because of being referred from their primary physician. It was also found that similar quality of healthcare services might also be delivered by PCC; however, people still rely on ED services, because EDs provide treatments of almost all sorts of medical complications under one roof. Research participants were found to be utilizing care services from PCC; however, most of them reported that they would not recommend other individuals to utilize care services from PCC. Most of Saudi population prefer utilizing ED, even for routine medical complications, which lead towards over-utilization of ED resources. Over-crowding caused by individuals seeking treatment for non-emergent situations might suppress the quality of care services for patients suffering from emergency situations (LaCalle, & Rabin, 2010). Although diversified other problems might also be faced by ED of diversified countries, overcrowding of EDs by patients is still considered as one of the major problem. Overcrowding might have a negative impact on the effectiveness of patient care. Caring for patients suffering with nonurgent conditions in the ED might also lead to waste of resources (Pines et al., 2011).

5.2 Conclusion

In the light of outcomes of this research, there is an evident requirement to further improving the quality of services provided from the platforms of PCC. Moreover, the healthcare sector of Saudi Arabia might also encourage individuals to prefer PCC for acquiring medical assistance. Over-crowding in ED and over-utilization of resources is found to have negative influence on quality of care services provided by the platform of ED. It was found that individuals prefer utilizing ED services, because they can access treatment for diversified diseases under one particular platform. Saudi healthcare sector must also emphasize on increasing the number of services which are delivered through the platform of PCC. It is also noted that despite taking appointment from concerned physicians, people prefer acquiring emergency care services for curing all sorts of medical complications. Improvement in accessibility of services through the platform of PCC and reducing waiting time might also encourage Saudi population towards preferring PCC healthcare services.

6. About the Authors

6.1. Meetings

This study has not been presented at a local, regional or international meeting.

6.2. Financial Support

This project has no financial support.

6.3. Conflicts of Interest

The authors have no conflicts of interest to declare.

6.4. Author Contributions

SL and ZA conceived the study, designed the trial, and obtained research approval. ZA supervised the conduct of the trial and data collection. SL recruited the participants and managed the data, including the quality control data. SL drafted the manuscript, and both authors contributed substantially to its revision.

7. References

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