Original Research

Evaluation of patient satisfaction with nursing services before and after implementation of the Health System Transformation Plan in Iran: A cross-sectional study

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Abstract

Background and Aims: How healthcare service delivery is achieved after implementing the Health System Transformation Plan (HSTP) is investigated in the present study by assessing the patients’ satisfaction with nursing care services compared to before HSTP.

Methods: This cross-sectional study was conducted in Iranian hospitals during two periods, that is, before (N = 300) and after (N = 279) HSTP, whereas the Patient Satisfaction Instrument was used to assess the satisfaction with nursing services.

Results: About 57.7% and 4.7% of the patients were dissatisfied with nursing care services, whereas 34% and 77.4% for moderate satisfaction, and 8.3% and 17.9% for total satisfaction, before and after HSTP, respectively. The mean score of overall satisfaction was 57.33 (±11.17) and 70.84 (±11.99) before and after HSTP, respectively (p < 0.001), which represents there is an improvement in healthcare services delivery after HSTP. Although none of the sociodemographic factors were significantly associated with satisfaction, higher satisfaction was found among the coronary care unit (CCU) hospitalized patients.

Conclusion: The patients’ overall satisfaction with nursing care services after HSTP was increased, although higher satisfaction was observed in the patients of special wards such as CCU. Therefore, using more care facilities and equipment and engaging more skilled nursing staff in other wards is highly recommended.

Keywords
Health System Transformation Plan, Healthcare evaluation, Iran, nursing services, patients’ satisfaction
1 | INTRODUCTION

Today, healthcare has become an industry of competition. The best advantage of competition between health services providers is in improving the quality of services they provide.1 However, healthcare services' need was increased through health information and advances in technology, expectations changes related to healthcare, increased individuals’ attention to their health issues, and increased competitiveness and cost in the health sector.2 The adequacy and quality of healthcare services are measurable through patients’ opinions and satisfaction.3 Patients’ satisfaction is one of the most important indicators of healthcare quality assessment and considered healthcare services outcome.4 Total quality management is a professional knowledge that includes competence and application of the appropriate technology, it also involves patients’ perception of the type and level of received care.5 Higher satisfaction is associated with more likely to follow medically prescribed regimens; therefore, it can positively influence health issues.6 In addition, patients’ opinions are one of the best sources; they suggest important directions for future planning and evaluation.7 Therefore, the whole strategic transformation plan’s goal is to change the current relatively unfavorable situation to a more favorable one in the future.

The Health System Transformation Plan (HSTP), which includes treatment, health, and medical education, was started in May 2014 in Iran; it was considered a top priority in the strategic plans of the Ministry of Health and Medical Education.7 HSTP in the treatment section includes a rather articulated package that consists of eight services, measures, and interventions of healthcare: the most important interventions were the program that aims to decline the rate of copayment for the hospitalized patients among those hospitals affiliated with the Ministry of Health and Medical Education and provide all necessary medicines, consumables, and services within the hospital settings; the program determined at redistributing doctors in the hospitals situated in those areas being less developed, with incentives that encourage them to stay and work in these deprived territories, so that increasing equity in accessing to healthcare services and reducing the disparity in comparison with other areas.8

Patients’ satisfaction is considered one of the criteria for healthcare evaluation and nursing care qualification.9 By providing important resources, it offers essential information for healthcare managers; which can be applied for processes such as measuring and evaluating patients’ expectations and satisfaction with the nursing care systems, improving nursing services quality by identifying failures of the system and planning for necessary training.4,10 Furthermore, among the healthcare professionals, nurses have an essential role in providing psychological and emotional support for the patients and their families. In this respect, their qualified professional knowledge, skills, and attitudes for providing informational, practical, and emotional support are highly required.6,11

At present, HSTP is a revolution in the health system in Iran; it meets the community’s primary needs and improves the system’s medical structure. Nevertheless, little is known about how the patients’ satisfaction in the healthcare system has been achieved after HSTP implementation in the country. Therefore, this study was undertaken to observe the patients’ satisfaction with nursing care services after the implementation of the HSTP in Mazandaran province’s public hospitals and compare the findings with the situation before HSTP. More specifically, this study determined the patients’ satisfaction with nursing care services before and after HSTP to observe how the HSTP improves healthcare service delivery. In addition, the associations of patients’ satisfaction levels with sociodemographic characteristics and hospitalization history were also investigated.

2 | METHODS

2.1 | Study design and setting

It is a descriptive, cross-sectional study among the participants who were hospitalized patients receiving services at the two public hospitals of Mazandaran University of Medical Sciences, located in the east of Mazandaran province, Iran. The data were collected based on two time periods, (i) before HSTP (January to May 2015; n = 300 patients) and (ii) after HSTP (January to May 2020; n = 279 patients). To ensure the similarity of the participants of the two periods, it was tried to select the research community from the same place and the participants to be similar in terms of demographic variables such as age, gender, education, and so on. Besides, patients with the following criteria were selected to enter the study: being adults and hospitalized for at least two nights at data collection, having enough consciousness to complete the questionnaire, and being willing to participate in the study. The questionnaire was not delivered to these patients who decided to be discharged suddenly or were transferred to other medical centers. Instead, the face to face interview was performed to collect the data. The questionnaires were also completed before patients were discharged from the hospital.

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N = \frac{z^2pq}{d^2} \left( 1 + \frac{1}{n} \right)
\]

where \( n \) is the statistical sample size, \( N \) is the volume of statistical population, \( d \) is the 0.05, \( z \) is the 0.96 for the 95% confidence level, \( p \) is the 0.5, \( q \) is the 0.5.

About 94.6% was the response rate for the participants enrolling before the HSTP, which was 92.8% after the HSTP. Of the 1300 patients, after excluding incomplete questionnaires, a total of 297 data were finally used in this study, based on Cochran's sample volume formula.

2.2 | Ethical considerations

Before data collection of the study, the research protocol was reviewed and approved by the local ethics committee at the Mazandaran University of Medical Sciences (Ethical Approval Number: IR. MAZUMS.REC.1400.10179). For conducting the survey, permissions were also obtained from the hospital administrators.
All patients announce their consent via signing the written informed consent. The patients who had a tendency to participate in the study received information about the purpose of the research; they needed to sign the informed consent form.

### 2.3 Measurement: Patient Satisfaction Instrument

The Patient Satisfaction Instrument was used to assess the satisfaction with nursing care services. A total of 25 items were on the scale covering three dimensions of nursing care services (i.e., “technical-professional care (7 items),” “trust (11 items),” and “patient education (7 items”). The item response was recorded based on a 5-point Likert scale (5 = totally agree to 1 = totally disagree), where the total score range was from 25 to 125. The instrument includes negative and positive scores, where the negative scores are calculated inversely. Scores <58 show dissatisfaction, 58–92 is moderate satisfaction, and >92 is complete satisfaction. Previous studies conducted in Iran, showed the validity and reliability of the scale. Likely in previous studies, the scale’s internal consistency in the present study was excellent (Cronbach’s α = 0.90). Also, the content validity index was applied to the questionnaire, which confirmed its validity with a value of 0.99.

### 2.4 Data analysis

The data were analyzed using the SPSS software (IBM SPSS Statistics for Windows, Version 21.0; IBM Corp.). Descriptive statistics such as frequency, percentage, mean, and standard deviation (SD) were used. The Single Sample Kolmogorov–Smirnov test was performed to assess the distribution of data. Parametric tests were done as the data was normally distributed. About the parametric tests, t-test was performed to analyze independent variables with two categories (i.e., before the HSTP and after the HSTP); one-way analysis of variance was performed to analyze independent variables with more than two categories.

### 3 RESULTS

#### 3.1 Characteristics of the participants

The number of participants enrolled before HSTP was 300 patients, and after HSTP, 297 patients. The mean age of the sample before and after HSTP was 47.68 (±16.34) and 48.92 (±18.64) years, respectively; among them, 36% and 38% were 31–49 years, respectively. Most of the participants were married and illiterate. More than half of the sample before HSTP (61.6%) and after HSTP (60.2%) were admitted to service directly from the department of patient admission. Most patients were hospitalized at least once during 2 years before and after HSTP (70.7% and 71.7%, respectively). The average duration of the hospitalization was 4.42 (±2.16) and 4.38 (±2.75) days before and after HSTP, respectively (Table 1).

#### 3.2 Comparison of the satisfaction levels

Before and after HSTP, no sociodemographic factors (e.g., gender, marital status, education) were significantly associated with the level of patients' satisfaction with nursing care services. But, it appears that the satisfaction level increased over the increment of the patients' age, being females, being single in a relationship, and so on.

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**Table 1** Distribution of the patients’ characteristics

| Variables               | Before HSTP (N = 300), n (%) | After HSTP (N = 279), n (%) | p value |
|-------------------------|------------------------------|-----------------------------|---------|
| Age (years)             |                              |                             |         |
| >30                     | 52 (17.3)                    | 47 (16.9)                   | 0.97    |
| 31–49                   | 108 (36)                     | 106 (38)                    |         |
| 50–69                   | 89 (29.7)                    | 81 (29)                     |         |
| 70 and more             | 51 (17)                      | 45 (16.1)                   |         |
| Gender                  |                              |                             |         |
| Female                  | 144 (48)                     | 136 (48.7)                  | 0.85    |
| Male                    | 156 (52)                     | 143 (51.3)                  |         |
| Marital status          |                              |                             |         |
| Married                 | 231 (77)                     | 215 (77.1)                  | 0.811   |
| Single                  | 53 (17.7)                    | 46 (16.5)                   |         |
| Widowed                 | 16 (5.3)                     | 18 (6.5)                    |         |
| Education               |                              |                             |         |
| Illiterate              | 96 (32)                      | 93 (33.3)                   | 0.26    |
| Literate                | 57 (19)                      | 54 (19.4)                   |         |
| Secondary school        | 48 (16)                      | 37 (13.3)                   |         |
| High school             | 25 (8.3)                     | 23 (8.2)                    |         |
| Diploma                 | 55 (18.4)                    | 48 (17.2)                   |         |
| College or university   | 19 (6.3)                     | 24 (8.6)                    |         |
| Participant’s residence |                              |                             |         |
| Village                 | 139 (46.3)                   | 126 (45.2)                  | 0.77    |
| City                    | 161 (53.7)                   | 153 (54.8)                  |         |
| Hospitalization unit    |                              |                             |         |
| Internal                | 87 (29)                      | 83 (29.7)                   | 0.79    |
| Men’s surgery           | 63 (21)                      | 61 (21.9)                   |         |
| Women’s surgery         | 72 (24)                      | 71 (25.4)                   |         |
| CCU                     | 65 (21.7)                    | 57 (20.4)                   |         |
| Obstetrics and gynecology | 13 (4.3)                  | 7 (2.5)                     |         |

Abbreviation: CCU, Coronary Care Unit; HSTP, Health System Transformation Plan.
TABLE 2 Comparsion of the nursing services care satisfaction levels with studied variables.

| Variables                  | Before HSTP (2015) |                          | After HSTP (2021) |                          |
|----------------------------|--------------------|---------------------------|--------------------|---------------------------|
|                            | M (SD)             | 95% CI                    | M (SD)             | 95% CI                    |
| Age (years)                |                    |                           |                    |                           |
| <30                        | 55.26 (12.21)      | 53.87–56.64               | 69.18 (12.53)      | 65.50–72.86               |
| 31–49                      | 56.68 (10.38)      | 55.50–57.84               | 70.98 (10.58)      | 68.94–73.02               |
| 50–69                      | 57.41 (12.46)      | 56.00–58.81               | 71.50 (13.88)      | 68.43–74.57               |
| 70 and more                | 59.43 (11.26)      | 58.15–60.70               | 71.09 (11.09)      | 67.75–74.42               |
| F                          | 1.211              | 0.88                      |                    |                           |
| p                          | 0.30               | 0.76                      |                    |                           |
| Gender                     |                    |                           |                    |                           |
| Male                       | 56.52 (12.26)      | 55.13–57.90               | 69.91 (12.16)      | 67.9–71.9                 |
| Female                     | 57.78 (11.58)      | 56.46–59.09               | 71.83 (11.78)      | 69.8–73.8                 |
| F                          | 0.915              | 1.341                     |                    |                           |
| p                          | 0.36               | 0.18                      |                    |                           |
| Marital status             |                    |                           |                    |                           |
| Married                    | 56.81 (12.67)      | 55.37–58.24               | 68.53 (12.57)      | 64.80–72.27               |
| Single                     | 58.23 (11.56)      | 56.92–59.53               | 71.46 (11.76)      | 69.88–73.04               |
| Widowed                    | 57.32 (11.12)      | 56.06–58.57               | 69.39 (13.08)      | 62.88–75.89               |
| F                          | 0.285              | 1.271                     |                    |                           |
| p                          | 0.75               | 0.28                      |                    |                           |
| Education                  |                    |                           |                    |                           |
| Illiterate                 | 57.36 (11.74)      | 56.03–58.69               | 71.46 (11.64)      | 69.06–73.86               |
| Literate                   | 56.23 (11.26)      | 54.95–57.50               | 70.18 (11.30)      | 67.09–73.26               |
| Secondary school           | 57.52 (12.62)      | 56.09–58.94               | 72.04 (12.84)      | 67.76–76.33               |
| High school                | 56.63 (10.27)      | 55.46–57.79               | 70.41 (10.69)      | 65.78–75.03               |
| Diploma                    | 57.27 (12.67)      | 55.83–58.70               | 68.61 (12.94)      | 64.85–72.37               |
| College or university      | 58.16 (12.11)      | 56.78–59.53               | 72.99 (13.12)      | 67.45–78.53               |
| F                          | 0.122              | 0.645                     |                    |                           |
| p                          | 0.98               | 0.66                      |                    |                           |
| Participant’s residence    |                    |                           |                    |                           |
| Village                    | 57.87 (11.20)      | 56.01–59.73               | 71.92 (10.82)      | 70.01–73.83               |
| City                       | 56.85 (10.52)      | 55.22–58.47               | 69.96 (12.85)      | 67.91–72.02               |
| F                          | 0.812              | 1.35                      |                    |                           |
| p                          | 0.42               | 0.17                      |                    |                           |
| Hospitalization unit       |                    |                           |                    |                           |
| Internal                   | 53.51 (11.26)      | 52.23–54.78               | 67.65 (10.83)      | 65.28–70.01               |
| Men’s surgery              | 54.23 (12.36)      | 52.83–55.62               | 68.61 (12.17)      | 65.49–71.72               |
| Women’s surgery            | 55.25 (11.35)      | 53.96–56.53               | 71.40 (11.09)      | 68.77–74.02               |
| CCU                        | 61.34 (11.63)      | 60.02–62.65               | 76.57 (12.54)      | 73.24–79.90               |
| Obstetrics and gynecology  | 58.52 (11.17)      | 57.25–59.78               | 76.05 (11.75)      | 65.18–86.92               |
| F                          | 5.943              | 0.630                     |                    |                           |
| p                          | 0.001              | 0.001                     |                    |                           |
In addition, the level of satisfaction of the CCU hospitalized patients was higher than other patients; the differences between the two cited groups were significant \((p < 0.001)\) in both times (Table 2).

### 3.3 Distribution of the levels of satisfaction

The mean score of patients' overall satisfaction was 57.33 \((SD = 11.17)\) and 70.84 \((SD = 11.99)\), before and after HSTP, respectively; and this difference was statistically significant \((p < 0.001)\) (Table 3). Based on the psi cutoff criteria, 57.7% and 4.7% were dissatisfied with nursing care services, whereas it was 34% and 77.4% for moderate satisfaction, and 8.3% and 17.9% for total satisfaction, before and after HSTP, respectively. Thus, it is observed that most of the participants before HSTP were dissatisfied with nursing care services, but a moderate level of satisfaction was reported as the highest rate of satisfaction level after HSTP (Figure 1).

### 4 Discussion

Today's healthcare markets are consumer-oriented, and patients' satisfaction with the quality of received healthcare services is considered one of the main components of hospital quality management systems. Moreover, patients' satisfaction with nursing care services is established as the most important predictor of satisfaction with hospital care; it is also an important goal for any healthcare organization. Thus, this study investigated the patients' satisfaction with nursing care services during two different scenarios of the healthcare systems in Iran (i.e., before and after the HSTP).

In the present study, 57.7% of the patients were not satisfied with the nursing care services before HSTP, which declined after HSTP to 4.7%. However, 34% and 77.4% had moderate satisfaction, and 8.3% and 17.9% were satisfied before and after HSTP, respectively. Thus, dissatisfaction with nursing care services was predominantly found before HSTP; but a moderate level of satisfaction was reported as the highest rate after HSTP. This means
that after the HSTP, patients reported being more satisfied with the nursing care services. This is due to the HSTP making effective and suitable changes in the provision of healthcare services intending to improve the patients’ satisfaction levels.\textsuperscript{17} Satisfaction with the medical staff is one of the practical elements of the patients’ satisfaction sense.\textsuperscript{18} Therefore, to increase the quality of nursing services, the medical staff should try to combine their knowledge and skills to improve professional behaviors, which leads to the patients being satisfied as well as helping to recover faster.\textsuperscript{15}

Factors like management quality, in-service training, working environment, and timeliness affect nursing care quality and patients’ satisfaction.\textsuperscript{19} Therefore, different hospitalization units have different environments, which was significantly associated with the level of patient satisfaction in this study. More specifically, CCU hospitalized patients were more satisfied than those who were hospitalized in the internal medicine units; the differences were statistically significant in both times. The presence of telemetry or continuous monitoring of heart rhythm by electrocardiography is the major feature of CCU; it prepares early medical intervention with drug and heart shock and improves prognosis. Therefore, it can be stated that a well-organized way of caring will affect the satisfaction rate.

As per this study’s findings, the level of patient satisfaction did not rely on their gender, which also consisted in other studies.\textsuperscript{1,20} In addition, there was no significant difference in the patients’ satisfaction in relation to other sociodemographic factors like age group, marital status, education level, etc. However, it is observed that older people had more satisfaction in several studies,\textsuperscript{12,21,22} although Karaka and Durma\textsuperscript{20} stated that the patients aged 56 years or older were less satisfied than other age groups. Although higher satisfaction is reported in these highly educated individuals,\textsuperscript{23} its opposite finding is found. For example, Joolaee et al.\textsuperscript{24} reported a higher satisfaction level in lower educated individuals than in educated patients. It seems that less educated people are not aware of the problems and nurses’ job descriptions; also, patients’ satisfaction may not be related to nursing care behaviors. However, concerning education and patient’s satisfaction, there was no significant relationship in the present study. Again, it was anticipated that patients with previous positive hospitalization experiences might have a higher satisfaction level because such experiences can help adjust their expectations and levels of satisfaction.\textsuperscript{12,25} Nevertheless, the history of the previous hospitalization was not significantly associated with the patients’ satisfaction level in this study.

The primary limitation of this study should be noted as a cross-sectional design, which limits the ability to infer causal relationships between the variables. In addition, the comparison of two groups before and after HSTP can be limited because of the time of data collection (i.e., during the COVID-19 pandemic for after HSTP) and selection bias, although participants were tried included from the same place and with similar sociodemographic characteristics. Again, it would be appreciated if the data of before HSTP collected many time before of the HSTP implementation. Despite these limitations, this study provides a comparative insight related to the patients’ satisfaction with nursing care services and how it has changed after HSTP, which can be helpful for the service delivery systems at the hospital and national policy levels.

5 | CONCLUSION

Based on the present study, it is found that a higher satisfaction level in nursing care services is obtained after the implication of the HSTP in Iran. Nursing managers have a crucial role in improving healthcare services quality; therefore, they are highly suggested for providing a comprehensive view of patient care via in-service personnel training. According to patients’ need for psychosocial and spiritual care, being aware of the patients’ opinions help improve healthcare services and the levels of patients’ satisfaction. Healthcare organization managers’ awareness of patients’ expectations made them adjust the performance of services and meet the expectations.\textsuperscript{2,26} To assess care quality, patients’ satisfaction should be evaluated constantly via reliable and valid assessment instruments. It could identify variables affecting care quality and determine what items should be prioritized first and what extent of modification needs in the system.\textsuperscript{3,6}

In addition to improving the quality of nursing care, there are other aspects that can be focused on for better outcomes regarding patients’ satisfaction. For example, patient education appears to be an essential tool for clinical specialists to rely on, which aims to empower patients to be more autonomous about their health management.\textsuperscript{27} In addition, to reduce patient education barriers in hospital wards, an organizational climate should be developed to promote patient education, and management should encourage
nurses' activity in this area. This can be achievable by prioritizing patient education, from hospital management to head nurses in each unit. Furthermore, nurses should be awarded for patient education as it motivates them. Management should provide a supportive environment to facilitate patient education; it should include enough time for teaching, clear guidelines and resources, and improving the educational skills of nurses. In the next step, to strengthen nurses' professional identity, it is essential to underscore their special role in providing healthcare and emphasize the importance of patient education, which is beneficial to reducing obstacles; consequently, it enhances patient education in hospital wards. Considering that the HSTP has been implemented in Iran since 2014. Therefore, the results of this study in Mazandaran province can be generalized to all provinces of the country and the implementation process of this project will be implemented more vigorously.

AUTHOR CONTRIBUTIONS

Yadollah Jannati: Conceptualization; data curation; investigation; methodology; project administration; writing—original draft; writing—review and editing. Abolfazl Babajani: Conceptualization; data curation; formal analysis; investigation; methodology; project administration; writing—original draft; writing—review and editing. Maedeh G. Kolaei: Conceptualization; data curation; formal analysis; investigation; methodology; project administration; writing—original draft. Hossein Mohsenipouya: Conceptualization; data curation; formal analysis; investigation; methodology; project administration; writing—original draft. Mohammad A. Mamun: Formal analysis; resources; validation; writing—original draft; writing—review and editing. Mohammad A. H. Gorji: investigation; methodology; project administration; writing—original draft; writing—review and editing. Nouraddin Mousavinazar: formal analysis; investigation; methodology; project administration; writing—review and editing. Mohammad A. H. Gorji: investigation; methodology; project administration; writing—original draft; writing—review and editing. Mohammad A. H. Gorji: investigation; methodology; project administration; writing—original draft; writing—review and editing. Mohammad A. Mamun: Formal analysis; resources; validation; writing—original draft; writing—review and editing. All authors contributed to the writing of the manuscript. All authors approved the final version of the manuscript and agreed to be accountable for all aspects of the work.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

TRANSPARENCY STATEMENT

The lead author, Yadollah Jannati affirms that this manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned (and, if relevant, registered) have been explained.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author (Hossein MOHSENIPOUYA) upon reasonable request.

ETHICS STATEMENT

The research protocol was approved by the local ethics committee at the Mazandaran University of Medical Sciences (Ethical Approval Number: IR. MAZUMS.REC.1400.10179).

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