

# Health Care Professionals' Perception of Appropriateness of Hospital Resources Utilization: A Cross-Sectional Study in Asser Region, Saudi Arabia

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## ABSTRACT

**Background:** The most expensive component of modern health care services is Hospital resources. The inappropriate use of these hospital resources is the main challenge faced by various hospitals globally.

**Aim:** The study aimed to assess the utilization of hospital resources in all healthcare sectors (M.O.H., military, and private) in the Aseer-region of Saudi Arabia hospitals. It also determines the most influencing factors behind inappropriateness in resource utilization.

**Method:** A structured, self-administered questionnaire was distributed among 380 healthcare workers to assess socio-demographic, utilization data, and influencing factors behind inappropriate resource utilization. The data obtained were analyzed using SPSS software at a level of significance  $p < 0.05$ .

**Results:** The study showed that nearly half of healthcare professionals found resources utilized inappropriately among different healthcare sectors and more determined in central hospital departments as emergency department & intensive care unit. The study illustrated a difference in the resource utilization pattern due to the difference in hospital ownership type between the three healthcare sectors.

**Conclusion:** Utilizing hospital resources at an optimal level will continue to be challenging due to conflicts among medical requirements and patient preferences.

**Keywords:** Healthcare Professionals; Hospital ; resources utilization; patient.

## INTRODUCTION

Hospital resources are valuable and essential components of delivering high-quality healthcare services to patients. The adequate use of these resources provides

patients with sufficient healthcare to meet their needs and maintain the balance between availability and wastage. For long, the inappropriateness in utilizing the health resources has been an issue of apprehension

among the hospital managers and policymakers.<sup>1</sup> It has been considered that healthcare resources and services are the most expensive part of contemporary healthcare organizations. Unneeded extended hospital stay is among one of the crucial challenges influencing healthcare facilities worldwide.<sup>2</sup>

The appropriateness of utilization helps to lower the healthcare expenses and serve patients adequately. The overuse or underuse of resources can put the patient's health at risk and negatively affect the quality and cost of healthcare.<sup>3</sup> The literature reveals the over-utilization of hospital resources, clinical diagnostics like imaging facilities, laboratory services, and medications.<sup>4</sup>

Various factors have been found that are associated with the inappropriateness of resource utilization, like internal factors of health institutions (such as patients, physicians, hospital characteristics) and external factors (like health insurance, financial considerations, and geographical factors).<sup>5</sup> As patients, physicians, and hospital-related factors impact inappropriate hospital resources utilization; thus it indicates the need for a study to find the relationship between the influencing factors and inappropriate hospital resources utilization.<sup>6</sup>

Saudi Arabia hosts the most significant healthcare sector among the Gulf States, accounting for about 48% of the total expenses. The total number of patient admissions was reported to be higher in private than government hospitals. It has also been observed that bed occupancy lowered by 74.7%, indicating an inappropriate distribution of hospital resources.

Appropriate admissions and discharges of patients according to actual needs will lower the misuse of hospital resources in the Kingdom of Saudi Arabia. Regardless of the type of utilization, overuse, or underuse, the healthcare decision-makers must take the intervention measures to review and manage

this utilization appropriately and determine the influencing factors to avoid it.

Thus, the present study was done to assess the existence and extent of inappropriate use (overuse/underuse) of hospital resources in different healthcare sectors, including Military Hospitals, M.O.H., and Private Hospitals. Also, to identify the most contributing factors for the inappropriate utilization of hospital resources in the Aseer region in Saudi Arabia.

## **MATERIALS AND METHOD**

The present cross-sectional study was conducted on 380 healthcare professionals (18 to 60 years old) from different healthcare sectors, including 10 different leading Military Hospitals (n=2), M.O.H. (n=4), and Private Hospitals (n=4) using an organized self-administered questionnaire. The questionnaire was validated using a pilot study on 30 healthcare professionals, with a coefficient alpha of 0.86%. After gaining authorization from the hospitals' directors, an Arabic and English version of the questionnaires was disseminated to all targeted healthcare professionals.

The researcher issued a cover letter and addressed the hospital managers in Abha and Khamis Mushait, introducing the researcher, describing the study, and requesting the respective hospitals' official approval to conduct this research. The researcher obtained ethical consent from The Regional Ethical Committee of the Aseer Region, R.E.C.- NO (1-11-2019), and the Research Ethics Committee in the military hospitals.

Before distributing the questionnaire, the participants were informed about the study's objective and assured confidentiality. The questionnaire included three sections; Section (A) has 8 items regarding socio-demographic data of participants; Section (B) has one item regarding opinions of health care professionals in terms of appropriateness of resource utilization in their central hospital departments; and Section (C) regarding factors behind the improper utilization of resources, including

patient-related factors (11 elements), physician-related factors (9 factors), and hospital-related factors (10 factors) to measure the relationship between the PRF, PHRF, and H.R.F. and inappropriate hospital resources utilization. We used a ranging five-point Likert scale in all statements from strongly disagree with agreeing strongly.

The data collected were analysed using statistical software IBM SPSS version 22 (SPSS, Inc. Chicago, IL) at a level of significance being  $p\text{-value} < 0.05$ .

**Results:** The demographic data of study subjects were recorded, including age, gender, educational, occupation, healthcare sector, experience, and nationality.

The study found the mean age of participants to be  $31.6 \pm 11.8$  years, with the most common age group being 30yrs. Female predominance was noticed as being 63.2% of the total. Most participants were educated to university academic level (44.5%), with a maximum (58.7%) being nursing professionals. Maximum subjects were from the Military healthcare sector (41.3 %), with experience of 5-9 years (38.7%). The majority of participants (79.2%) were non-Saudi in all three healthcare sectors (**Table no. 1**). The hospital resource utilization's appropriateness level in the different healthcare sectors' central hospital departments was determined based on H.C.P.'s opinions (**Table no. 2**).

We also evaluated the (H.O.T.) difference impact on different H.R.U. patterns in various healthcare sectors due to different hospital ownership types (H.O.T.) based on H.C.P. perception (**Table no. 3**) and found a wide variation in the perception of healthcare professionals. The findings revealed that Over-utilization of hospital resources was reported significantly more often among the Ministry of Health staff than among private sector staff, around 34.4% vs. 15.9%, indicating a difference in the utilization of resources according to the difference in hospital ownership type (H.O.T.) in different healthcare sectors.

73.9% of study participants in the private hospitals believed that their utilization of hospital resources was appropriate, which was a significantly higher percentage than those in M.O.H. and military hospitals. Simultaneously, the M.O.H. and military hospitals' staff believe that their hospitals' utilization pattern is overutilizing resources.

The study also found the differences in healthcare professionals' perceptions among different healthcare sectors regarding the impact of patient-related factors on hospital resource utilization's appropriateness (**Table no. 4**). A significant difference ( $p\text{-value} < 0.05$ ) was found statistically between the health care sector and patient age, gender, request, family, cooperation, refusal, and discharge. According to hospital staff perception, we also observed the patient-related factors that could cause the overutilization and underutilization of hospital resources (**Table no. 5**). A significant difference ( $p\text{-value} < 0.05$ ) was found statistically between the health care sector and patient gender, request, cooperation, and refusal concerning the overutilization of services.

The study also observed a significant difference ( $p\text{-value} < 0.05$ ) regarding the impact of physician-related factors on hospital resource utilization's appropriateness (**Table no. 6**). According to hospital staff perception, we also observed the physician-related factors that could cause the overutilization and underutilization of hospital resources (**Table no. 7**). A significant difference ( $p\text{-value} < 0.05$ ) was found statistically in relation to physician's experience, attitude related to practice, and medico-legal issues and investigations; regarding overutilization of services. A significant difference ( $p\text{-value} < 0.05$ ) was found statistically in relation to physicians' autonomy in decision making and work overload; regarding underutilization of services.

The study also found the differences in hospital-related factors' impact on resource utilization appropriateness (**Table no. 8**). A significant difference ( $p\text{-value} < 0.05$ ) was

found statistically between hospital-related factors like the procedure of discharge, absence of clinical guidelines and health information, poor medical records, technical errors, and only utilizing clinical examination; and hospital resource utilization.

According to hospital staff perception, we also observed the hospital-related factors that could cause the overutilization and underutilization of hospital resources (**Table no. 9**). A relation was also derived between hospital-related services and overutilization or underutilization of services.

## DISCUSSION

The present study found a substantial rate of improper hospital resource utilization, irrespective of the hospital's ownership type. Our results were in accordance with **Al-Omar et al. (2010)**<sup>6</sup>, who also showed a substantial percentage of inappropriate utilization of hospital resources. Although numerous previous studies have reported the prevalent inappropriate use of hospital resources, both locally and internationally, there is an apparent discrepancy in their results regarding the degree of inappropriateness.<sup>7-8</sup>

The results showed that the largest overuse department was the emergency department, followed by the intensive care unit, surgery department, and pediatric department. The coronary care unit is the least underused department. The results were similar to **Or Z et al.**<sup>9</sup>, who showed that hospital resources are consumed inappropriately by healthcare professionals. They indicated that the emergency room has a high rate of overutilization and the intensive care unit has a significant percentage of overutilization of inappropriate use. **Ghods et al., 2015**<sup>2</sup> found improper utilization of resources due to several factors, such as delayed therapeutic (20.6%), diagnostic (35.1%), or delayed discharge of patients because of physicians' conservative medical policy (20.6%).

We found a significant difference in hospital resource utilization according to the

difference of hospital ownership type (H.O.T.) among different healthcare sectors based on the healthcare staff's perspective, which indicated the difference in hospital resource utilization among different healthcare sectors. Similar results were observed by **Al-Omar et al. (2010)**<sup>6</sup>, who confirmed the significant, positive relationship between (H.O.T.) and the differences in the utilization pattern. Private hospitals consume their resources more appropriately than hospitals in other healthcare sectors to increase their profits, serve a broad category of the population using the available resources, and compete with the general government health facilities.

We found a positive relation between PRF and IAHRU. The patient's age was considered one factor that could lead to the under-utilization of health services. Similar findings were found by **Al-Omar et al. (2010)**<sup>6</sup>, **Lyu et al., 2017**<sup>10</sup>, and **Lei et al., 2019**<sup>11</sup>, who found that the patient and their family contribute significantly to the IAHRU. Contradictory results were found in a study by **Dawoud et al. 2016**<sup>12</sup>.

We found that "physicians avoiding medico-legal issues," "physicians conducting further investigations or tests," "physician satisfies his superior manager," "physician lack of experience" (e.g., new physician), and the "physician unwilling to change practice," were the most significant factors causing hospital resource overutilization leading to IAHRU. Elements like "physician autonomy in decision making" and "physicians' work overload" were critical factors causing underutilization of resources, leading to (IAHRU). Results were consistent with a study by **Al-Omar et al. (2010)**<sup>6</sup>. They found that factors like screening tests, admitting patients unnecessarily, keeping patients for a more extended time could cause lawsuits.

Our study showed a significant positive relationship between Hospital characteristics and IAHRU. Our study findings confirmed a significant positive relationship between the aspect of the

utilization review committee's inability to perform its role. In contrast, **Al-Omar et al (2010)**.<sup>6</sup> found no positive connection of "utilization review committee's inability to IAHRU. Besides that, this study examined the aspect of "the absence of a solid health information system."

The findings in this research are an excellent sign to demonstrate the existence, prevalence of inappropriate hospital resource utilization in the Aseer region in Saudi Arabia. The study confirmed a good sign for a significant difference in hospital resource utilization patterns due to hospital differences in ownership type (H.O.T.) among different healthcare sectors. The study showed an excellent sign for the positive relationship between patient, physician, and hospital-related factors. Improper hospital resource utilization patterns can be improved and enhance patient quality of care by continuous review and hospital resource usage management.

## LIMITATIONS

This study made outstanding contributions to healthcare administration research; however, it also had limitations. First, the study was a sensitive issue for H.C.P. respondents in some sectors due to their perception that this study will reflect their performance effectiveness. Secondly, the study was carried in the leading hospitals of main cities (i.e., Abha and KhamisMushiat) in the Aseer-region in Saudi Arabia. Therefore, results could apply to hospitals in urban areas, but they do not necessarily apply to rural areas. Thirdly, a limitation was the absence of an exact point or cut-off in the definition of "over-utilization" and "under-utilization," which led to a broad range in participants' judgments of the study since the judgments were not based on objective criteria.

## CONCLUSION

The inappropriate use of hospital resources is an ongoing or even increasing problem in several countries worldwide and Saudi Arabia. Saudi Arabia, the healthcare sector,

is considered the third most crucial area of expenditure in the budget for 2019. Our study confirmed the prevalence of inappropriate hospital resource utilization in the hospitals and the central hospital departments in three different healthcare sectors of Saudi Arabia. To address this issue, the Saudi government should seek alternative financial approaches to overcome healthcare costs, thus enhancing healthcare services' efficiency and effectiveness in health facilities. Restructuring the healthcare organization to privatize the government hospitals, establishing insurance coverage, and implementing health insurance plans may be among the available opportunities to overcome the persistently high costs.

## Declaration by Authors

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**Conflict of Interest:** The authors declare no conflict of interest.

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