RESEARCH ARTICLE

Predicting Inpatient Length of Stay in Iranian Hospital: Conceptualization and Validation

Omid Khosravizadeh[1], Soudabeh Vatankhah[2]*, Mina Jahanpour[3], Negar Yousefzadeh[4], Saeed Shahsavari[5,6], Saeed Yari[7]

Abstract

Objective: The length of stay is an important indicator of hospital performance and efficiency. Regarding the importance of the length of stay, this study aimed to design a structural model of the inpatients' length of stay in the educational and therapeutic health care facilities of Iran in order to identify the influencing dimensions. **Methods:** The present study was an analytical and applied study. The face validity of the data gathering tool was investigated by the expert judgment and the construct validity was examined by using the exploratory factor analysis. In order to verify the reliability of the tool, the internal consistency was also trialed by using the Cronbach's alpha. For ranking the influencing dimensions and factors and also in order to examine the causal relationships between the variables in a coherent manner and presenting the final model, the structural equation modeling technique was used in AMOS software at a significant level of 0.05. **Results:** The mentioned structural model consists of 4 dimensions and 29 factors influencing the length of stay of hospitalized patients. The independent variables are based on priority and importance as follows: patients' conditions, the underlying factors, the clinical staff performance, and hospitals' service delivery, which were examined by second-order factor analysis in order to study the relationship between them and the inpatients' length of stay. **Conclusion:** Considering the importance of each one of the proposed dimensions from the point of view of service providers in some therapeutic centers of the country by paying attention to the role of each one of them in preventing prolonged hospitalization can be essential in the effectiveness of the treatment and cost reduction.

Keywords: Predicting- inpatient length of stay- hospital- Iran

Introduction

Hospital is one of the components of the health care system, that its' performance can lead to the health of the community in coordination with other factors. Actually, hospitals have a key role in providing health services because of their impact on the health system's efficiency (Khosravizadeh et al., 2016). In this regard, in the health care system, a kind of management can be productive which provides high quality and cost-effective services (Mohebbifar et al., 2014), achieving this goal will be possible by the correct and reasonable use of resources, controlling hospital admissions and the length of stay of hospitals patients and also the appropriate use of diagnostic and therapeutic services (Ravangard et al., 2010). The length of hospital stay is often considered as a measure

and an indicator of the efficiency and effectiveness of hospital services, as well as the effectiveness of used treatments by the physicians (Austin et al., 2002). The presence of indices such as bed occupancy rates and bed turnover or bed turnover interval make the length of stay one of the most important functional indicators of the hospital (Gohari et al., 2012). In fact, the length of stay is defined as the time between admission and discharge in the hospital, which measures the rate of bed use and the efficiency of the admissions (Jimenez et al., 1999). Therefore, the mentioned performance indicator is dependent on the health care delivery variables, including the availability of hospital beds, payment methods, and hospital discharge policies, as well as the variables of the demand for health services, including the severity of illness, direct and indirect costs and simultaneous

*[1]Social Determinants of Health Research Center, Research Institute for Prevention of Non-Communicable Diseases, Qazvin University of Medical Sciences, Qazvin, Iran. [2]Department of Health Services Management, School of Health Management and Information Sciences, Iran University of Medical Sciences, Tehran, Iran. [3]Department of Health Services Management, School of Management and Medical Information Sciences, Isfahan University of Medical Sciences, Isfahan, Iran. [4]Health Management and Economics Research Center, Iran University of Medical Sciences, Tehran, Iran. [5]Health Products Safety Research Center, Qazvin University of Medical Sciences, Qazvin, Iran. [6]Department of Epidemiology and Biostatistics, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran. [7]Student Research Committee, (Department and Faculty of Health), Shahid Beheshti University of Medical Sciences, Tehran, Iran. *For Correspondence: vatankhah_s@yahoo.com*