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Effect of Nurse-Physician Teamwork in the Emergency Department Nurse and Physician Perception of Job Satisfaction

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Abstract

Introduction: Research studies in the military and aviation demonstrated that teamwork is essential to safety. However, there were limited studies dealing with the practice of teamwork between nurses and physicians in the emergency departments (EDs).

Aim: The aim of this cross-sectional, quasi-interventional study was to compare nurses and physicians (staff) who worked in the interventional group emergency departments and those who worked in the control group emergency departments on the effect of teamwork on staff job satisfaction.

Methodology: Data were collected over a three-year span (2009-2011) for a seven-day period in each participating hospital emergency departments using Revised Nurse Work Index, a four-point (1 to 4) Likert-type scaled instrument. Primary investigator and trained research assistants distributed surveys to ED staff who agreed to participate in the study. Completed surveys were returned into a locked box. Result: Staff who worked in the interventional group emergency departments showed significantly higher levels of staff job satisfaction associated with improved practice of teamwork ($p<0.0001$) than their counterparts who worked in the control group emergency departments which had no practice of teamwork. Discussion: Staff who worked in the interventional group EDs worked together and participated as equal partners in patient care leading to improved interpersonal relationships and suppression of hierarchical status among the members of both professions, however, this condition was not present in the control group.

Conclusion: Active teamwork practice was associated with an increased perception of higher levels of staff's perception of job satisfaction in the staff who worked in the interventional group EDs compared with those who worked in the control group EDs.

Keywords: Nurse-physician teamwork; Communication; Job satisfaction; Physician job satisfaction; Nurse job satisfaction

Introduction

In recent years, healthcare organizations have faced shortages of health personnel, resulting in managers and hospital administrators working to create environments favorable to recruiting and retaining staff. Studies showed that satisfied staff were happier with their jobs, enjoyed their work, had less burnout, and had a greater tendency to stay on the job [1-3]. Therefore; teamwork has been considered by organizations as one of the means of providing an environment to foster satisfied staff. Other studies also showed relationships between the practice of teamwork and improvements in staff cohesion and camaraderie. Quality of communication, quality of interactions, improved work environment, social networking, trust among staff, working towards common goals, job satisfaction, job enjoyment, reduced burnout, and improved longevity were shown to result from effective practice of teamwork [4-6].

However, despite common goals between nurses and physicians for providing quality health care and relief to patients, there is the traditional economic and gender hierarchical relational gap between nurses and physicians whereby physicians, (mainly males) have maintained dominance and the nurses, (mainly females) have displayed deference [7]. Nurses have learned to package their contributions for patient care in such a way to be acceptable to physicians in order for their contributions not to be summarily dismissed by the physicians [8,9]. This was contrary to teamwork behavior in another study that showed that when team members were able to express their thoughts, expand and achieve their potential, they were more likely to associate with and rely on the team, resulting in trust, commitment to the team, and job longevity [10].

Emergency departments operate under chaotic conditions with lack of adequate information regarding incoming patients, and this is compounded by rapid movements of events. It is, therefore, necessary for ED staff to realize that close working relationships and reliance on each other allow a team to do collectively what one staff member cannot do alone and could lead to positive outcomes for the staff and

patients. The stressful conditions that are predominant in emergency departments could augment differences between medicine and nursing in their educational backgrounds, skills, and values [11]. However, teamwork training could reduce the differences to the point that both sides could work amicably for the benefit of the patients. As a result, organizations should understand that in order for team training and subsequent teamwork practice to be successful, factors such as leadership support and the learning environment must be supportive, and organizations must be committed to participate in growth and invest resources in changes driven by data [12]. This research is essential since there have been few studies dealing with nurse-physician teamwork in the emergency department.

The purpose of this cross-sectional quasi-interventional study was to compare nurses and physicians who worked in the interventional group emergency departments and those who worked in the control group emergency departments on their job satisfaction. The interventional group staff had previously undergone formal teamwork training and they stated teamwork was operationalized in their emergency departments. New staff members in those emergency departments were trained on teamwork process during their orientations and current staff receives yearly refresher courses. The staff in the control group did not participate in any formal nurse-physician teamwork training and teamwork was not operationalized in their emergency departments.

Literature Review

Adams and Bond found that work-group cohesion among nurses was associated with 51% of the nurse job satisfaction and staff-patient ratio was associated with 41% of nurse job satisfaction [13]. Group cohesion improved nurses' interests in assisting coworkers to cope with stressful patient issues [13,14]. A unit-based team-building strategy correlated with better work-group cohesion (N=300) with an increase in mean scores from 5.5 pretest to 6.01 posttest (scale of 1-10), ($p \leq 0.001$). In a post unit-based team building evaluation, nurse-nurse interaction scores increased ($p=0.05$); nurse-physician interaction improved significantly ($p=0.05$); job enjoyment also improved ($p=0.05$); and turnover decreased significantly by 33%. Perception of professional practice also improved ($p<0.05$) [4].

Kovner et al., found that factors such as work-group cohesion, work and family conflicts, variety of work, supervisor support, autonomy, distributive justice, promotional opportunities, and organizational constraints predicted more than 40% of nurse job satisfaction. Work-group cohesion was also associated with nurse job satisfaction ($p<0.01$) [6].

Doan-Wiggins et al., studied physician job satisfaction, attrition, and job related stress and found that job satisfaction among most resident and primary care physicians was related to their professional practice conditions, such as: job associated prestige; professional respect; and working relationships [15]. Some primary care physicians and some resident physicians felt burnt out with their jobs and some planned to leave emergency medicine. Physicians who reported a lower mean score of job satisfaction ($p=0.0001$) and higher burnout ($p=0.001$) planned to stop practicing [15].

Another study of physicians' job satisfaction, turnover, and job dissatisfaction, (N=5,704) revealed similarities in the levels of job satisfaction amongst the generalists and specialists with younger physicians reporting lower job satisfaction than their older counterparts. Physicians who reported lack of satisfaction with some aspects of their jobs had a greater tendency to want to quit within two to five years than those with median levels of job satisfaction. Generalists who were not satisfied with their community relationships ($p<0.0001$) or with non-physician staff relationships in their offices ($p<0.01$) were more likely to plan to quit practice than those who had higher scores on job satisfaction measures ($p<0.01$) [16].

Conceptual Framework

The theoretical framework used in this study was based on Donabedian's structure-process-outcome model of quality care. Donabedian's theory was initially developed to measure quality of patient care. It consists of three components which are structure, process, and outcomes. Donabedian demonstrated that good structures increase the possibility of good processes and good processes enhance good outcomes [17,18]. In this study, the organization represents the structure, teamwork represents the process, and nurse-physician perception of teamwork and job satisfaction represent outcomes. This study revealed that the more positive the organizational participation, the more effective was teamwork practice and the more positive was the resulting outcome. Based on the conceptual framework and previous research evidence, a modified conceptual model was developed (Figure 1).

Research Design

This was a comparative cross-sectional quasi-interventional study of effects of emergency room nurse-physician teamwork on the interventional group emergency departments' staff with the staff who worked in the control group emergency departments. The study was developed after the Emergency Team Coordination Course (ETCC) was implemented. The ETCC was introduced in emergency departments by Morey et al. from May 1998 to March 1999 to evaluate the impact of the training on the successful practice of teamwork [19].

Teamwork training was conducted by Morey in each participating ED by a team of trained nurses and physicians in each interventional ED prior to the study, as part of their on-going operational training on teamwork practice. Participating staff in the interventional EDs were taught strategies to maintain the structure and climate of the team, communicate effectively with the team while applying strategies to solve problems, improve team skills, carry out plans, and manage workload.

Sample and inclusion criteria

The interventional group was comprised of a convenience sample of nurses and physicians from all shifts of each of the four interventional hospital emergency departments.

Control group was comprised of a convenience sample of nurses and physicians from all shifts of each of the four control hospital emergency departments. Invitations to participate in the study and complete survey questionnaires were given to all nurses (RNs, N=433) and physicians (MDs, N=105) at participating emergency departments. Staff who had been employed in the emergency departments for a minimum of six months and staff who had worked in full time or part-time positions was qualified to participate in the study. Staff who did not meet the criteria was excluded. Participants were told the purpose of the study and were given opportunities to participate or to refuse. Only that staffs that completed and returned

questionnaires were considered to have consented to participate in the study.

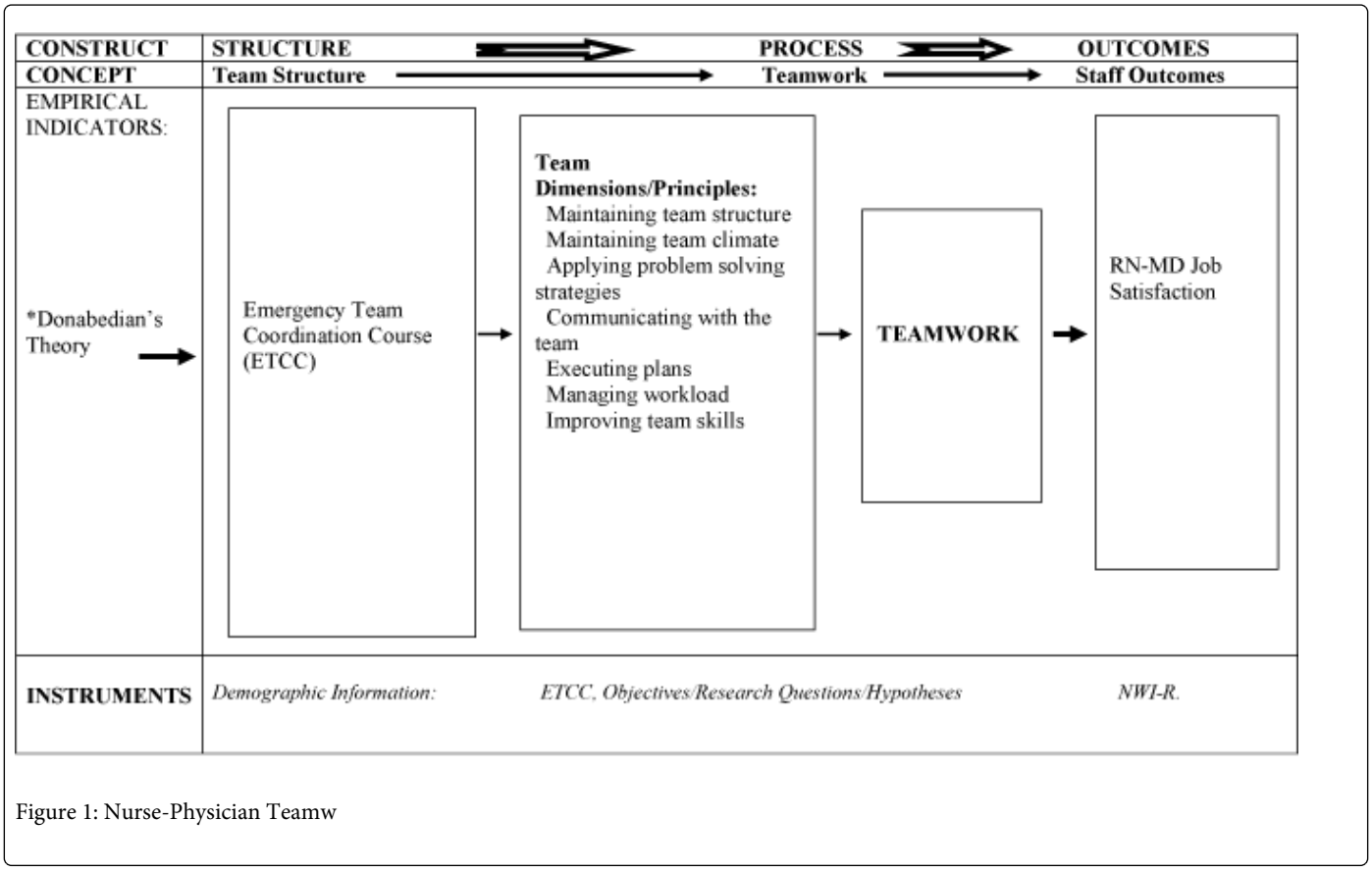

Figure 1: Nurse-Physician Teamw

*Adapted/Modified from Donabedian's Structure-Process-Outcome of Quality Care Model Donabedian, A (1988). The quality care: How can it be assessed: Journal of American Medical Association, 260: 1743-1748.

Instrument (Tool)

The instrument used to assess the effect of teamwork on staff job satisfaction was the Revised Nurse Work Index (NWI-R), a 4 point Likert-type scale with 1 being strongly disagree and 4 being strongly agree [21,22]. Psychometric information about NWI-R was described by Aiken and Patrician and reliability was estimated using Cronbach's alpha which equaled 0.96 for the entire NWI-R; the aggregated subscale alphas ranged from 0.84 to 0.91.

The original NWI has three subscales: autonomy consisting of five items, control over practice setting consisting of seven items, and nurse-physician relationship consisting of three items, two of which measure quality of nurse-physician relationships and quality of teamwork between nurses and physicians [20]. When revised a fourth subscale was added to depict organizational support for caregivers. The fourth subscale consists of ten items [21]. The subscale of interest of this study is the nurse-physician relationship (teamwork).

The original instrument demonstrated validity by its ability to differentiate nurses who worked within a professional practice environment from those who did not, and its capacity to predict differences in nurse burnout [22]. When revised to measure physician job satisfaction, every word "nurse" was changed to "physician" and every word referring to "nursing" was changed to "medical." Content validity for the change was not performed; changing the words "nurse" to "physician" and "nursing" to "medical" was not expected to have changed content validity of the instrument for this study. Cronbach's alpha and reliability of the instrument were not determined for this study as those have been determined by the studies for which it has been previously used.

This instrument was selected for this research because of its ability to demonstrate significant differences between the interventional and the control groups. The findings of this research are from a different data set from the article published in the Journal of Nursing Administration which dealt with the impact of nurse-physician teamwork in the emergency department on perception of job environment, autonomy, and control over practice [23].

Research procedure

Morey suggested names of hospital emergency departments in California which had participated in the ETCC training as potential participants in the study. However, in order to get additional hospital emergency departments to participate as the controls, the primary researcher invited other emergency department managers and asked whether or not their emergency departments participated in formal teamwork training. Emergency departments in California which have undergone formal teamwork training at various periods between 1998 and 2011 and had operationalized its principles in their emergency departments were members of the interventional group (N=4) and

those that have never participated in the formal teamwork training and did not operationalize its principles were members of the control group (N=4). The interventional group, as part of their annual competency, underwent annual review in-services to reinforce principles of teamwork. Both groups were invited to participate in the study and of all hospital emergency departments (about 21) in Northern and Southern California that were invited, eight agreed and were selected to participate (two interventional and two control hospitals from each area, Northern and Southern California). IRB approval was received from UCLA and from each of the eight participating hospitals.

Surveys were given by the primary researcher and trained research assistants to all participants who agreed to participate. Completed surveys were returned into a locked box that could be opened only by the primary researcher at the end of data collection. Data collection took seven days for 24 hours per day at each participating emergency department. Data collection occurred between 2009 and 2011 because of the length of time it took for IRB approval from each hospital. Staff demographic data collected were gender, age, educational level, shift worked, and work/employment status (Table 1).

Employment Status											
	Interventional Group	Percent	Missing Data	Percent	Total		Control Group	Percent	Missing Data	Percent	Total
MD	25	13%			191		40	13%			307
RN	166	87%					267	97%			
Gender											
	Interventional Group	Percent	Missing Data	Percent	Total		Control Group	Percent	Missing Data	Percent	Total
Male	58	30%	7	4%	191		84	27%	12	4%	307
Female	126	66%					211	69%			
Age of Participants (RN and MD)											
	Interventional Group	Missing Data	Mean	Std Dev	Total		Control Group	Missing Data	Mean	Std Dev	Total
	169	22	38	9.67	191	278	29	39	10.61	307	
Years in Current Unit											
	Interventional Group	Missing Data	Mean	Std Dev	Total		Control Group	Missing Data	Mean	Std Dev	Total
	177	14	6	6	191	287	20	7	6	307	
Shift Worked											
	Interventional Group	Day Shift	Evening Shift	Night Shift	Missing Data	Total	Control Group	Day Shift	Evening Shift	Night Shift	Missing Data	Total
	183	92	52	39	8	191	281	120	72	89	26	307

Table 1: Results - Participants' Demographics

One hundred and ninety one (191) staff of the interventional group emergency departments participated; 166 (86.9%) were nurses and 25 (13.1%) were physicians. Females comprised a majority of the participants with 6.3 average years working in the participating emergency department. The three shifts worked by the participating ED staff were night, evening and day shifts, but a majority worked day shift. The participants also had various educational levels. In the control group, 307 staff participated of which 267 were nurses and 40 were physicians. Two hundred and eleven (211) were female and 84 were male and they worked an average of 6.8 years in the participating emergency departments. A majority of them also worked day shift and had various educational levels. There were no significant differences demographically between the interventional and the control groups with regards to age, gender, (male/female), employment category (RN/MD), educational level, full-time/part-time, and day/evening/night shifts (Tables 1 and 2).

Data analysis

The Statistical Analysis Systems (SAS) program, release 9.2 (Cary, NC) was used for data analysis. The analysis used the two-sample, one-tailed t-test to identify significant differences between the interventional group and control groups (p=0.05).

Results

Nurse-Physician job satisfaction

Staff (nurses and physicians) job satisfaction data were collected using the NWI-R; on a Likert-type scale of 1 to 4; the interventional group had a mean score of 3.11, SD of 0.59 and the control group had a mean score of 2.88, SD of 0.53. There was a significant difference between the interventional group ED staff and the control group ED

staff ($p<0.0001$), (Table 3). The effect size of the study was calculated and it was 0.21 indicating that staff in the interventional group was more satisfied than the staff in the control group by 21% of a standard deviation.

Participants' Educational Level										
	Diploma	Associate	BSN	Masters	DO	MD	Ph D	Other	Missing Data	Total
Interventional Group	7	62	81	11	0	15	1	3	11	191
Percent	4%	%	42%	6%	0%	8%	1%	2%	5%	100%
Control Group	9	107	121	16	1	35	0	1	17	307
Percent	3%	35%	39%	5%	0%	11%	0%	0%	6%	100%

Table 2: Results - Participants' Educational Level

Staff Job Satisfaction		
	Interventional Group	Control Group
Mean	3.11	2.88
95%	2.96	2.77
Std Dev	0.59	0.53
t Value	4.40	
P-Value	P < 0.0001	

Table 3: Results-Variables

Discussion

Referring back to Donabedian's structure-process-outcome model of quality care, it is apparent that the organizations (structure) of the interventional group emergency departments supported formal training and use of teamwork in their emergency departments. As a result of the support, staff in the interventional group emergency departments was able to learn, embrace, and practice active teamwork (process). Therefore, staff in the interventional group felt more surrounded by the presence of teamwork practice and were more satisfied with their job (outcomes) than the staff who worked in the control group emergency departments who did not get similar organizational support for formal teamwork training and were not practicing teamwork in their emergency departments. Training received by the interventional group EDs focused on problem solving strategies; communication; plan execution; workload management; team structure and climate maintenance; and skill improvement [24]. The result was also consistent with the findings of another study by Kalisch et al. which showed that participants' job satisfaction with their present position was rated higher when they felt a higher presence of teamwork in their present job [14].

Based on the findings of this study it could be deduced that the significant difference shown between the interventional group staff perception of job satisfaction was associated with teamwork. The practice of teamwork might have increased the frequency and quality of interactions between the nurses and physicians which helped each to understand the functions of the other so they were able to function side by side. Teamwork training received might have contributed to the strategies applied to improve effective communication between team members which might have improved team climate and thus increased the ability of the team members to solve problems, improve team skills, carry out plans, and manage workload collectively. The practice of teamwork appeared to increase the cohesiveness between the nurses and the physicians of the interventional EDs and thus removed hierarchical feelings of superiority between the nurses and the physicians.

Limitations

The study was conducted over a period of three years in multiple hospital emergency departments in Northern and Southern California, to assess the impact of nurse-physician teamwork on nurses and physicians. Regardless of the extent and diligence of data collection and analysis, certain limitations existed. First, the use of a cross-sectional quasi-interventional design provided a snapshot, which might not be reliable because participants' responses might be due to the emotional state and what was happening at the moment of responding to the surveys and could be different if the responses were taken longitudinally, over a period of time. Second, the study could not identify cause and effect relationships because the study was non-experimental. Third, there might be some departmental cultural issues that could not be accounted for that might have contributed to teamwork. Fourth, the degree and timeliness of the training and the number of staff who participated in the formal teamwork training that were still or not still working in the interventional group emergency departments could have confounded the findings. Fifth, not performing content validity and reliability of the instrument with the minor changes made to two words might have possibly had some effect on the content validity and reliability of the instrument. Sixth, recall bias could lead to misclassification of the findings and thus make generalization of the result unreliable. However, it is significant that in spite of the time since the educational intervention, those Emergency

Departments that had undergone teamwork training had significantly higher job satisfaction among nurses and physicians than in the Emergency Departments that had not undergone the training.

Conclusion/ Significance to Healthcare

This study demonstrated that the practice of effective nurse-physician teamwork in the emergency department was improved by the administrative support in providing staff with training on teamwork. It also showed that nurse-physician teamwork training and practice in the emergency department were associated with feelings among nurses and physicians of improved job satisfaction.

The results pointed to the need to invest resources in nurse-physician teamwork training and in operationalizing teamwork between nurses and physicians in the emergency department. Nurses and physicians could join their skills together in providing good quality care to the patients while maintaining a positive environment for both disciplines to thrive through teamwork practice.

Genuine teamwork between nurses and physicians in any healthcare setting could contribute to creating a work environment with reduced hierarchies between them, especially in the emergency department. Teamwork could also serve as an equalizer of hierarchies between nurses and physicians. When such an environment exists, the nurses and physicians could excel and coordinate their skills and efforts to deliver better quality care to the patients, resulting in increased teamwork and job satisfaction for both professions.

Future Study

Future studies should consider the effects of nurse-physician teamwork in the ED on the commission of errors in the emergency department. An effort to include the commission of errors in this study was aborted due to difficulties encountered in getting any hospital EDs to consent to having data collected on this variable.

Other studies should also focus on the effect of nurse-physician teamwork in the ED on patients' outcomes such as ED revisit within 24-48 hours of discharge from the ED, satisfaction with ED care, and willingness of patients to recommend the ED to their family members, friends, and acquaintances.

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