

Nurse-Physician Collaboration: the Attitudes of Baccalaureate Nursing Students at Tehran University of Medical Sciences

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Background: Establishing professional communication between physicians and nurses regarding their supplemental roles in health care for patients is unavoidable. Existing studies have reported on related problems concerning ineffective professional collaboration among health care providers.

Objectives: The aim of this study was to determine Iranian bachelor of nursing students' attitudes regarding collaboration between physicians and nurses at Tehran University of Medical Sciences.

Patients and Methods: This study was an inferential cross sectional study. The study population consisted of all first and fourth academic-year Iranian bachelor of nursing students at Tehran University of Medical Sciences (277 individuals), who were selected by convenience sampling. The participation rate was 97.47% (270 individuals). A questionnaire including demographic information and professional experience was used to gather information (included 12 questions). Additionally, the Jefferson Scale of Attitudes toward Physician-Nurse Collaboration (JSAPNC) was also used (included 15 questions). Data were analyzed using the SPSS software. The applied statistical tests included: χ^2 , t student and ANOVA test.

Results: The obtained mean attitude score for the first academic year (51.28 ± 4.98) was higher than the mean attitude score of the fourth academic year nursing students (50.56 ± 4.05). However, the results of the independent statistical t-test showed no significant difference between the two groups of students ($P = 0.322$). In the four dimensions of JSAPNC, concerning only the dimension of physician authority, there were significant differences between the two groups of students ($P < 0.05$). The obtained means for the first and fourth academic year of bachelor nursing students reflected their positive attitudes about collaboration between physicians and nurses.

Conclusions: The positive attitude of most nursing students found in this study showed the need for appropriate and effective collaboration between medical staff; this collaboration will give patients and prospective patients the best possible care.

Keywords: Cooperative Behavior; physicians; Students, Nursing; Iran

1. Background

Establishing professional communication between physicians and nurses is inevitable, as nurses play a supplementary role in the care and treatment of patients, and also fulfill a function in other common areas of health care (1, 2).

Collaborative behavior between physicians and nurses is a communicative process within the provision of patient care; it involves nurses and physicians sharing common responsibilities for problem solving, conflict management and decision making through the use of clear and effective professional communication (3).

Communication between nurses and health care teams includes collaboration between nurses and health care team members for treatment, care, rehabilitation and finally, achievement of a common treatment goal (4). Professional collaboration occurs when professional individuals in different fields of the health system com-

municate to make decisions about patient care and share their knowledge and skills (5, 6). Thus, collaboration as a form of common decision-making is defined by independent parts. In this circumstance, everyone has a role in decision making as well as shared responsibility for outcomes (7). Considering the inter-professional dependence between physicians and nurses in the context of them being the main members of a health team, this interaction has a special role in providing safe and high quality care for patients (8).

Collaboration and teamwork between physicians and nurses is very important for increasing the quality of care (6, 9) and satisfaction (10, 11), as well as maintaining the safety of patients (4, 7, 12).

There is general agreement that physicians and nurses' professional collaborations should result straightforward and high quality clinical outcomes; hence, lead to

lower health care costs (13, 14). Accordingly, providing high quality care requires creating a common understanding of the care program between health team members, which requires effective communication between all members within the team (15).

Although professional communication is highly important among all individuals, the advantages of effective collaboration among nurses, the treatment team and especially physicians are obvious. There are many reports on problems that have yielded through ineffective professional collaboration, some of which have led to medical errors (12). A study conducted by Hojat et al. (2003) showed that a wide communication gap existed between physicians and nurses in different countries. The study showed that this communication gap is seen in countries that encourage complementary communication models between physicians and nurses. For instance, the United States, Mexico and other countries that employ a traditional hierarchical ruling model, have the same gap (16).

Distractive behaviors which include stark language and aggressive behavior amongst healthcare professionals can increase medical errors, decline patient satisfaction, increase the expenditure of care, and impel qualified nurses, other clinicians and managers to search for new positions in more professional situations (4, 17).

While hierarchical structures can be established, gender discrimination makes communication between physicians and nurse complicated. Unfortunately, ineffective communication exists between nurses and physicians and both parties believe that inefficient communication reduces patient safety (8, 11).

The Joint Commission's National Patient Safety 2008, comments on the role of inefficient communication as an important factor contributing to medical errors and consider inefficient communication between treatment team members as the cause of more than 60% of medical errors (18).

Nurses are expected to improve their care abilities by establishing professional communication with one another and with those who are employed in other areas of health and medicine services. Today, many nurses who take part in common planning processes experience insufficient professional communication with other members of health care teams, especially with physicians (8, 19).

The differences between physicians and nurses in terms of ability, point of view, education, salary, position, ranking, and sometimes gender factors, have been addressed in the context of this conflict. In some cases, conflict has been associated with mistrust and disrespect. To reform communications between nurses and physicians in addition to further training of nurses, broader changes are necessary in both the society and in the health care system (20). It appears that the origins for such change lie within the communication between physicians and nurses as it relates to nursing and medical education. Nurses and physicians are trained differently in aspects of

professional communication (12). During their academic training as specialists who can make decisions and take responsibility for the consequences of their decisions, nurses are introduced to medical students (19). Generally, nurses will be trained to be descriptive in terms of how they think and speak. On the other hand, physicians are often brief in their thinking and speaking, use short sentences and can be impatient when waiting for nurses to finish speaking. Overall, cultural differences, a diverse workforce, educational levels, stress, fear and fatigue can contribute to inefficient professional collaboration (12).

Nurses participate with physicians and other health professional staff on a daily basis. The health care system requires nurses that can communicate effectively with other health care team members, patients and their families (21). However, this skill is not necessarily a particular focus at medical schools. Medical students are taught to be team leaders. In nursing schools, students are trained theoretically and practically for participating in teamwork and decision-making with the help of physicians (8, 19). There is a belief that medical and nursing education does not pay enough attention to aspects that are pertinent to professional communication. As physicians and nurses are health team members, they are expected to provide patients with safe and high quality care (22). Such care, particularly in hospitals, largely depends on the ability of health domain professionals to effectively and efficiently communicate with each other (8, 22). Yildirim et al. (2006) state that a balance in professional communication among health team members can only be achieved when medical and nursing students are taught communication skills academically during their academic education. It is therefore necessary for effective listening skills and clear, accurate and honest communications among health team members to be considered as part of students' education (23).

In nursing education, the principles of communication are stressed as important elements of a nursing career (4). In practice, however, the interactive skills of nurses as part of a health services team are not specifically studied (21). In Iran, different cultural and social conditions form concepts that are related to professional collaboration between physicians and nurses, particularly at the educational level. Due to the necessity for effective communication and collaboration between nurses and physicians in order to accelerate patient recovery and promote quality in terms of patient care, the present study was conducted to determine the attitudes of bachelor of nursing students regarding collaboration between physicians and nurses at the Tehran University of Medical Sciences.

2. Objectives

The aim of this study was to determine Iranian bachelor of nursing students' attitudes regarding collaboration between physicians and nurses at the Tehran University of Medical Sciences.

3. Patients and Methods

This study was an inferential cross sectional study performed during January and February 2014. The sample was equal to the total study population. The participants of the study consisted of Iranian bachelor of nursing students who had been students at the time of the study at Tehran University of Medical Sciences. A bachelor's degree in nursing is an academic discipline taught over a period of four academic years in Iran. To gain information and compare the attitudes of bachelor of nursing students in their first academic year of education up to graduation, and to observe the changing attitudes of students as a result of completing a bachelor of nursing in Iran, the study sample was selected from students in their first and fourth academic years. According to the inclusion and exclusion criteria, 277 participants were included while 11 were excluded. The study sample consisted of 270 bachelor of nursing students in their first and fourth academic year at the Tehran University of Medical Sciences (TUMS). The participation rate was 97.47%.

After obtaining Ethical approval from the TUMS Ethics Committee (Ethical ID 93.S.130.227 2014) in January 2014, nursing students were surveyed in the first-year nursing school classes. The fourth-year nursing students were surveyed during clinical education at TUMS hospitals. Firstly, the purpose of the research was explained and written informed consent was obtained from the participants, and finally the questionnaire was completed and returned by the students. The average time required to complete in the questionnaire was 20 minutes.

For data collection, a two-part questionnaire was used; this included a socio-demographic and professional information questionnaire, as well as the Jefferson Scale of Attitudes Toward Physician-Nurse Collaboration (JSAPNC). In the first part of the questionnaire (demographic and professional characteristics), which included 10 questions, information such as age, gender, academic year, diploma average, address, occupation of parents, interest rate of profession and so forth were studied. The second part of the questionnaire consisted of the Jefferson scale, made up of 15 questions and used for measuring attitudes toward the collaboration of physicians and nurses. This scale was established in 1985 at Jefferson University by Hojat and Hergen in the English language and was reviewed in 1999 by Hojat (14). Items of this questionnaire are based on a four-value Likert scale, where "totally agree" has a score of four and "totally disagree" has a score of one.

This scale includes 15 statements, which were collected under four subscales, i.e. shared education and teamwork (seven statements), caring versus curing (three statements), nurses' autonomy (three statements) and physicians' authority (two statements) (6, 7). The Jefferson Scale total score ranges from 15 to 60, with higher values indicating more positive attitude toward physician-nurse collaborative relationships.

The JSAPNC was translated to Persian by a researcher with a complete understanding of the instrument. The instrument was then reviewed by two bilingual individuals, and the "Modified Direct Translation" technique was applied (24). The back-translation was conducted by a native Persian speaker confident in English. The JSAPNC Persian version was then sent to the authors of the original version for their approval.

In this study, the alpha coefficient reliability for the Jefferson Scale of Attitudes Toward Physician-Nurse Collaboration was confirmed by Cronbach's Alpha ranging from 0.73 to 0.79 for samples of nursing students; construct validity and reliability of the tool were also determined. In the study by Hojat et al. (2003), Cronbach's alpha coefficient of the mentioned scale (JSAPNC) was calculated as 86% (16).

The questionnaire form was evaluated by the researchers. The data collected were coded in the SPSS data analysis program, and descriptive statistics such as frequency, percentile, mean and standard deviation were used along inferential tests. The t-test and ANOVA were used to assess the homogeneity of the two study groups in terms of demographic variables. The Kolmogorov-Smirnov test was used to assess the normality of the data. The independent t-test was used to compare first and fourth year students. In this research χ^2 , Smirnov, independent T and Laune were used for data processing while level of confidence was 95%.

4. Results

Of the 270 bachelor of nursing students, 166 were first-year academic students (61.5%) and 104 were fourth-year academic students (38.5%). According to the results, the mean and standard deviation of the students' age was 21.5 ± 4.1 years and most of them (45.7%) were in the age group of 18 to 20 years old, and most (59.6%) were female; 68.1% of the sample lived with their families. The mean and standard deviation of the students' average diploma grade was 18.03 ± 1.5 . The occupation of fathers in many of the samples (48.5%) was self-employed, while most mothers were housewives (88.3%). The rate of interest in nursing as a profession among the studied students was moderate at 4.49%. However, 40.5% of the students had great interest in this field of education. Almost all of the samples (93.7%) approved of nursing as a profession; 79.7% of the samples stated that they had not participated in any workshop or specific training course about professional collaboration.

The socio-demographic characteristics of the nursing students and the comparison of their professional collaboration scale mean scores are given in Table 1. A significant statistical difference was found in the analysis between professional collaboration mean scores of the students who state that nursing student interest to education ($P = .006$).

A comparison was made between the first and fourth-

year nursing students' attitudes in general and in four dimensions i.e. shared education and teamwork, caring versus curing, nurses' autonomy and physicians' authority (Table 2). The results showed that although the mean scores obtained by the first-year students (51.28 ± 4.98) was higher than the average scores of fourth-year students (50.56 ± 4.05) the results of the independent statistical t-test showed statistically significant differences between the two groups. In relation to the four dimensions of JSAPNC, only in the dimension of "physicians authority" we found significant differences between the two groups of students ($P < 0.05$). According to the results,

considering the possibility of obtaining a maximum score of 60 on the Jefferson Scale, the obtained average by first and fourth-year bachelor of nursing students indicated a positive attitude towards collaboration between physicians and nurses.

Comparing the attitudes of students in terms of their personal and professional characteristics (Table 3), the results indicated statistically significant differences between male and female students regarding collaboration between physicians and nurses ($P < 0.006$). The same was also found between the attitudes of students with different beliefs about nursing as a career ($P < 0.05$).

Table 1. Comparison of the Collaboration Grade Averages of First-Year and Fourth-Year Nursing Students

| | First Year ^a | Fourth Year ^a | P Value |
|--|-------------------------|--------------------------|---------------------------------------|
| Gender | | | $\chi^2 = 0.067$, Df = 1, P = 0.796 |
| Female | 100 (60.2) | 61 (58.7) | |
| Male | 66 (39.8) | 43 (41.3) | |
| Age^b | 20.57 (4.42) | 23.15 (2.09) | t = -5.466, P < 0.05 |
| Father job | | | |
| Self-employed | 82 (50.9) | 46 (44.7) | $\chi^2 = 13.859$, Df = 1, P = 0.241 |
| Other | 84 (49.1) | 57 (55.3) | |
| Mother job | | | |
| Housekeeper | 145 (88.4) | 88 (88.0) | $\chi^2 = 1.649$, Df = 2, P = 0.895 |
| Other | 21 (11.6) | 15 (22.0) | |
| Interest in nursing | | | |
| Low | 12 (7.3) | 15 (14.4) | $\chi^2 = 10.774$, Df = 2, P = 0.005 |
| Moderate | 74 (44.8) | 59 (56.7) | |
| High | 79 (47.1) | 30 (28.8) | |
| Educational Programs | | | |
| Yes | 22 (13.5) | 32 (31.1) | $\chi^2 = 12.044$, Df = 1, P = 0.001 |
| No | 141 (86.5) | 71 (68.9) | |
| Opinion about nursing as a profession | | | |
| Yes | 157 (94.6) | 96 (92.3) | $\chi^2 = 0.559$, Df = 1, P = 0.455 |
| No | 9 (5.4) | 8 (7.7) | |

^a Data are presented No. (%).

^b Data are presented as Mean \pm SD.

Table 2. Comparison of Jefferson Scale of Attitudes Toward Physician-Nurse Collaboration and its Subscales Results Between First and Fourth bachelor of Nursing Students

| Variables | First Year (n = 166) ^a | Fourth Year (n = 104) ^a | t | P |
|---------------------|-----------------------------------|------------------------------------|--------|--------|
| Shared education | 25.03 (2.72) | 24.84 (2.3) | 0.607 | 0.545 |
| Caring/Curing | 10.79 (1.33) | 11.03 (1.05) | -1.56 | 0.12 |
| Nurse autonomy | 10.64 (1.34) | 10.87 (1.24) | -1.426 | 0.155 |
| Physician authority | 4.75 (1.56) | 3.93 (1.45) | 4.274 | < 0/05 |
| Total score | 51.26 (5.05) | 50.74 (3.94) | 0.864 | 0.389 |

^a Data are presented as Mean (SD).

Table 3. Comparison of Jefferson Physician–Nurse Collaboration Scale Averages According to Socio-Demographic and Professional Features of the Students

| Socio-Demographic and Professional Features | Jefferson Physician–Nurse Collaboration Scale | | | | |
|--|---|---------|--------------------|-------|-------|
| | N | Average | Standard deviation | F/t | P |
| Age range | | | | | 0.488 |
| 18 - 20 | 122 | 51.41 | 4.26 | 0.720 | |
| 20 - 22 | 75 | 50.92 | 3.50 | | |
| > 22 | 70 | 50.61 | 6.10 | | |
| Gender | | | | | 0.012 |
| Female | 109 | 51.64 | 5.49 | 2.526 | |
| Male | 161 | 50.14 | 3.87 | | |
| Interest in nursing | | | | | 0.15 |
| Low | 25 | 50.65 | 8.40 | 1.908 | |
| Moderate | 133 | 50.59 | 4.2 | | |
| High | 111 | 51.76 | 3.77 | | |
| Opinion about nursing as a profession | | | | | 0.000 |
| Yes | 253 | 51.3202 | 4.04198 | 4.063 | |
| No | 17 | 46.3529 | 9.04807 | | |
| Educational programs | | | | | 0.591 |
| Yes | 54 | 51.2593 | 3.78271 | 0.538 | |
| No | 212 | 50.8774 | 4.85076 | | |

5. Discussion

The findings of this study showed that based on the Jefferson Scale (JSAPNC), bachelor of nursing students had a positive attitude towards collaboration between physicians and nurses (51.06 ± 4.65). The results of this study are similar to previous studies looking at attitudes towards collaboration between physicians and nurses. Yildirim et al. (2005) showed that in Istanbul/Turkey, nurses had a positive attitude about collaboration between physicians and nurses (49.26 ± 4.23) (23). A study conducted in Egypt by EL Sayed and Sleem (2011) on medical surgical nurses showed nurses had a positive attitude towards collaboration between physicians and nurses. The mean and standard deviation of the obtained Jefferson Scale scores by nurses indicated their positive attitude towards collaboration between physicians and nurses (51.21 ± 4.32) (7). Garber et al. (2009) from the United States (52.31 ± 4.8) and also Hansson et al. (2010) from Sweden (51.7 ± 4.00) also reported nurses' positive attitudes toward collaboration between physicians and nurses (6, 25). Nursing students' attitude in our study according to the four dimensions were similar to the attitudes of nurses in the study by Garber et al. (2009), which also indicated positive attitudes (6). The average score on the Jefferson Scale in our study and in similar studies have shown to be almost at the same level, representing the same positive attitude among nurses.

According to researchers, the positive attitude in our study and other studies is related to changes in nursing

education. In the current university curriculum, nursing students are trained to engage in meaningful communication with other members of the care and treatment team, particularly with physicians, for providing appropriate care (19). In Iran's current nursing curriculum, using international nursing reference textbooks and other valid resources have changed the attitudes of nursing students regarding collaboration with physicians. Nursing education metaparadigm and core concepts in Iran can be effective for the attitudes of nursing students.

However, the results of the study conducted by Ardahan et al. (2010) in Turkey, which compared professional collaboration between nurses and medical students, yielded different results from the present study (19). The average attitude score obtained by nursing students in a study by Ardahan et al. (26.11 ± 5.27) was less than half of the total score of the Jefferson Scale, representing a less positive attitude, or even a negative attitude towards collaboration between physicians and nurses. The reason for this difference appears to be associated with nurses' status within the care and treatment team. Ardahan et al. believed that in Turkey, despite the theoretical and practical education that focuses on teamwork, the nursing profession attitude has not changed yet. It seems that the common mind set is that nurses are the physicians' assistants and not their work colleagues in care and health centers of Turkey (19). Hojat et al. (2003) states that the common model that generalizes the hierarchy of physicians and

nurses' communications in Middle Eastern countries sees nurses often being introduced as physicians' assistants. Therefore, physicians are viewed as having a higher status than nurses, an issue that is likely to cause conflict between the two parties (16, 17).

In Iran, attitude of nursing students are changing, but many nurses in clinical environments still experience unbalanced collaboration, especially with physicians (26). Many of the nurses who participated in a study by Shokri et al. (2013) considered lack of belief in the expert role of nurses in patient care as the most important preventative factor in collaboration between physicians and nurses (26). Collaboration between physicians and nurses is likely affected by many precluding variables such as differences in income, gender differences with respect to traditional views about the two professions, physician dominance and the limited professional tasks of nursing (7, 27).

According to our study results, no significant statistical differences were identified when comparing attitudes of first and fourth-year nursing students. The test results for mean difference of attitude scores in shared education and teamwork, caring versus curing, and nurses' autonomy, also indicated a lack of significant difference between the two groups of students. In their study at the nursing college of Ball State University in the US, Thomas et al. (2009) wrote that recently-graduated students and nurses had not been taught the appropriate and essential skills of communication such as listening, combining, construing, collecting data and sharing information (12). On the other hand, fourth-year nursing students in Iran undertaking training internships and fulfilling their duties in real clinical environments with other health care staff were highly influenced by professional communications in these settings. Physician-orienting that appears to exist within the organizational structure of health care centers, could be a preventative factor for professional nursing tasks (28). Furthermore, while the prominence of the hierarchical model in terms of professional communication in Iran health centers might enhance professional communication, it could also possibly have an inhibitory effect on nurses' communications with physicians. The significant differences in attitudes between first and fourth-year students, especially regarding the dimension of physicians' authority, as shown by the present study, highlights the more negative attitude of fourth-year students towards first-year students. Thomas et al. (2009) believe that nursing students do not experience considerable professional communication with physicians, which means that nursing graduates are not always readily prepared for the communication needed to provide secure care to patients (12).

Reviewing the bachelor of nursing and professional PhD courses in Iran does not show any specific unit or a particular method for teaching professional communication in BS curriculum. Hojat et al. (2001) believe that professional collaboration training should be provided

to nursing and medical students, particularly as it concerns hierarchical career communications, so that organizational cultures can be effective and have a positive attitude towards the promotion of the complementary roles of physicians and nurses (14). EL Sayed and Sleem (2011) also support the inclusion of professional communication education in nursing and medical discipline curriculums to increase students' perceptions about their complementary roles (7).

In relation to comparing the attitudes of students in terms of their personal and professional characteristics, the findings of this study indicated statistically significant differences between male and female students' attitudes, as well as between students' attitudes about different beliefs concerning nursing as a profession. According to the results, female students had a more positive attitude towards collaboration between physicians and nurses. In the study of Ardahan et al., despite the lack of significant differences between the attitudes of male and female students, female nursing students had a higher inclination than male students towards professional collaboration (19). In a study by Pakpour et al. (2014), significant differences were detected between male and female nurses' attitudes towards professional collaboration (29). In the current study, however, the mean scores for female nurses' attitudes were higher than those of male nurses.

In our study, the attitudes of students who were considering nursing as a career were significantly more positive than those who did not consider nursing as a profession. Also, most of the participants (94.6%) considered nursing as a profession. It seems to be a lack of belief in nursing as a profession in the Iranian culture means that the traditional models of hierarchy in professional collaboration is acceptable (28).

In this study, the attitudes of students in different age groups showed no statistically significant differences. However, the age group consisting of 18 to 20-year-olds appeared to have a more positive attitude about nurse-physician collaboration. The study of Hojat et al. (2001) on professional collaboration between physicians and nurses found that age was a factor in collaboration and empathy (14). This indicates that younger individuals are more willing to engage in professional collaboration, while a developed professional identity and personality tends to reduce collaboration. Yildirim et al. study (2005) also reflected different attitudes in the age group of under 20 year-olds concerning professional collaboration (23).

Since the convenience sampling method was used for the school of nursing of Tehran University of Medical Sciences, generalization of results to other nurses is limited. In order to enhance external validity, replication of this study in other settings and environments is required. Another limitation of this study was the method for collecting data, which was by self-reporting. The researchers suggest that for future researches, other qualitative and quantitative methods of study should be used for investi-

gating the various aspects of collaboration between physicians and nurses. Topics such as establishing effective factors for collaboration or the impact of professional communication training on the attitudes of students, or reviewing experiences concerning professional communications between physicians and nurses, should be considered by future studies.

The findings of this study showed a positive attitude among bachelor of nursing students regarding collaboration between physicians and nurses. It seemed that this positive attitude was related to changes within nursing training. However, in clinical environments, the dominant model is still based on hierarchical professional communication. In spite of the importance of professional collaboration and team-work in health care centers, especially between physicians and nurses, not having this collaborative approach in place is likely to have a negative effect on the quality of care provided for the patients. The results of the current study also showed that the attitude of junior nursing students was not significantly different from the attitude of senior nursing students. This finding indicates the issue that the bachelor of nursing curriculum and professional PhD programs in the field of medicine has faced significant challenges in the development of professional communication skills and team-work training.

This study was conducted on students of only one governmental university, which can be considered as an important limitation, hampering the results generalizability. Therefore, it is suggested that similar studies should be carried out on other governmental and private universities with larger samples.

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Authors' Contributions

Masoumeh Zakerimoghadam prepared the proposal and performed the literature review, data collection, and prepared the manuscript. Shahrzad Ghiyasvandian supervised the study and made critical revisions of the paper. Anoushiravan KazemNejad Leili supervised and performed the data analysis of the study.

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