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The Effect of Conflict-Management Enhancing Strategy for Head Nurses on the Quality of Vertical Dyad Linkage with Nurses

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Abstract: Background: Conflict management is an essential skill for an effective nurse leader. As the inappropriate use of conflict resolution skills leads to degeneration of communication and poor working relationships particularly between nurse leader and their staff nurses. ***Aim:*** The present study aimed to determine the effect of conflict-management enhancing strategy for head nurses on the quality of vertical dyad linkage with nurses. ***Material and methods:*** Pre-experimental research design (one-group pretest-posttest) was used on 31 head nurses and 203 staff nurses working in Port Said Hospitals. ***Tools of data collection:*** Three tools were used; A Self-Administered Conflict Knowledge Questionnaire, Thomas-Kilmann Conflict Mode Instrument and Vertical Dyad Linkage Scale. ***Results***: Revealed a statistically significant improvement in head nurses' knowledge regarding conflict and its management strategies after strategy implementation. ***Conclusion:*** There was a statistical improvement related to the quality of vertical dyad linkage among head nurses and their staff after implementation. So, the findings pointed to enhance head nurses' abilities related to conflict management through educational programs. Also, further researches are suggested in this area.

Keywords: Conflict, conflict management, enhancing strategy, head nurses, quality, vertical dyad linkage.

INTRODUCTION

Conflict is present in all aspects of life and in all organizations, it is unavoidable and a natural part of all human relationships (1). In clinical environments, conflict is inherent and cannot be eliminated. As well, conflict among health care providers is inevitable and is compounded by many reasons (2). In a sense, the conflict between nurses is common, high and has a significant impact on the quality and safety of patient care (3). In addition, a high exchange relationship between nurse leaders and their staff is mainly based on how those leaders master an energetic and efficient conflict-management styles and techniques (4; 5). Therefore, it is imperative for nurse leaders to learn how to deal with conflict and strive to promote ongoing evaluation and continuous improvement of conflict resolution skills (6).

Conflict is a process that begins when one party perceives that another party has negatively affected something that the first party cares about (7). Cherry & Jacob (2017) added that conflict is an experience in which there is simultaneous arousal of two or more incompatible motives (8). While, Dahlkemper (2018) defined conflict as real or perceived differences between individuals with differing values, ideas, or goals (1). Conflict between nurses comes from many sources including, disagreement over the appropriate work behavior or course of action, scarcity of important resources as money, materials, tools and supplies, individuals and group interdependence, differences in personality and tempers (9). Furthermore, organizational change, ineffective communication, values and culture clashes, work policies and practices are considered common sources of conflict (10).

Based on Murray (2017), there are five common strategies for conflict management as follows; avoiding strategy (withdrawing or hiding from the conflict), accommodating (sacrificing one's own needs and trying to satisfy another's needs), competing (pursuing one's own needs, at the expense of other), compromising (everyone gives something up, and everyone gets something they want in return) and collaborating (a shared approach to resolve conflict, shared goals are identified, and a commitment to work together is implemented by those involved) (6).

Nurses face regular disputes in workplace (11). Handling those disputes is an important part of their nurse leaders' work (12). Inappropriate use of dispute resolution skills can increase stress and limit innovation. Moreover, it leads to degeneration of communication and poor working relationships particularly between nurse leader and their staff nurses (13). On the other hand, Ihidero (2011) proved that developing constructive and proactive conflict management practices by the leaders is a cue for high exchange relation with their staff (4). This quality of the exchange relationship between nurse leaders and their staff is represented by vertical dyad linkage or leader-member exchange theory (14).

Vertical dyad linkage is a novel contribution to leadership literature theories (15). According to Landy & Conte (2016), vertical dyad linkage is a theory, which proposed that leaders adopt different behaviors with subordinates; the particular behavior pattern of the leader develops over time and depends to a large extent on the quality of the leader-subordinate relationship (16). On the same line, Chmiel, Fraccaroli & Sverke (2017) view vertical dyad linkage as a theory that focuses on the quality of the relationship between the leader and the followers (17). While Ledlow& Stephens (2018) described vertical dyad linkage as the situation in which leader–group interactions, judgments, and

opinions are formed by the leader and the members of each dyad (5).

Vertical dyad linkage classified nurses into two categories; high- and low-exchange relationships. High-exchange relationship nurses tend to have expanded roles and they are more competent, so such nurses tend to get more benefits, including desirable assignments, tangible rewards, and better schedules. While, low-exchange relationship nurses tend to stay within their defined roles and do little more than what is required, so they are less likely to receive extra benefits or professional ~~or~~ and personal support (18).

SIGNIFICANCE OF THE STUDY:

Conflict is a part of everyday experience and health care organizations must find ways of managing conflict and developing effective working relationships to create healthy work environments (19). Unfortunately, some supervisors are uncomfortable with conflict and tend to avoid dealing with the issues while hoping that the conflict will go away, furthermore handling conflict appropriately has an instant replay of human relations and involves the development and maintenance of sound job relationships with their staff (20). Stewart (2010) added that choosing the appropriate conflict management style can preserve the quality of a dyadic leader-member exchange relationship (21).

Aim:

Evaluate the effect of conflict-management enhancing strategy for head nurses on the quality of vertical dyad linkage with nurses.

Research objectives:

1. Assess head nurses' knowledge regarding conflict and conflict management strategies through pre, post-training and follow-up.
2. Determine conflict management strategies among head nurses through pre, post-training and follow-up.
3. Assay the quality of vertical dyad linkage between head nurses and staff nurses from staff nurses' point of view through pre-training, post-training and follow-up.
4. Find out the effect of conflict-management training strategy for head nurses on the quality of vertical dyad linkage between head nurses and staff nurses.
5. Find out the correlation between conflict management strategies used by head nurses and vertical dyad linkage through pre, post, and follow-up of training strategy implementation.

METHODS

Study design:

A pre-experimental research design (one-group pretest-posttest) was used.

Setting:

This study was carried out at four hospital in Port Said, Egypt; three of them are affiliated to the Ministry of Health, these are Port Said general hospital, El-Zohour central hospital, Port Fouad general hospital and the fourth hospital is affiliated to health insurance namely El-Tadamon hospital.

Sample:

The subjects of this study included two groups; they were all head nurses who were working in the study settings with total number of thirty-one (31) head nurses, and all their staff nurses who were subordinates for the mentioned head nurses with total number of two hundred and three (203) staff nurse. Those who accepted to participate were included in the study and they had at least one year of experience in nursing.

Tools:

Three tools were used to collect data for this study.

TOOL (I): Self-administer Conflict knowledge questionnaire Sheet:

This tool consisted of two parts:

Part I: included head nurses' personal and job characteristics as name, age, marital status, gender, level of education and years of experience~~s~~.

Part II: is a questionnaire, created by the researcher, based on literature review of (Huber, 2014; Marquis & Huston, 2014; Rudani, 2013; Roussel, 2013) to measure head nurses' level of knowledge regarding conflict and conflict management strategies, before and after training, including 25 multiple choice questions related to the content of the conflict management enhancing strategy (18; 22;23;24).

Scoring System:

Each question was scored "1" if it is correct and "zero" for the wrong answer. The scores of the items were summed-up and then converted into a percent score. Knowledge was considered satisfactory if the percent score was 60% or more and unsatisfactory if less than 60%.

TOOL (II): Thomas-Kilmann Conflict Mode Instrument (TKI):

This instrument was developed by Thomas and Kilmann (1974) and adopted from Abudahi (2012) to assess head nurses' preferred conflict resolution strategies. TKI is self-assessment tool which comprises 30 pairs of forced choice responses ("A" and "B" statements) which addressed five styles of responding to conflict, avoiding (12 items), accommodating (12 items), competing (12 items), compromising (12 items) and collaborating (12 items). For each item, the head nurses were asked to choose from (a) or (b) paired statements according to which of two statements is most characteristic of their behavior. The TKI was translated into Arabic language and validated by Abudahi (2012) (25).

Scoring System:

According to "Thomas-Kilmann Conflict Mode Instrument scoring sheet", there are five columns representing conflict management strategies labeled competing, collaborating, compromising, avoiding, and accommodating. Each conflict strategy has represented a total of 12 times. Hence, the range of possible scores on any strategy range from 0 (for every low use) to 12 (for very high use). Raw scores are calculated by counting the number of times each mode is chosen (Thomas and Kilmann, 1974). Scores are grouped into three categories as the following table.

Table (1): Scoring system of conflict resolution strategies by head nurses:

Usage	competing	collaborating	compromising	avoiding	accommodating
High	8 to 12	10 to 12	9 to 12	8 to 12	7 to 12
Neutral	4 to 7	6 to 9	5 to 8	5to 7	4 to 6
Low	0 to 3	0 to 5	0 to 4	0 to 4	0 to 3

TOOL (III): Vertical Dyad Linkage scale (LMX-multidimensional scale): -

This tool consisted of two parts:

Part I: included staff nurses' personal characteristics as age, gender, marital status, level of education and years of experiences.

Part II: was utilized to measure the quality of vertical dyad linkage between head nurses and staff nurses from staff nurses point of view. This scale was introduced by Liden & Maslyn (1998) and was adopted from Alshamasi (2012). It consists of 12 items subdivided, following four dimensions (3 items per each dimension): which are related to affect, loyalty, contribution, and professional respect (26).

Scoring System:

Participants' responses were collected along five rating scale ranged from "Strongly disagree" to "Strongly agree" (1 to 5 respectively) for each statement.

The scores of the items were summed-up and the total was divided by the number of the items, giving a mean score for each part. The total quality of vertical dyad linkage was considered low with a total score (12:24), and neutral with a score (25: 47) while, it was considered high with a score (48: 60). Meanwhile, each domain, considered low with a score (3: 6), neutral with a score (7: 11) and high with a score (12: 15) (Liden & Maslyn,1998).

Tools validity and reliability:

- Face and content validity of Self-administer Conflict knowledge questionnaire Sheet was checked by a board of five specialists in the field and they gave no negative comments.
- Cronbach's Alpha reliability test of Thomas-Kilmann Conflict Mode Instrument (TKI) has been established before with alpha coefficient 0.93.
- The reliability of the tools was done using Alpha Cronbach's test, which indicated that the tools are reliable through the values of the test which were 0.85 for Self-administer Conflict knowledge questionnaire Sheet, 0.92 For Thomas-Kilmann Conflict Mode Instrument (TKI) and 0.89 for Vertical Dyad Linkage scale (LMX-multidimensional scale).

Pilot study:

Three head nurses and twenty staff nurses representing 10% of the 234 were chosen randomly to participate in a pilot study before starting the data collection to check the feasibility, applicability, how clear the tools are and to allocate the time needed to fill it out. The 23 participants in the pilot study were excluded from the study to assure the stability of the answers.

Ethical consideration:

An ethical approval was obtained from the Institutional Review Board (IRB) of Port Said University to conduct the study. Medical and nursing directors of the hospitals studied to collect the necessary data, had written their approval to participate in the study. After explaining the aim of the study and taking the verbal consent from every head nurse and staff nurse for participation. Some ethical issues were raised, henceforth; anonymity was assured and maintained, no coercion or pressure was applied, and no risk or burden was imposed on participants. Confidentiality of the data gathered was assured and it was only used for the purpose of the study. Finally, they were all informed about their right to refuse participation or even withdrawal at any time.

Field work:

Collecting the data took a period started from the beginning of November 2015 to mid of January 2017 covering one year and two months through three phases as the following:

1. The pre-intervention phase that took about six months from the beginning of November 2015 to the end of April 2016. The training strategy was developed based on the detected needs. As well, time schedule, teaching sessions, media included, and the handout were prepared.
2. The intervention phase was carried out in the period started from 17 July 2016 to 18 Augusts 2016. The training strategy was implemented four times, once for each studied hospital. Everyone took four days, two sessions per day. The duration of each session was one hour and a half.
3. The post-intervention phase (Evaluation Phase). In this phase, the effect of the strategy was evaluated; it was carried out immediately after the program implementation and after 3 months of intervention by using the same tools which were used before the program implementation. The time of the data collection lasted for five months from mid of Augusts 2016 to mid of January 2017.

DATA ANALYSIS

Data was analyzed with SPSS version 22. The normality of data was first tested with one-sample Kolmogorov-Smirnov or Shapiro-Wilk test. Qualitative data was described using number and percentage. The two related groups were compared with Wilcoxon Signed-rank test. The effect of the program was calculated by Cohen's test. Pearson correlation was used for correlation between continuous parametric data while Spearman correlation to correlate between continuous and non-parametric data.

RESULTS

A study result indicated that 45. 2 % of the head nurses were in the age group from 30 to less than 40 years. The majority of them were married with a nursing diploma; and had one to ten years of experience in the current position as a head nurse. In relation to personal characteristics of staff nurses, it was noticed that more than a half (55.2) of staff nurses falling between the ages of 25 to 40 years, and the vast

majority (91.1%) of them were female. Also, 61.6% of them had a nursing diploma. Regarding total experience years in nursing, the highest percentage of them had experience ranged from one to less than ten years. **Table (2)** reflects head nurses' knowledge level about conflict and conflict management strategies through pre-training, post-training, and follow-up. With regard to pre-implementing conflict management training strategy, all studied head nurses had an unsatisfactory level of knowledge about conflict and its management strategies. Whereas post-implementation, 51.6 % of them had a satisfactory level of knowledge. After three months of implementation, this percentage declined to be 41.9%. **Table (3)** portrays conflict management strategies used by head nurses through pre-training, post-training, and follow-up. In the pre-training stage it was found that more than two-thirds of the studied head nurses (67.7%) used accommodating strategy as a primary method to resolve conflict, followed by compromising strategy used by 51.6% to resolve conflict. Meanwhile- in the post-implementation stage- 45.2% of the studied head nurses used accommodating strategy as a primary method to resolve conflict, followed by 9.7% of them used avoiding and compromising strategies to resolve conflict. According to vertical dyad linkage levels through pre-training, post-training and follow-up from the point of view of the studied staff nurses, **table (4)** shows that less than one third (29.1) of the studied staff nurses had a high-quality relationship with their head nurses. This percentage was increased after implementing the training to be more than half (63.5) of them. Whereas it slightly decreased after three months (49.3) but it was still more the pre-training. Moreover, it is noticed that all vertical dyad linkage dimensions were improved after training implementation**. Table (5**) points the effect of the training strategy implementation on conflict management strategies used by head nurses through pre, post and follow-up. Based on this table, there was a statical significant difference between pre and post-training implementation in relation to conflict management strategies used by head nurses except in avoiding strategy ($p<0.05$). The effect of the program was moderate in collaborating, compromising, and accommodating strategies and low in competing strategy. Also, the table indicated that there was a statical significant difference between post and training follow up in relation to collaborating, compromising and accommodating conflict management strategies ($p<0.05$). **Table (6)** illustrates the effect of the training strategy implementation on the vertical dyad linkage through pre, post and follow-up from staff nurses' point of views. An inspection of this table clarifies that there was statical significant difference between pre and post-program implementation in relation to total vertical dyad linkage level ($p<0.05$) and the increase was moderate. **Table (7)** shows a correlation between conflict management strategies used by head nurses and vertical dyad linkage through pre, post, and follow-up of training strategy implementation. There was a statistically significant relationship between compromising strategies and vertical dyad linkage in follow-up phase ($p=0.037$).

Table (2): Head nurses' knowledge level about conflict and conflict management strategies through pre, post-training and follow-up (n=31):

Knowledge about conflict	Pre-training (n=31)		Post training (n=31)		Training follow- up (n=31)	
	satisfactory knowledge		satisfactory knowledge		satisfactory knowledge	
	No	%	No	%	No	%
Concept of conflict	1	3.2	11	35.5	6	19.4
Conflict types	6	19.4	6	19.4	9	29
Conflict process	5	16.1	8	25.8	7	22.6
Conflict management strategies	0	0	6	0	11	35.5
Tips for resolving conflict	0	0	17	54.8	14	45.2
Total Knowledge	0	0	16	51.6	13	41.9

Level of satisfaction knowledge is above 60 % from total score

Table (3): Conflict management strategies used by head nurses through pre, post-training and follow-up (n=31):

Conflict management strategies	Pre-training		Post training		Training follow up	
	No	%	No	%	No	%
Competing						
Low	23	74.2	13	41.9	17	54.8
Neutral	8	25.8	18	58.1	14	45.2
Collaborate						
Low	17	54.8	4	12.9	9	29
Neutral	13	41.9	26	83.9	22	71
High	1	3.2	1	3.2	-	-

Compromise						
Neutral	15	48.4	28	90.3	17	54.8
High	16	51.6	3	9.7	14	45.2
Avoiding						
Low	10	32.3	8	25.8	14	45.2
Neutral	14	45.2	20	64.5	14	45.2
High	7	22.6	3	9.7	3	9.7
Accommodating						
Neutral	10	32.3	17	54.8	6	19.4
High	21	67.7	14	45.2	25	80.6

Table (4): Vertical dyad linkage levels from point of view of staff nurses through pre, post-training and follow-up (n=203):

Vertical dyad linkage	Pre-training		Post training		Training follow- up	
	No	%	No	%	No	%
Affect						
Low	16	7.9	2	1	11	5.4
Neutral	83	40.9	49	24.1	63	31
High	104	51.2	152	74.9	129	63.5
Loyalty						
Low	50	24.6	6	3	12	5.9
Neutral	91	44.8	78	38.4	89	43.8
High	62	30.5	118	58.6	102	50.2
Contribution						
Low	45	22.2	9	4.4	20	9.9
Neutral	89	43.8	77	37.9	84	41.4
High	69	34	117	57.6	99	48.8
Professional respect						
Low	23	11.3	8	3.9	8	3.9
Neutral	67	33	44	21.7	61	30
High	113	55	151	74.4	134	66
Total LMX						
Low	14	6.9	1	.5	6	3
Neutral	130	64	73	36	97	47.8
High	59	29.1	129	63.5	100	49.3

Table (5): The effect of the training strategy implementation on conflict management strategies used by head nurses through pre, post and follow-up (n=31):

Conflict management strategies	Pre and post training			Pre and training follow-up			Post and training follow- up		
	Test of Sig	P	Effect Size (r)	Test of Sig	P	Effect Size (r)	Test of Sig	P	Effect Size (r)
Competing	Z= 2.131	.033*	.27 low	Z= .282	.778	---	Z= 1.885	.059	---
Collaborating	Z= 3.211	.001*	.4 Moderate	Z= 2.340	.019*	.3Moderate	Z= 2.273	.023*	.29 low
Compromising	Z= 3.233	.001*	.4 Moderate	Z= .199	.842	---	Z= 3.525	<.001*	.45Moderate
Avoiding	Z= .115	.909	---	Z= 1.567	.117	---	Z= 1.425	.154	---
Accommodation	Z= 2.725	.006*	.34Moderate	Z= .993	.321	---	Z= 2.935	.003*	.37 Moderate

Table (6): The effect of the training strategy implementation on the vertical dyad linkage through pre, post and follow-up (n=203):

Vertical dyad linkage	Pre and post-program (n=203)			Pre and program follow –up (n=203)			Post and program follow- up (n=203)		
	Test of Sig	P	Effect Size (r)	Test of Sig	P	Effect Size (r)	Test of Sig	P	Effect Size (r)
Affect	Z= 7.092	<.001*	.3 Moderate	Z= 3.477	.001*	.17 Low	Z= 3.370	.001*	.17 Low
Loyalty	Z= 8.654	<.001*	.4 Moderate	Z= 5.92	<.001*	.3 Moderate	Z= 2.593	.010*	.13 Low
Contribution	Z= 8.055	<.001*	.39 Moderate	Z= 5.552	<.001*	.3 Moderate	Z= 3.311	.001*	.16 Low
Respect	Z= 6.682	<.001*	.33 Moderate	Z= 3.606	<.001*	.18 Low	Z= 1.951	.051	----
Total LMX Score	Z= 9.721	<.001*	.48 Moderate	Z= 6.634	<.001*	.33 Moderate	Z= 4.321	<.001*	.2 Low

Table (7): Correlation between conflict management strategies used by head nurses and vertical dyad linkage through pre, post, and follow-up of the training strategy implementation.

Conflict management strategies	Vertical dyad linkage score					
	Pre		post		Follow-up	
	r	P	r	P	r	P
Competing	-0.238	0.197	0.096	0.607	-.170	.360
Collaborating	-0.045	0.808	-0.167	0.368	-.130	.486
Compromising	-0.115	0.457	-0.135	0.471	.374	.038*
Avoiding	0.066	0.624	0.144	0.440	-.074	.691
Accommodating	0.264	0.151	-0.116	0.534	.100	.593

R: Spearman Rho correlation coefficient *****significant at P≤0.05

DISCUSSION

As well-constructed conflict resolution processes can improve quality, increase job satisfaction and lead to stronger relationships (27). Meanwhile, poorly managed conflict can damage interpersonal relationships between staff nurses and relationships between nurse leaders and their staff nurses (28).

In this context, the present study result showed improvement in total head nurses' knowledge regarding conflict and its management strategies immediately after the training strategy implementation. This finding is in congruence with Salah, Sleem, & El-Shaer (2015) who pointed out training is the key to improve knowledge and change attitude, values, and perceptions of head nurses (29). Moreover, Ali, Elmolla, & Aref (2016) conducted a training program for first-line managers in Minia University Hospital and asserted on the effectiveness of the program in increasing their knowledge and providing them with support in performing the managerial role effectively (30). In the same regard, Mohamed (2016) found that head nurses' knowledge was increased as a result of the educational program and emphasized on their need to training and competencies beyond those developed in nursing school (31).

Also, the findings showed that there was a slight decrease in head nurses' knowledge about conflict and its management strategies at three months post-training strategy implementation compared to immediately post-training strategy. This might be due to the fact that head nurses might have forgotten some of the knowledge they gained during program implementation. These interpretations were supported by Yang, et al., (2012) who stated that knowledge and skills of health care providers in National Taiwan University Hospital decline over time and emphasize the need for greater refreshing training to maximize maintenance of knowledge (32). In the same sense, Abdel-Aziz, et al., (2016) remarked slight decline in nurses' mean score of knowledge after three months after program implementation compared to immediately post-program (33).

Regarding conflict management strategies, the findings indicated that there was a statistically significant increase in using competing strategy by head nurses through post-training strategy implementation, but it was still the least preferred conflict management strategy used by head nurses. This finding indicated that head nurses became aware and more skillful in using the power they had as a result of program implementation. In addition, they mastered acting in more certain and confident way. This interpretation is supported by Thomas & Kilman (2010) who stated that low scoring in competing strategy means that head nurses feel powerless in situations (34). In the same respect, there is slight decrease in using competing strategy after three months of training strategy implementation.

These results reflect that in-service and continuing training programs for nurse managers should be continually implemented. This result is supported by El-Fatah, Abo Gad, & El-Demerdash (2014) who found significant improvement in nursing managers' levels in using competing styles in post-program than pre-program (35). In contrast with these findings, a study was done at Michigan State University by Brockman, Nunez, & Basu (2010) to assess the effectiveness of conflict resolution training program in changing the style of managing conflict and

found a reduction in competing score in post-test evaluations compared with ~~a~~ the pre-test (36).

As yielded by the current study, there was a statistically significant increase in using collaborating strategy by head nurses through a post-training strategy. This could be attributed to the head nurses perceived the importance of spending time and energy in discussing the conflict issues with their staff or maybe the training reinforced head nurses to trust their staff and give them the chance to participate in the decision. Interestingly, these study findings showed that the collaborating strategy was still high after three months of training strategy implementation compared with the pre-training strategy but slightly lower/less than post- training. This result is consistent with those of Bubbers (2015) who carried out intensive conflict management training for health care managers and argued that there was a significant increase in inter-professional collaboration skills throughout the conflict coaching process for all managers (37). Also Altun & Ekinci (2015) in Ataturk University asserted that at the end of conflict resolution educational program, the collaborating skills as listing skills, understand the person in conflict with, skill to focus on needs of both parties, social adaptation skill, and anger management skill of participants in the experimental group significantly increased in comparison with the control group (38).

In relation to compromising strategy, the present study illustrated that compromising strategy was highly used by head nurses and considered the second used strategy after accommodating strategy through pre-training strategy implementation. As for post-training strategy implementation, there was a statistically significant decrease in using compromising strategy in high level and statistically significant increase in using it at a neutral level. In agreement with this result, a study in West Texas by Merritt (2003) reinforced that compromising style dominated pre-implementing conflict management sessions for nurse managers and significant decrease was noted in the experimental group after the sessions. Meanwhile, the control group showed no statistically significant differences at post-test (39). Paradoxically, Maruyama (2007) in U.S.A implemented conflict resolution and peer mediation training and found that participants used methods other than compromising strategy to solve conflict before conducting training conflict management program, and after training compromising became highly used to solve conflicts (40).

Regarding the avoiding strategy, the foregoing study showed that using avoiding strategy in a neutral level increased after training strategy implementation. Meanwhile, at the follow-up phase it is noticed that there was a decrease in using avoiding strategy by head nurses and they return to use it in pre-program implementation. Accordingly, Abd El-Aziz (2009) who observed that in the pre conflict management program in Benha University Hospital, the head nurses highly used the avoiding strategy to solve conflict with their staff, meanwhile after program implementation, the high percentage of them used the avoiding strategy in a moderate level (41). Conversely, this finding disagreed with Napoli (2004) in Indiana University who pointed out the most common themes in response to conflict management program that avoidance level was decreased and supervisors mentioned that avoidance is only temporary and they have the intention to go back to the situation (42).

With regard to the accommodating strategy, the present study showed a statistically significant decrease in using accommodating strategy and head nurses tend to use it at a neutral level after training strategy. In follow-up assessment, the head nurse return~~s~~ to highly using the accommodating strategy. The result of this study is consistent with Allen (2001) who found a decrease in using accommodative style by the participants after implementing conflict management program (43). Likewise, Merritt (2003) noted a decrease in the experimental group's accommodating styles (39). This result is contradicting with Waithaka, Austin, & Gitimu (2015) who documented that, the paired sample t-test indicated no statistically significant difference in using accommodating strategy by the participants after the training on conflict handling (44).

Conflict is inevitable in the workplace and it should be encouraged and managed well as it effectively means for strengthening the quality of vertical dyad linkage (45). In this respect, the present study clarified that there was a statistically significant improvement related to the total quality of vertical dyad linkage among head nurses and their staff after training strategy implementation. This may be explained by the study result that conveyed improvement of all dimensions of vertical dyad linkage (affect, loyalty, contribution and professional respect) after training strategy implementation. This result interprets the improvement occurred in the level of vertical dyad linkage. These results support previous research by Ihidero (2011) who argued that environments devoid of destructive conflict have the potentials to promote employees with loyalty, respect, affect and trust their supervisors (4).

In addition, this improvement is probably due to an increased level of constructive dialogue, openness, information exchange, generating acceptable solutions for both sides after program implementation which helps them to strengthen their relationships. This result is in alignment with Turgut, et al., (2017) who investigated the effectiveness of the conflict management education on staff in a mental health hospital and averred that conflict management education had positive effects on managing conflict between staff, listening and understanding skills, and increasing level of satisfaction with their interpersonal relationship (46). These results also were matching with Radford (2013) who refined that choosing the appropriate conflict resolution style suitable for each situation and each individual is a key to conflict resolution success and building effective working relationships with all members (47). Additionally, Corn (2013) in University of Akron stated that conflict management impacts the relational outcomes between a supervisor and subordinate and the communication used by a supervisor during conflict management influences the relationships well-being between them (48). Moreover, Ihidero (2011) who study conflict management and LMX theory in U.S.A distilled that agreeable conflict management through employees and their immediate manager could foster a positive relationship with them (4).

Otherwise, results proved no significant correlation between conflict management strategies and the quality of vertical dyad linkage pre and post-program implementation. This is could be due to that the quality of relation between head nurses and their staff was not associated with using a definite strategy, but it associated with using the appropriate strategy by head nurses whatever it was. This finding was rationalized by Petryshyn (2012) who highlighted that, there is no right or wrong style when managing conflict, all have benefits and drawbacks. The fundamental importance lies in how conflict manages to consider the value of the relationship (49). Similarly, Redmond, Jameson, & Binder (2016) found that there was no significant relation between accommodating conflict management styles and relation quality with supervisors (50). This study results are inconsistent with those of Shojaee, et al., (2012) who found a significant relationship between conflict management styles used by leaders and the quality of vertical dyad linkage (51).

Generally, the present study revealed that the quality of vertical dyad linkage among head nurses and their staff was improved after training. This point of view is supported by Brockman, Nunez, & Basu (2010) who asserted that applying conflict management workshops were likely to improve relationships skills between leaders and nurses.

CONCLUSION

The study concluded that after training strategy implementation; there was a statistically significant improvement in head nurses' knowledge regarding conflict and its management strategies. In addition, the five conflict management strategies (competing, collaborating, compromising, avoiding, and accommodating) used in a neutral range by head nurses after program implementation. Finally, there was a statistically significant improvement related to the quality of vertical dyad linkage among head nurses and their staff after training strategy implementation.

RECOMMENDATIONS

In the view of this research, the following points are recommended:

1. The hospital administrators must be developing training programs on conflict management as managerial skills for nurse managers.
2. 2-The hospital administrators should develop and implement clear policies and job descriptions for all health workers in hospitals and for staff nurses particularly to reduce conflict situations in the work place.
3. Head nurses ought to use conflict management styles depending on the situation and create new ways of dealing with conflict.
4. Head nurses should develop an in-group relationship with as many staff nurses as possible and as small an out-group as possible
5. Staff nurses have to do what they can to establish a quality exchange relationship with the leader and become a member of the in-group; work hard, be loyal and share more than the administrative duties.
6. Numerous field researches should be done in the area of the quality of vertical dyad linkage among head nurses and their staff to explore what other factors are affecting it.

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