Original Article

Evaluating the Relationship between Nursing Care Quality and Hospital Anxiety and Depression among Old Patients with Cardiovascular Disease

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Abstract

Introduction: Cardiovascular disease (CVD) is a prevalent condition among older adults’ hospitalizations leading to psychological complications. Nursing care is the longest intervention the patient receives. This study evaluated the relationship between nursing care quality and anxiety and depression among old patients with CVD.

Methods: This is a descriptive cross-sectional correlational study that included 250 old patients with CVD admitted to an ‘age-friendly hospital’. Using the convenience sampling method. The data collection tools included the Hospital Anxiety and Depression Scale (HADS) and the Quality Patient Care Scale (QUALPACS). Data were collected through conducting interviews and analyzed in SPSS ver.13 via statistical tests such as correlation coefficients, independent t-test, and ANOVA.

Results: Overall, 229 (91.6%) of patients received the desired nursing care quality. The mean (SD) scores for anxiety were 1.52 (1.14) and depression 2.18 (1.51), indicating a less than average hospital anxiety and depression. There was an inverse correlation between anxiety and nursing care quality.

Conclusion: A combination of high-quality nursing care and clinical governance criteria in an age-friendly hospital can reduce anxiety in old patients.

Introduction

The aged population is one of the global phenomena in recent years. It is estimated that by 2050 the elderly population will double to about two billion. One of the most prevalent physical conditions in old age with high mortality and morbidity is cardiovascular disease (CVD), which is a reason for old patient’s hospitalization. Old patients with CVD require visiting the hospital frequently, seeking medical care, and hospitalization, regularly. The prevalence of CVD is about 20-25% of the total population; however, more than half of the cases are related to elderly people. Like many health systems in the world, the Iran Ministry of Health and medical education is focused on decreasing the hospitalization, and increasing the physical and psychological health of patients with CVD which are some issues.

Clinical governance is a “framework for constantly improving the quality of services and care”. Seven classical pillars of clinical governance include ‘communication’, ‘patient experience and involvement’ ‘clinical effectiveness’, ‘strategic effectiveness’, ‘resource effectiveness’, ‘risk management’, and ‘learning effectiveness’. The goal of clinical governance is to maximize the quality of care services. Nurses spend most of their time with patients and meet their needs. Nurses play key roles in improving quality care. The nursing care quality is the practice and performance of nurses according to care standards. In fact, nursing plays a key role in improving the quality and safety of care. Nursing care affects the quality of care and thus reduces psychological problems. Low-quality care in addition to negative outcomes for old patients can have a burden on staff and facilities. Nursing care quality includes skills, effective communication, and efficient administration systems. Nursing care quality is achieving the best outcomes and health processes. Maintaining a balance between the benefits and risks of care is the quality care core. Nursing care includes not only clinical implications but also mental health. Therefore, evaluating the mental health of patients, especially old patients is very important in healthcare services.

The mental health of patients with CVD is threatened in hospitals and complications such as anxiety and depression occur as consequences of hospitalization. In fact, anxiety
and depression are both common complications of heart disease and are caused or exacerbated by the medical environment. Hospitalization leads to stress and anxiety, which results in complications. Anxiety and depression increase heart rate, blood pressure, hemodynamic instability, cortisol, and repair defects.

Health care systems should strive to improve the quality of care given the growing elderly population and the increase in CVD. The main features of age-friendly hospitals include accessibility, appropriate health and medical services for older adults, trained personnel, and an age-friendly environment and geriatric wards. Since age-friendly hospitals have recently started providing services in Iran, it is necessary to assess nursing care quality in these hospitals. Hospital Anxiety and depression are one of the criteria for assessing the quality of nursing care in the hospital. Therefore, this study evaluated the association between nursing care quality and anxiety and depression among old patients with CVD.

Methods and Materials
This is a descriptive cross-sectional correlational study was done in Coronary Care Units of Firoozabadi hospital in Tehran, Iran, which is an age-friendly hospital. Clinical governance is established in this hospital. The necessary permits were obtained from the relevant authorities and the Research Ethics Committee of Iran University of Medical Sciences approved the study protocol (IR.IUMS.REC.1397.1047). We obtained written consent from all participants. Moreover, the participants were free to leave the study at any stage, and they were assured that their information would remain confidential.

For data collection, the researcher visited the units at a suitable time and date announced by the nursing authorities. The participants answered the questionnaires at the time of discharge, which usually took twenty minutes. The purpose of the study was explained to the participants. The sample size was calculated with $\alpha = 0.05$, $\beta = 0.2$, and correlation coefficient = 0.03 for hospital anxiety and depression in the old patients with CVD. The sampling method was the convenience method. Two hundred and fifty old patients with CVD were included from various cardiac units (post coronary care unit, coronary care unit1, and coronary care unit2).

Data were collected through interviews with each participant. Participants were assured that their information would remain confidential and that they had the right to leave the study at any stage. Inclusion criteria were age over 60, no history of heart surgery, and no history of depression.

Data collection tools included a demographic questionnaire (age, gender, marital status, occupation, and education); the Quality Patient Care Scale (QUALPACS); the Hospital Anxiety and Depression Scale (HADS). Ten experts confirmed the content validity and face validity of the tools.

The QUALPACS, developed by Wandelt and Ager in 1974, includes 65 items in three dimensions (physical: 24 items, psychosocial: 28 items, and communication: 13 items). The Likert scale is ranked zero to two with answers (rarely: zero, sometimes: 1, most often: 2). Scores ranged from zero to 130 and are categorized into three levels (unfavorable: 0-43, desirable: 44-87, and very desirable: 88-130). Cronbach's $\alpha$ was 0.91 in this study.

The HADS, designed by Zigmond and Snaith in 1983, is a self-report tool to determine the anxiety and depression symptoms in patients. This tool is valid for assessing anxiety (seven items) and depression (seven items) and is run within approximately 10 minutes. The Likert scale is ranked zero to three. The minimum score is zero and the maximum is 42. The range of zero-seven is considered normal, eight-ten mild, and 11 to 21 severe. Persian version of this scale had Cronbach's $\alpha$ of 0.83. The HADS was validated by Montazeri et al. Another study reported Cronbach's $\alpha = 0.85$ and 0.70 for anxiety and depression, respectively.

The data were analyzed by SPSS software ver.13. Descriptive data were described as frequency, mean, and standard deviation. Data were analyzed using independent t test, ANOVA, and Pearson correlation coefficients ($\alpha \leq 0.05$).

Results
The age mean (SD) of the participants was 73.21 (12.30). One hundred thirty (52%) participants were male and 120 (48%) were female. The marital status of the participants was as follows single 16 (6.4%), married 137 (54.8%), widow/widower 78 (31.2%), divorced 19 (7.6%). Twenty-seven (10.8%) participants were employed, 11 (4.4%) were unemployed, 128 (51.2%) were retired, and 84 (33.6%) were housekeepers. The education status was as follows illiterate 84 (33.6%), primary education 68 (27.2%), secondary education 51 (20.4%), high school 35 (14%), and university education 12 (4.8%). The duration of hospitalization was as follows: < 3 days (28.2%), 3 to 7 days (58.4%), and > 7 days (13.4%). One hundred ninety-seven (77.2%) participants had health insurance and 53 (20.8%) did not.

The mean (SD) and standard deviation of nursing care quality was 84.08 (17.16) ([physical: 28.81 (10.09), psychosocial: 37.33 (7.21) and communication: 17.95 (3.32)]. Satisfaction with the nursing care quality was as follows 38% desirable, 53.6% very desirable, and 8.4% unfavorable. There was no difference between the scores of nursing care quality in demographic variables (Table 1).

The mean (SD) of anxiety was 1.52 (1.14) and depression was 2.18 (1.51). There was a significant difference in anxiety and depression scores in old women and old men (Table 2).

The results of Pearson's correlation coefficient showed that there is a significant negative correlation between hospital anxiety with psychosocial, physical, and
Communication (Table 3).

**Discussion**

This study found that most patients reported the desired quality of nursing care quality. All patients had low levels of hospital anxiety and depression. The finding indicated that there was a reverse relationship between hospital anxiety and nursing care quality.

The findings of this study were consistent with other studies evaluating the nursing care quality in hospitals. However, our findings did not agree with the results of some studies that showed the rising anxiety and depression in the old patients hospitalized in Coronary Care Unit. These differences might be due to the units in which they measured old patients' anxiety and depression in hospitals with no clinical governance. There are opportunities for improving the safety and quality of clinical practices through clinical governance within hospitals. Clinical governance is one of the most important policy developments in health systems. Clinical governance is related to the performance of all health care professionals to provide high-quality and cost-effective services.

Hospital anxiety and depression can have a negative effect on health outcomes (e.g. hemodynamic instability) and length of stay in patients during hospitalization. The level of anxiety in patients with CVD is relatively high, so it is important to evaluate the mental health of the old patients with CVD due to its consequences. Therefore, it is necessary to take action to reduce anxiety and depression in hospitals.

The results of this study also found that anxiety and depression were higher in old women patients than in old men ones. Mental disorders are a risk factor for CVD, which has also been confirmed in the studies by Table 2.

**Table 1. Differences in nursing care quality in demographical variables**

| Variable         | Mean (SD)  | P value<sup>a</sup> |
|------------------|------------|---------------------|
| Age              |            |                     |
| 60-74            | 86.34 (14.38) | 0.42               |
| 75-90            | 82.09 (20.10) |                   |
| > 90             | 87.60 (15.71) |                   |
| Gender           |            | 0.91<sup>b</sup>   |
| Male             | 83.96 (18.14) |                   |
| Female           | 84.21 (17.14) |                   |
| Marital status   |            | 0.44                |
| Single           | 88.50 (17.13) |                   |
| Married          | 82.70 (18.30) |                   |
| Widow/widower    | 85.85 (16.74) |                   |
| Divorced         | 83.05 (16.67) |                   |
| Employment status|            | 0.54                |
| Employed         | 80.25 (20.71) |                   |
| Unemployed       | 88.72 (17.45) |                   |
| Retired          | 84.57 (17.55) |                   |
| Housekeeper      | 83.96 (16.80) |                   |
| Health insurance |            | 0.82<sup>b</sup>   |
| Yes              | 84.21 (17.59) |                   |
| No               | 83.58 (17.92) |                   |
| Education        |            | 0.44                |
| Illiterate       | 84.94 (18.11) |                   |
| Primary education| 84.07 (16.56) |                   |
| Secondary education| 86.50 (15.29) |               |
| High school      | 79.85 (20.04) |                   |
| College degree   | 80.10 (20.92) |                   |
<sup>a </sup>ANOVA, <sup>b </sup>t test.

**Table 2. Differences in anxiety and depression in demographical variables**

| Variable         | Anxiety Mean (SD) | Anxiety P value<sup>a</sup> | Depression Mean (SD) | Depression P value<sup>a</sup> |
|------------------|-------------------|----------------------------|----------------------|-------------------------------|
| Age              |                   |                           |                      |                               |
| 60-74            | 1.5 (1.22)        | 0.99                      | 2.05 (1.8)           | 0.29                          |
| 75-90            | 1.52 (1.13)       | 0.02<sup>b</sup>          | 2.50 (1.53)          | 0.02<sup>b</sup>              |
| > 90             | 1.57 (0.93)       | 0.09<sup>b</sup>          | 2.18 (1.3)           | 0.44                          |
| Gender           |                   |                           |                      |                               |
| Male             | 1.36 (0.96)       | 1.98 (1.43)               |                      |                               |
| Female           | 1.69 (1.28)       | 2.40 (1.56)               |                      |                               |
| Marital status   |                   |                           |                      |                               |
| Single           | 1.36 (0.96)       | 2.44 (2.43)               |                      |                               |
| Married          | 1.50 (0.37)       | 2.18 (1.47)               |                      |                               |
| Widow/widower    | 1.20 (0.10)       | 2.25 (1.39)               |                      |                               |
| Divorced         | 0.96 (0.11)       | 1.68 (1.24)               |                      |                               |
| Employment status|                   |                           |                      |                               |
| Employed         | 1.05 (0.2)        | 1.92 (1.35)               |                      |                               |
| Unemployed       | 0.93 (0.28)       | 2.18 (1.53)               |                      |                               |
| Retired          | 1.15 (0.1)        | 2.13 (1.49)               |                      |                               |
| Housekeeper      | 1.17 (0.12)       | 2.35 (1.59)               |                      |                               |
| Health insurance |                   |                           |                      |                               |
| Yes              | 1.46 (1.12)       | 2.16 (1.47)               |                      | 0.61<sup>b</sup>             |
| No               | 1.71 (1.18)       | 2.28 (1.64)               |                      |                               |
| Education        |                   |                           |                      |                               |
| Illiterate       | 1.51 (1.1)        | 2.27 (1.37)               |                      |                               |
| Primary education| 1.58 (1.24)       | 2.20 (1.56)               |                      |                               |
| Secondary education| 1.50 (1.06)     | 2.11 (1.63)               |                      |                               |
| High school      | 1.54 (1.22)       | 2.31 (1.69)               |                      |                               |
| College degree   | 1.16 (0.93)       | 1.41 (0.90)               |                      |                               |
<sup>a </sup>ANOVA, <sup>b </sup>t test; *statistically significant.

**Table 3. Correlation between the quality of patient care dimensions and the hospital anxiety and depression**

| Variable | Physical | Psychosocial | Communication |
|----------|----------|--------------|--------------|
| Hospital anxiety | $r = -0.12$ | $r = -0.27$ | $r = -0.2$ |
| Dependent $P < 0.001^*$ | $P < 0.001^*$ | $P = 0.002^*$ |
| Hospital depression | $r = 0.11$ | $r = 0.07$ | $r = -0.04$ |
| Dependent $P = 0.07^*$ | $P = 0.25^*$ | $P = 0.56$ |
<sup>* </sup>Statistically significant.
Polikandrioti et al., Khan et al., and Orujlu & Hemmati-Maslakpak. Patients’ anxiety and depression levels were low in this study and this may be due to clinical governance and age-friendly environment in hospitals.

Future studies should focus on qualitative approaches in the field of new health policies and the impact of that on the care quality and mental health of old patients. The health professionals seriously consider clinical governance because it is necessary to move from routine actions to innovative approaches. Azimbeik et al demonstrated that the workability of nurses was at an appropriate level in hospitals in Iran which could result in patients’ experiences and satisfaction.

There are some limitations in the present study. First, this study evaluated only old patients with CVD in a medical center. It is recommended that a study be conducted on a larger sample size in several hospitals to increase the generalizability of the findings. Second, it is better to study in a continuous process to assess the relationship between anxiety and depression and the quality of care.

Conclusion
This study aimed to evaluate the relationship between nursing care quality and anxiety and depression among old patients with CVD. The results of this study confirm care quality effects on anxiety and depression. By facilitating the admission and hospitalization processes of the elderly patients in age-friendly hospitals, it is possible to reduce stress, anxiety, and depression among old patients. The scores of care quality in the hospital with clinical dominance were high, and the scores for anxiety and depression were low.

Policymakers and hospital managers can use these findings as a guide to improve nursing care quality and clinical governance alongside the age-friendly hospital.

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Authors’ Contributions
PFA, FB: Study design, data analysis, and interpretation, OV: Data collection and interpretation of data and drafting of the manuscript. All authors have read and approved the manuscript.

Conflict of Interests
The authors declare that they have no conflict of interest.

Data Accessibility
The datasets are available from the corresponding author on reasonable request.

Ethical Issues
This study was approved by the Ethics Committee of Iran University of Medical Sciences (Ref. code: IR.IUMS.REC.1397.1047). We obtained written informed consent from all participants.

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