

## Investigating the Relationship between Communication and Collaboration of Nurses with Physicians from Nurses' Point of View in Neyshabur Hospitals

Received 13 Sep 2015; Accepted 1 Dec 2015

Amin Asghari<sup>1</sup>, Atefeh Dehnoalian<sup>1</sup>, Masoomeh Saadati<sup>2\*</sup>, Sadaf Ahmadpour<sup>1</sup>, Alireza Ghodsi<sup>3</sup>, Atefe Vaezi<sup>4</sup>

1 Students Research Committee, Neyshabur University of Medical Sciences, Neyshabur, Iran.

2 Department of Nursing, School of Nursing, Neyshabur University of Medical Sciences, Neyshabur, Iran.

3 Department of Statistics, Hakim Sabzevari University, Sabzevar, Iran.

4 Department of Nursing, School of Nursing, Tehran University of Medical Sciences, Tehran, Iran.

### Abstract

**Background and Objectives:** Interactions between physicians and nurses are regarded as an indicator to present the desirable care for the patient. The present study was conducted with aim of clarifying the status of communication and collaboration of nurses and physicians as well as the correlation between these two factors from the nurses' viewpoint.

**Methods:** This research was a descriptive - analytical study of the cross-sectional type in which all the nurses employed in the wards of 22 Bahman and Hakim hospitals of Neyshabur city participated as a census. The sample size was 162 persons according to Morgan table. To collect data a three-part questionnaire was used which included demographic information as well as the communication and collaboration of physicians and nurses. The collected data were analyzed by SPSS ver. 16 using descriptive and inferential statistical tests.

**Results:** 34.6% and 65.4% of nurses were employed in Hospitals of Hakim and 22 Bahman, respectively. 37%, 24.7% and 38.3% of them were working in intensive care units, the emergency ward and other wards, respectively. The results of the study showed that the amount of communication and collaboration of nurses with physicians in all scopes of communication was at a moderate level and a positive correlation was found between the scopes of communication and collaboration of physicians and nurses. A significant relationship also was found between communication, collaboration, and employees' demographic information.

**Conclusion:** The results showed that the effective communication between physicians and nurses is an important element in order to have collaboration between them. Therefore, better communication could improve collaboration of them.

**Keywords:** Collaboration, Communication, Nurses, Physicians

\* **Correspondence:** Should be addressed to Ms. Masoomeh Saadati. **Email:** saadati.msnursing@gmail.com

**Please Cite This Article As:** Asghari A, Dehnoalian A, Saadati SM, Ahmadpour S, Ghodsi A, Vaezi A. Investigating the Relationship between Communication and Collaboration of Nurses with Physicians from Nurses' Point of View in Neyshabur Hospitals. *Health Spiritual Med Ethics*. 2016;3(1):2-9.

## Introduction

To encounter the challenges of health system these days, one of the most important needs is to strengthen the interdisciplinary professional interactions. Among the various occupations actively involved in the health sector, interactions between physician and nurse are of paramount importance (1). Physicians and nurses as members of the health care team are expected to provide the safe and high quality care for patients and such care, especially in hospital environment, requires the existence of capability in health care staff to establish the

effective relationships with each other (2). Communication is a continuous and mutual process by which a person conveys his/her own thoughts, feelings and ideas to others and is in fact establishing the significant contact between individuals (3). Stein believes that this communication should be based on framework of the easy relationship, the presence of mutual honesty and trust as well as authorities, capabilities and responsibilities of both parties to assist shared decision-makings with regard to resources, facilities and equipment available with the aim of resolving the problems of the

patient (4). In traditional communications, physicians gave order and were responsible for providing care while nurses were being obedient and executors of orders (5). Physicians thought of collaboration of nurses to be equal to administration of orders while nurses had a more positive view towards the professional collaboration, and saw collaboration as the exchange of information and participation in decision-making (6). With the nursing profession turning academic, the increase of nurses' knowledge and expanding the working scope of nurses, their decision-making power also increased affecting their inter-professional relationships as well as participation and collaboration in treatment issues. Hence, the concept of collaboration has been the center of great attention among health staff because of its impact on the care provided and the working efficiency (7).

The collaboration the physician and nurse goes beyond working in proximity and in similar environments: it also requires having the common purpose, taking responsibility and conducting the reciprocal task to provide the effective safe and high quality care (8). Collaboration in health care system means that individuals from different health-related professions communicate with one another and make decisions regarding patient care (9). Yoshiro introduces collaboration of the physician and nurse as working together along with the exchange of information related to patient, participation in clinical decision-making and providing comprehensive care with a patient-centered approach (10). Such a collaboration has led to a reduction of hospitalization costs and mortality among patients, promotion of the patient' health status, increase of the quality of cares and an improvement in behavioral disorders of nurses (11-15). In a study conducted by Eric, only in 33% cases were there the appropriate collaboration and participation between physicians and nurses in clinical decision-making (16). Insufficient participation in decision-making leads to the lack of personal worth, the feeling of being subordinate, diminishing self-confidence, decrease of occupational satisfaction, despair,

disappointment, inconvenience, anger, discouragement and lack of motivation. While participation in decision-making will lead to positive effects such as increasing self-confidence, better decision-making, strengthening the human feeling and social status, causing motivation and shared interests, stimulating staff to take responsibility and improving the morale of individuals for teamwork, creating a positive attitude towards the organization, increasing individual's commitment to the organization, increasing the occupational quality as well as care (17-20). Furthermore, studies in this field show that there is a close relationship between collaboration and communication between physicians and nurses and the occupational satisfaction among nurses (21). On the other hand, the interactions among nurses and physicians lead to the promotion of the outcomes of their performance. Among the outcomes of these positive interactions for patients mention can be made of promoting patient satisfaction, increasing awareness from the problems' patient, promoting patient's care, reducing clinical errors and costs (22). In another study, the nurses believed that the more the rate of their communication and collaboration with physicians increased, the lower the occurrence of medicinal errors (23). According to the shared scope of work between physicians and nurses as well as these two professions being complementary, the presence of professional communication is inevitable (24). One of the factors influencing inter-professional communication is the viewpoints of nurses and physicians in this regard so much that Bener considers the collaboration between physician and nurse to be a result of thought, notion and the viewpoints of physicians and nurses' own viewpoints rather than those of the organizational structure (12).

With regard to the great importance of continuous collaboration between physicians and nurses and the positive view it has towards these interactions in promoting the safe and adequate health care of patients, increasing satisfaction and reducing occupational tensions in nurses, increasing working efficiency and

reducing the expenses in hospitals, it seems indispensable to conduct more extensive research to examine the current status of relations between these two professions as well as investigate their viewpoints regarding collaboration and communication in the work place. Now given that the first step in reforming and improving any subject is to clarify the status quo in that context, this study was conducted with the aim of investigating the status of communication and collaboration of physicians with nurses from nurses' point of view in hospitals of Neyshabur city in 2013.

## Methods

This research is a descriptive analytical study of the cross-sectional type conducted on all nurses employed in all wards of hospitals of 22 Bahman and Hakim's Neyshabur city in 2013 as a census. The sample size was computed to be equal to 162 persons according to Morgan table for a population size of 280. Therefore, in proportion to the number of nurses in 2 hospitals of Hakim and 22 Bahman, which were respectively 97 and 183, the sample size from these two hospitals was determined to be 56 and 106, respectively. The research population included nurses who at the time of the study were employed in hospitals mentioned above. Having at a least bachelor's degree and a minimum of one-year work experience in the ward, interest in participating in the study, being aware of the study and the ability to transfer information were considered to be the inclusion criteria. Each participant was examined by an open question in terms of the acute psychological problem and in case of having a psychological problem was eliminated from the research population. In order to contact with all the nurses in all work-shifts, the researcher provided data collection tools for them and finally, collected the completed questionnaire after having referred to the mentioned wards of hospitals while taking notice of moral considerations such as the participants' voluntary right to enter and exit the study, assuring the research participants about the confidentiality of their information, explaining about being anonymity

of questionnaires as well as obtaining verbal consent from the research units in this study.

The data collection tool included a three-part questionnaire. The first part included 10 questions related to the demographic information (age, gender, working history, marital status, educational degree, employment status, type of ward, the average shift per month, the time of shift and an open question regarding having psychological problem or history). The second part of the questionnaire, "scale of communication between physician and nurse" had four scopes including the open communication with six questions, the accuracy and precision in communication with three questions, the scheduled communication with four questions and perception in communication with two questions. In a study conducted by Vaezi et al in 2009, this section was presented and normalized with reliability of the tool reported to be 0.86 by alpha coefficient. The third part of questionnaire, "the collaboration of the physician and nurse" along with 12 questions used has also been adopted from the study by Vaezi et al with a reliability of 0.82 reported for the questionnaire (25). Furthermore, content validity and retest methods were used respectively to determine the validity and reliability of above-mentioned questionnaires and correlation coefficients of 0.87 and 0.85 were found for questionnaires of "the communication between physicians and nurses" and "the collaboration of physicians and nurses", respectively. Questions were arranged in a five-part Likert format (i.e. always, often, sometimes, rarely or never). The total score for the questionnaire of the communication between physicians and nurses was placed in the interval of 0 to 4 which was divided into 3 levels of the poor, moderate and good communication with scores in the intervals of (0-1.33), (1.33-2.66) and (2.66-4), respectively. The total score for the questionnaire of the collaboration of physicians and nurses was placed in the interval of 0 to 4 that had been divided into 3 levels of the poor, moderate and good collaboration with scores in the intervals of (0-1.33), (1.33-2.66), (2.66-4), respectively. However, it should be noted that

kolmogorov-smirnov test showed the dependent variables (collaboration and communication in all scopes) at all levels of the demographic independent variables were normally distributed. Descriptive-statistical tests (tables of frequency, mean, standard deviation and etc.) as well as inferential tests (t-tests, analysis of inter-group variance, Pearson correlation coefficient test) were used in data analysis through SPSS ver.16.

## Result

69.8% and 30.2% of the research participants were female and male, respectively and had an average age of 36.73 years. 80.2% were married and 19.8% were single. 97.7% had a bachelor's degree. 19.8%, 31.5%, 18.5% and 30.9% of them were employed on a tenured, contractual, obligation and yearly basis, respectively.

The minimum and maximum working histories were one year and 29 years, respectively and the average working history was 8.47 years. 34.6% and 65.4% of them were employed in Hospitals of Hakim and 22 Bahman, respectively. 37%, 24.7% and 38.3% of them were working in intensive care units (ICUs), the emergency ward and other wards, respectively.

The minimum score obtained from the questionnaire "the amount of communication between nurses and physicians" in scopes of open, precision, time and perception was at an interval of 1.33-2.66, which was reported to be at the moderate level (Table 1). The amount of collaboration of nurses and physicians in general had been reported to be at the moderate level with a mean of 1.92. According to the table, there was a significant relationship between the scopes of communication and collaboration between physicians and nurses from nurses' point of view in Neyshabur city hospitals based on the simple t-test ( $p=0.000$ )

which had been reported to be at the moderate level. The correlation between communication and collaboration, based on Pearson test in all scopes of open, precision, time and perception was  $r=0.46$ ,  $r=0.38$ ,  $r=0.47$ ,  $r=0.44$ , respectively and in general  $r=0.53$ ,  $p=0.000$  at 1% level. The amount of communication between physicians and nurses in all the scopes did not show any significant relationship between the hospital and gender through independent t-test ( $p=0.61$ ,  $p=0.2$ ). On examining the amount of the communication between physicians and nurses regarding marriage, data showed a significant relationship at a 5% level in the scope of scheduled communication ( $p=0.04$ ), but in other scopes, no significant relationship was observed. Only in the scope of perception from communication between the tenured and obligation employment status did ANOVA test show a significant relationship between the amount of communication between physicians and nurses ( $p=0.37$ ) but this relationship was not found in the other scopes. Furthermore, regarding different wards, the analysis of data in relation to the amount of communication showed a significant relationship ( $p=0.03$ ) between the emergency ward and intensive care unit, only in the scope of precision and accuracy in communication. The correlation coefficient between the amount of communication and age in all scopes was negative and only in the scope of perception from communication with age, was there a significant relationship ( $p=0.03$ ). The correlation coefficient between the amount of communication in all scopes and amount of service history was reported to be negative.

The data also showed that the correlation coefficient between the amounts of communication of nurses in all scopes except the scope of open communication and work history is statistically significant at the

Table 1: The mean and standard deviation of communication from viewpoint of nurses in terms of different aspects of the questionnaire

Aspects of the questionnaire	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval	
					Lower	Upper
Open	26.43	161	.000	1.52	1.41	1.64
Precision	22.99	161	.000	1.41	1.29	1.54
Time	23.15	161	.000	1.47	1.34	1.60
Perception	20.61	161	.000	1.45	1.31	1.58
Communication	28.88	161	.000	1.47	1.37	1.57

significance level of 5%. On reviewing the amount of collaboration of physicians and nurses from nurses' point of view, the data did not show any significant relationship with nurses' demographic information ( $p=0.06$ ). Data also showed that the amount of collaboration of nurses in Hakim Hospital is significantly higher than that in 22 Bahman Hospital and this amount of collaboration is significantly higher in female than male nurses ( $p=0.016$ ). The amount of collaboration was far higher in single than married nurses ( $p=0.03$ ). ANOVA test showed that the amount of collaboration of nurses with physicians with regard to different employment statuses had a significant difference ( $p=0.016$ ) so that nurses employed on a tenured and obligation basis had the highest and lowest collaboration, respectively. There was no significant relationship in the amount of collaboration of nurses with physicians in different hospital wards ( $p>0.05$ ); in other words, this collaboration was the same in all wards. The data also showed that there was a significant and inverse relationship -at the significance level of 5% ( $p=0.02$ ) - between the amount of collaboration of nurses with physicians and their age and work history.

## Discussion

This research has been conducted with the aim of determining the communication and collaboration between nurses and physicians from nurses' point of view as well as investigating their correlation. The results showed that the amount of communication between nurses and physicians in hospitals of Neyshabur is at a moderate level. This finding corresponds with the results of the study by Vaezi in 2011 (25). In a research conducted by Zeighami and Haghighi in Karaj Alborz hospital, it was found that communication in 52% and 48% of cases was good and moderate, respectively (26). Moreover, the amount of communication between physicians and nurses in all scopes of communication didn't show any significant relationship with the type of hospital and gender. This finding is also in line with results of the study by Vaezi (25).

In the research by Zamaani et al, no significant relationship was found between the nurses and physicians' attitude toward communication between the 2 professions and their gender (27). In this study, there was a positive correlation between scopes of communication and collaboration of nurses and physicians at a moderate level meaning the more the level of communication, the more the collaboration between these two groups. In the study by Eric et al, only in 33% of cases was observed the appropriate collaboration and participation between two professions and the majority of nurses had evaluated collaboration at an average and poor levels (28), which is similar to the findings of the present research. In the study by Zeighami and Haghighi, it was found that collaboration and participation of nurses in the clinical decision-making in 14%, 52% and 34% of the cases was poor, moderate and good, respectively (26), which is also in tandem with the findings of the present study.

In his study, Ogbimi reported the incomplete development of communicational skills as one of the important reasons for the communicational vacuum among physicians and nurses. The presence of the communicational skills leads to the development and maintaining the behavior of collaboration through mutual reliance on each other, discussing and investigating, exchanging views and finding solutions to patient-related problems. The other finding of this research indicated that using appropriate communicational skills does not lead to an increase in participation and collaboration of nurses in clinical decision-making (29), which was similar to the results of the current study. The results of this study also showed that a significant relationship was found between communication and collaboration and demographic data so that communication and collaboration with physicians was higher in single than married nurses and also higher in nurses employed on the obligation-employment basis than in tenured ones. This finding does not agree with the results of the study by Vaezi (25).

In the research by Vafa and Karima, a significant relationship was found between

work history and collaboration between nurses and physicians (30), which corresponds with the results of the current research. Of course, Ericsson and Clifford believe that providing training about the effective relationships and increasing the organizational support for nurses results in their participation in clinical decision-making compared with their increasing work history. They also believe that the presence of a subordinate relationship between nurses and physicians and lack of awareness of some physicians about the special roles of nurses regarding patient care are the strongest factors affecting participation of nurses in the clinical decision-making (31). The data in our study showed that with the increase of age, the amount of the communication and collaboration between physicians and nurses decreases. In the study by Vafa and Karima in 2011, a negative correlation was found between the score of collaboration of physicians and nurses and their ages (30), which is identical with the results of the current research. Based on the results, the highest and the lowest interaction was in the emergency ward and intensive care unit, respectively while in the study by Lyndek and Sykert, ICU nurses had better interaction with physicians, because of high knowledge and skill, suitable exchange of information with physicians and dynamics of ward (32), which result was unlike those of this study. According to Lyndek and Sykert, physicians' need to collaborate with nurses increases in sensitive situations (32). Possibly a decrease in nurses and physicians' awareness about the practices of establishing teamwork, lack of proper implementation of policies dealing with inappropriate communication among staff have had an impact on the communicational atmosphere among physicians and nurses (33). Furthermore, in the present study, the amount of interaction was higher in Hakim than 22 Bahman hospital. Most of the current studies about this subject have been conducted in the governmental hospitals. Vaezi in Iran had a study about three types of hospitals (private, public and social security) whose results were consistent with the results of this study and had been reported to be at a moderate level (25). Of

course, in this study it was also found that communication between physicians and nurses is placed at the moderate level, which due to the importance of this communication does not seem to be appropriate.

It should be noted that in this study, only the viewpoints of nurses have been evaluated with the exclusion of physicians' viewpoints. Therefore it is recommended that studies be conducted in other environments with a view to the attitudes of physicians and nursing.

## Conclusion

Given that in this study, the communication and collaboration between nurses and physicians was reported to be at an average level, a higher consideration of the professional roles and independence of nurses, inclusion inter-disciplinary courses in nursing and medicine curriculum and creating teamwork among nurses and physicians help to promote patient care level and increase job satisfaction. Moreover, with regard to the fact that viewpoint of nurses has been investigated in this research, the results can be also be useful in research, education and nursing management. The results of this research can also be used at least as guidelines for senior managers in health-care organizations so as to empower them with knowledge about the status of collaboration and communication between these two professions in order to make correct policies for developing effective relationships along with increasing the participation level of nurses in clinical decision-making.

## Conflict of interest

The authors declare no conflict of interest.

## Acknowledgements

This article is result of the research project approved by the Research Council of Student Research Committee affiliated to Faculty of Medicine, Neyshabur University of Medical Sciences under No. 112. The authors hereby wish to appreciate the support by the Faculty of Medicine of Neyshabur University of Medical Sciences and express their thanks for the cooperation of the respectful authorities in the

studied hospitals and all the nurses who collaborated with researchers in data collection,.

## References

- Borhani F, Abbasi M, Abbaszadeh A, Mousavi S. Attitudes of nurses and physicians of the hospitals affiliated with Shahid Beheshti University of Medical Sciences toward collaboration with each other. *Iran J Med Ethics Hist Med*. 2014;7(3):69-77. [Persian]
- Lingard L, Regehr G, Orser B, Reznick R, Baker GR, Doran D, et al. Evaluation of a preoperative checklist and team briefing among surgeons, nurses, and anesthesiologists to reduce failures in communication. *Arch Surg*. 2008 Jan;143(1):12-7; discussion 18.
- Lancaster J. *Nursing issues in leading and managing change*. Louis: Mosby; 1999.
- Stein-Parbury J, Liaschenko J. Understanding collaboration between nurses and physicians as knowledge at work. *Am J Crit Care*. 2007 Sep;16(5):470-7; quiz 478.
- Spitzer-Lehmann R. *Nursing Management Desk Reference: Concepts, Skills & Strategies*. Philadelphia: Saunders; 1994.
- Hojat M, Gonnella JS, Nasca TJ, Fields SK, Cicchetti A, Lo Scalzo A, et al. Comparisons of American, Israeli, Italian and Mexican physicians and nurses on the total and factor scores of the Jefferson scale of attitudes toward physician-nurse collaborative relationships. *Int J Nurs Stud*. 2003 May;40(4):427-35.
- Tabak N, Orit K. Relationship between how nurses resolve their conflicts with doctors, their stress and job satisfaction. *J Nurs Manag*. 2007 Apr;15(3):321-31.
- Yildirim A, Ates M, Akinci F, Ross T, Selimen D, Issever H, et al. Physician-nurse attitudes toward collaboration in Istanbul's public hospitals. *Int J Nurs Stud*. 2005 May;42(4):429-37.
- Kenaszchuk C, Reeves S, Nicholas D, Zwarenstein M. Validity and reliability of a multiple-group measurement scale for interprofessional collaboration. *BMC Health Serv Res*. 2010 Mar 30;10:83.
- Ushiro R. Nurse-Physician Collaboration Scale: development and psychometric testing. *J Adv Nurs*. 2009 Jul;65(7):1497-508.
- Tyson PD, Pongruengphant R. Five-year follow-up study of stress among nurses in public and private hospitals in Thailand. *Int J Nurs Stud*. 2004 Mar;41(3):247-54.
- Barrere C, Ellis P. Changing attitudes among nurses and physicians: a step toward collaboration. *J Healthc Qual*. 2002 May-Jun;24(3):9-15; quiz 15-6, 56.
- Jackson DJ, Lang JM, Swartz WH, Ganiats TG, Fullerton J, Ecker J, Nguyen U. Outcomes, safety, and resource utilization in a collaborative care birth center program compared with traditional physician-based perinatal care. *Am J Public Health*. 2003 Jun;93(6):999-1006.
- Van Niekerk LM, Martin F. The impact of the nurse-physician professional relationship on nurses' experience of ethical dilemmas in effective pain management. *J Prof Nurs*. 2002 Sep-Oct;18(5):276-88.
- Reeves S, Nelson S, Zwarenstein M. The doctor-nurse game in the age of interprofessional care: a view from Canada. *Nurs Inq*. 2008 Mar;15(1):1-2.
- Thomas EJ, Sexton JB, Helmreich RL. Discrepant attitudes about teamwork among critical care nurses and physicians. *Crit Care Med*. 2003 Mar;31(3):956-9.
- Scott B. The influence of participation in decision-making within the enterprise bargaining context. Implication for job satisfaction and affective commitment [PhD Thesis]. Curtin, Australia: Australian Curtin University of technology; 2001.
- Baggs JG, Schmitt MH, Mushlin AI, Mitchell PH, Eldredge DH, Oakes D, et al. Association between nurse-physician collaboration and patient outcomes in three intensive care units. *Crit Care Med*. 1999 Sep;27(9):1991-8.
- Harmon J, Scotti DJ, Behson S, Farias G, Petzel R, Neuman JH, et al. Effects of high-involvement work systems on employee satisfaction and service costs in veterans healthcare. *J Healthc Manag*. 2003 Nov-Dec;48(6):393-406; discussion 406-7.
- Levar R. A questionnaire study of the effect on work of participation in and influence on decision-making. *Res Post-Compulsory Educ*. 1998;3(2): 153-73.
- Wanzer MB, Wojtaszczyk AM, Kelly J. Nurses' perceptions of physicians' communication: the relationship among communication practices, satisfaction, and collaboration. *Health Commun*. 2009 Dec;24(8):683-91.
- Chaboyer WP, Patterson E. Australian hospital generalist and critical care nurses' perceptions of doctor-nurse collaboration. *Nurs Health Sci*. 2001 Jun;3(2):73-9.
- Manojlovich M, DeCicco B. Healthy work environments, nurse-physician communication, and patients' outcomes. *Am J Crit Care*. 2007 Nov;16(6):536-43.
- Thompson DR, Stewart S. Handmaiden or right-hand man: is the relationship between doctors and nurses still therapeutic? *Int J Cardiol*. 2007 May 31;118(2):139-40.
- Dabirian A, Vaezi A, Ameri M, Kavousi A. Nurses' Viewpoint About Collaboration Between Physicians And Nurses In Clinical Decision-Making In The Hospitals Of Tehran, 2011. *J Res Dev Nurs Midwif*. 2014;11(2):87-93. [Persian]
- Zeighami Mohammadi S, Hagigi S. The Association Between Nurses Communication Skills And Nurse-Physician Relationship And Collaboration. *J Nurs Midwif*. 2008;6(4):189-96. [Persian]
- Zamani AR, Zamani N, Sherafat Z. Assessment and Compare of Nurses and Physicians Views about Dr-Nurse Relationship Cycle. *J Isfahan Med Sch*. 2011;28(120):1529-36. [Persian]
- Thomas EJ, Sexton JB, Helmreich RL. Discrepant attitudes about teamwork among critical care nurses and physicians. *Crit Care Med*. 2003 Mar;31(3):956-9.
- Ogbimi RI, Adebamowo CA. Questionnaire survey of working relationships between nurses and doctors in

## Investigating the Relationship between Communication

University Teaching Hospitals in Southern Nigeria. *BMC Nurs.* 2006 Feb 21;5:2.

30. El-Sayed KA, Sleem W. Nurse-physician collaboration: a comparative study of the attitudes of nurses and physicians at Mansoura University Hospital. *Life Sci J.* 2011;8(2):141-6.
31. Clough J. Collaboration between Physicians and Nurses: Essential to Patient Safety. *Forum.* 2008;26(2):1-16.
32. Lindeke LL, Sieckert AM. Nurse-physician workplace collaboration. *Online J Issues Nurs.* 2005 Jan 31;10(1):5.
33. Rosenstein AH, Russell H, Lauve R. Disruptive physician behavior contributes to nursing shortage. Study links bad behavior by doctors to nurses leaving the profession. *Physician Exec.* 2002 Nov-Dec;28(6):8-11.