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Interprofessional collaboration and associated factors among nurses and physicians working at public hospitals in Mekelle city tigray region, north Ethiopia, 2017

Abstract

Background: Inter professional collaboration is necessary to ensure that health care teams are efficient and able to provide collaboration, and joint decision making between the client and the health care teams in all areas of treatment planning and caring clients with the highest quality of care, in order to reach a determined goal, regardless of the health care settings.

Objective: To assess inter-professional collaboration and associated factors among nurses and physicians working in public hospitals at Mekelle town Tigray Northern Ethiopia 2017. Method: Institution based of quantitative cross sectional study design was conducted among 409 study participants were selected by simple random sampling techniques from all public hospitals of Mekelle city. The data were presented in the form of text, frequencies, tables and figures Logistic regression was used to test association between dependent and independent variables. All variables with P value≤0.25 were including in multivariable analysis and magnitude of association measured by using odds ratio at 95% confidence interval and statistically significant at p-value less than 0.05 was considered statically significant.

Result: This study indicates that more than half 222(54.3%) respondents were shows frequent collaborations. The determinants factors showed that unfavorable attitude of shared education and teamwork statistically significant associated 2.53 times higher for infrequent collaboration among those who has favorable attitude (AOR 2.53, 95% CI (1.44-4.45). Poor Communication showed associated 3.73 times higher for infrequent collaboration compared with respondents has good communication (AOR, 3.73, 95% CI (2.30-6.05). Similarly dissatisfied by organizational supports showed significant associated 2.94 times for infrequent collaboration which compared with respondents satisfied by organizational support (AOR 2.94 at 95% CI (1.83-4.73).

Conclusion: The finding of this study was reasonably good and this was caused by jointly collaborated professional activities but still it needs improvements. Organizational supports of professional growth, motivations and recognitions, taking responsibility, early conflict managements were pertinent factors to increase professional satisfaction, mutual understanding and collaborative practice.

Keywords: nurse-physician collaboration, factors, mekelle, ethiopia

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Introduction

Positive inter professional collaboration is important to the health care industry for positive outcome, roles and responsibilities of other members of treatment team, increase appropriate patient care of referrals, timely discharge, coordination and agreement on health services and more comfortable work environment, sense of value and respect by team members, improved staff retention rates and higher level of job satisfaction, supper sense of professionalism, increased institutional supports. Negative aspects of care may also decrease due to improved inter professional collaboration, such as duplications in medical testing, health care costs, length of patients, medical complications and errors, morbidity and mortality rates, professional burn out and tension on health care teams.[1,2] Negative professional relationships have a major impacts on daily interactions strongly influence patient's quality of care, nurses' morale, stress, frustration and difficulties in nurse-physician relationships.[3]

World Health Organization (WHO) Framework for action on Inter professional collaboration recommends contribute professionals strive to positively affect client care, balancing autonomy, independence and maintaining the interests of the specific discipline of the practitioners but Current research shows interdisciplinary collaboration demonstrates that not all of these factors are in place and it leads to lack of sufficient team collaboration, deficient inter professional education , collaborative practice , role confusion and a misunderstanding of the responsibilities of particular disciplines within the health care industry.[4]

Numerous studies have reported that there is a widespread occurrence of medical errors during drug administration, which ultimately causes a rise in adverse drug effects these errors can be primarily attributed to inadequate collaboration, poor communication and weak interpersonal interaction.[5,6] A statewide survey in united state result showed 72% of nurses were collaboration existed between nurses and physicians.[7] The tense environment and the verbally abusive behaviors, lead to lower working status, lower power at work, poor working conditions and therefore there is a high risk for accidents and mistakes during care provision.[8] Poor collaboration cause misunderstandings, errors and on-going conflict between nurses and physicians, affects patient outcomes nurses' job satisfaction and organizational cost.[9]

The joint Commission on Accreditation of Health care Organizations in America (JCAHO) reports most frequent root cause for medical errors was negative nurse-physician collaborations shows nearly 60% of medical errors are a direct result of collaboration and communication breakdown and 75% patients dying as reported sentinel events.[10] Study conducted in Iran shows a widespread occurrence of medical errors during drug administration, which ultimately causes a rise in adverse drug effects primarily attributed by inadequate team-work, poor communication and weak interpersonal interactions.[11] Unsmooth professional collaboration between nurse and physicians can leads to conflicts and jeopardize the care provided to patients, conflict among colleagues can lead to antagonistic and passive-aggressive behaviors that compromise the therapeutic nurse-client relationship.[12] Nurse-physician collaboration is not well understand by physicians and viewed nurse acting as the assistant to the physician and fulfilling orders only.[13]

Collaboration among nurse-physician faces various obstacles than other professionals in health care due to several factors such as poor communication, organizational policies, discipline's variety, work environment physician's attitude and powers.[14] Collaboration among health care team is essential components that affect patient outcome. But some studies explain there is a consequence such as psychological, physical, safety of patients and health outcomes.[15,16] Consistent challenges to collaborative practice can be solves by effective collaborations, communication, conflict resolution skills including understanding of group norms, health professionals' roles, ability to tolerate differences, a willingness to collaborate, and ability to contribute to shared care plans and goal setting.[17] Inadequate collaboration affects the quality of patient care. For instance, ineffective communication, inappropriate treatment, puts patients at greater risk. In most U.S. hospitals focuses their plan on effective communication and collaboration is the exception, not as the rule.[18,19]

In Ethiopia the government works to increase health coverage from its very limited distribution to large number of hospitals, health centers and health posts are being built in every corner of the country but the health care system is suffering from lack of qualified and diversified health professionals and conductive working environments. Nurses are not fully exercising their autonomy work with physicians and physicians show dominant role over nurses.[20]

Method and materials

Study area and period. The study was conducted in Mekelle town, Tigray regional state, northern Ethiopia, which is located at 783km from the capital city Addis Ababa. 7 local administrations with total population estimated to 215,914 among those 104,925 were male's and110, 989 females (56).

Mekelle city have four public hospitals with staff number of 1096 nurses and 247 physicians among those 756 nurses and 213 physicians were working in Ayder comprehensive referral hospitals, 165 nurses and 20 physicians were working in Mekelle general hospitals, 95 nurses and 4 physicians were working in kuiha general hospital, 80 nurses and 10 physicians were working in defense Hospital. Those public hospitals give different service and also have different wards which are surgical, medical, gynecology, pediatrics, orthopedic, ICU and emergency, Burn unit, Dialysis units, Dermatology Unit, Oncology, Dental unit, Cardiac unit and ophthalmology units. The study was conduct from February to March 10, 2017 in Mekelle town public Hospitals Tigray Northern Ethiopia.

Study design

Institution based cross sectional study design was employed.

Populations

Source population

All nurses and physicians who work at public hospital in Mekelle town during the study period

Study population

All selected (sampled) nurses and physicians who work in Mekelle town public hospitals who were selected by simple random sampling during data collection period.

Eligibility criteria

Inclusion criteria

Nurses and physicians who have above six months working experience of patient care in all Mekelle public hospitals during the study period.

Exclusion criteria

Nurses give free service.

Nurses and physicians who were on leave and off site training.

Sample size determination

The sample size were determined by using single population proportion formula with 5% marginal error and 95% confidence interval by considering over all nurse-Physician prevalence of collaboration 41% taken from previous research conducted in Bahirdar.[20] Moreover, by considering 10% non-response rate a total of 409 samples were studied.

Sampling technique and procedures

A stratified sampling technique was used to select the study participants. Strata was made on four public hospitals in Mekelle city and the study subjects taken based on their proportion number among a total of 1,095 nurses and 247 physicians. Finally 334 nurses and 75 physicians from all hospitals were selected by lottery methods based on their size.

Study variables

Dependent variable

Inter professional collaboration

Independent variable

Socio demographic variables: age, sex, marital Status, level of education, year of experience, and work unit. Attitude related

factors: shared education and team work, caring versus curing, nurse's autonomy and physician's dominance.

Nurse-physician work area communication factors: angry, frustrated, feeling equal under stood, Feeling respected, satisfaction after interaction, joyful talking, receiving correct information.

Organizational supports related factors: organizational support for collaborations, professional growth of education and training, conflict resolution, monthly salary and team conferences.

Data collection tools and techniques

A structured self administered questionnaire was prepared by adopting from literatures previous conducting in Ethiopia. The data for the study were collected by using Jefferson scale of attitudes towards nurse-physician collaboration developed by researchers at Jefferson medical college USA[21] and Nurse-Physicians Collaborations was developed by school of nursing jichi Medical University of Japan.[22] The remaining questionnaire for communication and organizational support was adopted from literatures in Ethiopia. Initially questionnaires were prepared in English language and translated to Amharic language then translate back to English. Data were collected by BSc nurses that found on the health center of the city. Training was given for one day for 4 BSc nurses and one MSc nurse supervisor on how to collect the data and ethical considerations.

Data quality assurance

To ensure data quality, training was given for Four BSc nurses data collectors and 5% questionnaire was pre-tested. After pretest was conducted correction of questionnaires was done for vague or not clear questionnaires, collected data were edited and cleaned on daily basis. One supervisor MSc nurse and principal investigator was taken corrective measure for any missing values and inconsistencies timely to ensure data quality at each data collection level.

Operational definitions

Frequent Nurse-physician collaboration: ≥Higher mean score of overall nurse-physician inter professional collaboration results (NPICS)

Favorable attitudes towards nurse physician collaboration: ≥Higher mean score of overall attitudes towards nurse-physician collaboration.

Good communication; ≥Higher mean score of overall nurse-physician communication.

Satisfied ≥ Higher mean score of overall Organizational support questionnaires.

Data analysis and procedure

After data collection, each questionnaire were checked for completeness and the data were coded and entered into EPI Data version 3.1 computer software, cleaned, recoded and analyzed using SPSS version 20 and data were presented in the form of text, frequencies, tables and figures. Binary logistic regression model was used to test association between dependent and independent variables. All variables with P value <0.25 were included in the multivariable analysis. Magnitude of association was measured by using odd ratio at 95% confidence interval and Statistical significance was declared at P<0.05.

Ethical consideration

The study was conducted after getting ethical clearance from Debre Markos University College of health science ethical review committee and support letter was obtained to Northern Tigray Regional State Health Bureau and from Tigray regional health bureau to the respective public Hospitals. Before filling the questionnaire participants were read the written consent and signing, not writing their name on questionnaire and each study participant were adequately informed and understood about the purpose of the study and the importance of their participation to confirm willingness for participation. Respondents were informed that they have a full right to refuse or discontinue their participating. They were informed that the data were not given for any one and it is used for the research purpose only to keep its confidentiality.

Results

Socio-demographic distribution of nurses and physicians

Among the total of 409 nurses and physicians about more than half 223 (54.5%) were females, respondents age group belong 26-30 showed 193(47.2%) and age group belong 31-35 shows 47(11.5%). Majority 219(53.5%) nurse and physician were married, 182(44.5%) were single. More than half of respondents work experience shows <5 years 202(49.4%) and more work experience 11-15 shows 50(9.8 %).

The result on levels of education showed a large proportion of participants 291(71.1%) were Bsc nurses, 28(6.8%) were diploma nurses, 15(3.7%) were Msc nurses, 54(13.2%) were general practitioner, 17(4.2%) were specialists and 4(1%) were sub specialists. Result on work unit showed 82(20%), 65(15.9%), 50(12.2%), 30(7.3%), 25(6.1%), 59(14.4%), 15(3.7%) , 42(10.3%), 27(6.6%) were works at Medical unit, Surgical unit ,Critical care unit , Emergency unit , Obstetrics and gynecology unit , Pediatric unit, Operation unit, OPD, Recovery room and 14(3.5%) were works in other units of (Chemotherapy, Dialysis, Dermatology and Burn units) (Table 1). Nurse-physician Professional Attitudes towards collaboration. Results on shared education and team work showed 205 (50.1%) favorable Attitude, Caring versus curing with nurses contributions to the psychosocial and educational aspects of patient care shows 240(58.7%) favorable attitude towards collaborations. Finding showed on nurses autonomy factor (i.e., a higher factor score indicates more agreement with nurse's involvement in decisions pertaining to patient care and policy), 238(58.2%) has favorable attitude. Final sub group physician's dominance (i.e. a higher factor score indicates a rejection of a totally dominant role by the physician in aspects of patient care), this shows 195(47.7%) favorable.

Table1 Distribution of socio-demographic study of nurse and physician in Mekelle public hospitals Tigray Ethiopia 2017 (total n=409)

Variables	Frequencies	Percent (%)
Sex		
Male	186	45.50%
Female	223	54.50%
Age		
<25	57	13.90%
26-30	193	47.20%
31-35	47	11.50%
36-40	61	14.90%

Table continued

Variables	Frequencies	Percent (%)
>40	51	12.50%
Year of experience		
<5	202	49.40%
5-10	117	28.60%
11-15	40	9.80%
>15	50	12.20%
Levels of Education		
Diploma	28	6.80%
Bsc nurse	291	71.10%
Msc nurse	15	3.70%
General practitioner	54	13.20%
Specialist	17	4.20%
Sub specialist	4	1%

Over all professional attitudes shows 236 (57.7%) favorable attitudes towards nurse-physician collaborations (Table 2). Characteristics of Nurse- Physician collaborations. To identify Frequent and infrequent collaboration mean item score was calculated for each group and sharing patient information indicated 227(55.5%) frequent collaboration. Decision making process result shows 185 (45.2%) frequent collaboration. Final result nurse and physician relationship showed 216 (52.8%) frequent collaborations. Over all nurse-physician collaboration showed 222 (54.3%) frequent collaborations (Table 3). Nurse-physician communication towards professional collaboration. Professional respect and satisfaction of communication participants usually or always feel angry after nurse physician interactions shows186 (45.5%), the remaining 223(54.5%) feel angry rarely or sometimes. Similarly 183(44.7%) frustrates usually or always. On the other hand 260(63.6%) feeling equal understanding usually or always after nurse-physician interaction, 275(67.2%) feeling respected usually or always after nurse-physician interaction and 264(64.5%) feels satisfied usually or always, 267(65.3%) had usually or always joyful talking. Finally 283(69.2%) usually or always receives correct information relevant to patient care after they were communicate each other. Over all communication showed 210 (51.3%) a good nurse physician communications (Table 4).

Distribution of organizational support towards nurse-physician professional collaboration.

Report on organizational support for nurse-physician relationship shows 250(61.1%) were satisfied, similarly the participant reports 223(54.5%) were satisfied towards the extent of professional support of education and training, only 164(40.1%) were satisfied by organizational monthly salary payment, 175(42.8%) were satisfied by organizational conflict resolution and 246(60.1%) were satisfied by team conference activities. Finally overall organizational satisfaction respondent reports 190(46.5%) (Table 5). Factors affecting inter professional collaboration among nurses and physicians.

Bivariate logistic Regression analysis was done and Variables were statistically significant such as age, level of education; working hospital, shared education and team work, care Vs cure, nurse autonomy, communication, organizational support.

Whereas variables were statistically significant on multivariable logistic Regression analysis were Attitude on shared education and team work towards nurse-physician with (AOR 2.53 at 95% CI (1.44-4.45) P=0.001), Nurse-physician Communication with (AOR, 3.73 at 95% CI (2.30-6.05) P=0.001) and organizational support with (AOR 2.94 at 95% CI (1.83-4.73) p=0.001) were showed statistically significant associated with inter professional collaboration (Table 6).

Table 2 Nurse-physician professional attitude towards collaboration nurses and physician working at public hospitals in Mekelle tigray Ethiopia 2017 (total n=409)

Variables	Frequencies	Percent (%)
Shared education and team work		
Favorable	205	50.1%
Unfavorable	204	49.9%
Caring vs curing		
Favorable	240	58.7%
Unfavorable	169	41.3%
Nurse autonomy		
Favorable	238	58.2%
Unfavorable	171	41.8%
Physician dominance		
Favorable	195	47.7%
Unfavorable	214	52.3%
Over all attitude		
Favorable	236	57.7%
Unfavorable	173	42.3%

Table 3 Professional collaboration, Nurses and Physician working at public hospitals in Mekelle public hospitals Tigray Ethiopia 2017 (total n=409)

Variables	Frequencies	Percent (%)
Sharing patient information		
Frequently	227	0.555
Infrequently	182	0.445
Decision making process		
Frequently	185	0.452
Infrequently	224	0.548
Relationship between nurse and physician		
Frequently	216	0.528
Infrequently	193	0.472
Over all collaborative		
Frequently	222	0.543
Infrequently	187	0.457

Table 4 Nurse-physician communication towards professional collaboration nurses and physician at Mekelle public hospitals Tigray Ethiopia 2017 (total n=409)

Variables	Frequencies	Percent(%)
Feeling angry		
Always	186	45.50%
Sometimes	223	54.50%
Feeling frustrated		
Always	183	44.70%
Sometimes	226	55.30%
Feeling equal understood		
Always	260	63.60%
Sometimes	149	36.40%
Feeling respected		
Always	275	67.20%
Sometimes	134	32.80%
Feeling satisfied		
Always	264	64.50%
Sometimes	145	35.50%
Joyful talking		
Always	267	65.50%
Sometimes	142	34.70%
Receive correct information		
Always	283	69.20%
Sometimes	126	30.80%
Overall communication		
Good	210	51.30%
Poor	199	48.70%

Table 5 Nurse-physician organizational support towards professional collaboration nurses and physician at mekelle public hospitals tigray Ethiopia 2017 (total n=409)

Variables	Frequencies	Percent (%)
Organizational support on nurse-physician relationship		
Satisfied	250	61.1%
Dissatisfied	159	38.9%
Professional development of education		
Satisfied	223	54.5%
Dissatisfied	186	45.5%
Monthly Salary		
Satisfied	164	40.1%
Dissatisfied	245	59.9
Organizational conflict resolution		
Satisfied	175	42.8%
Dissatisfied	234	57.2%
Team conference activity		
Satisfied	246	60.1%
Dissatisfied	163	39.9%
Overall satisfaction		
Satisfied	190	46.5%
Dissatisfied	219	53.5%

Table 6 Multivariate logistic Regression of independent with dependent variables for inter professional collaboration and associated factors nurses and physicians at Mekelle public Hospitals Tigray Ethiopia 2017, (Total n=409)

	Collaboration				
Variables	Infrequent	Frequent	COR (95% CI)	AOR (95% CI)	P-value
Levels of education	Infrequent	Frequent			
Diploma	7(25%)	21(75%)	1	1	
BSC	136(46.7%)	155(53.3%)	2.6(1.08-6.3)	3.45 (0.27-44.15)	0.34
Msc	4(26.7%)	11(73.3%)	1.09(0.26-4.53)	5.2(0.49-54.97)	0.16
GPs	30(55.6%)	24(44.4%)	3.37(1.36-10.29)	4.84(0.32-71.95)	0.25
Specialist	9(52.9%)	8(47.1%)	3.37(0.93-12.14)	6.43(0.57-71.75)	0.13
Sub specialist	1(25%)	3(75%)	1(0.89-11.23)	4.35(0.33-56.26)	0.25
Age					
<25	33(57.9%)	24(42.1%)	1	1	

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Table continued

Variables	Collaboration		COR (95% CI)	AOR (95% CI)	P-value
	Infrequent	Frequent			
26-30	88(45.6%)	105(54.4%)	0.61(0.33-1.1)	2.04(0.83-5.0)	0.12
31-35	23(48.3%)	24(51.1%)	0.69(0.32-1.51)	0.92(0.43-1.98)	0.84
36-40	23(37.7%)	38(62.3 %)	0.44(0.21-0.92)	0.75(0.29-1.95)	0.56
>40	20(39.2%)	31(60.8%)	0.46(0.21-1)	1.06(0.43-2.62)	0.89
Shared education & team work					
Favorable	60(29.3%)	145(70.7%)	1	1	
Un favorable	127(62.3%)	77(37.7%)	3.98(2.63-6.02)	2.53(1.44-4.45)	0.001
Care Vs cure					
Favorable	84(35%)	156(65%)	1	1	
Un favorable	103(60.9%)	66(39.1%)	2.89(1.92-4.35)	0.58(0.33-1.05)	0.074
Nurse autonomy					
Favorable	82(34.5%)	156(65.5%)	1	1	
Un favorable	105(61.4%)	6(38.6%)	3.02(2.01-4.55)	0.77(0.43-1.38)	0.38
Communication					
Good	128(61%)	82(39%)	1	1	
Poor	59(29.6%)	140(70.4%)	0.27(0.17-0.40)	3.73(2.30-6.05)	0.001
Organizational support					
Satisfied	118(62.1%)	72(37.9%)	1	1	
Dissatisfied	69(31.5%)	150(68.5%)	0.28(0.18-0.42)	2.94(1.83-4.73)	0.001

Keyword: Multivariable logistic Regression statistically significant at p<0.05 of the above

Discussion

Positive professional collaboration is very important in creating safe, effective care, satisfying practice environment to furnish quality of patient care, to decrease medical accidents, morbidity and mortality rates increase quality patient care, professional satisfaction and professionalism. This study has try to look the factors affecting inter professional collaborations including different factors on the study.

Finding on this study showed more than half (54.3%) of nurse-physician has frequent collaborations. The result showed lower than study conducted in Addis Ababa Ethiopia.[23]

This difference might be unfavorable attitude towards nurse-physician collaboration, poor nurse-physician communication, low organizational supports and low governance administration, were the major problems.

The result of this study showed unfavorable attitude of shared education and teamwork toward collaboration shows statistically significant associated 2.53 times higher than for infrequent collaboration among those who has favorable attitude of shared education and teamwork toward collaboration, this might be due to low nurse and physician professional attitude of perception toward both professional respecting, hierarchical differences, dominant authority, lack of both professions participating on decision making and this is consistent with findings of other studies conducted in china Chongqing medical university,[24] Gaza City State of Palestine[25] and studies conducted in Addis Ababa Ethiopia.[23]

Study finding on Poor Communication towards collaboration was statistically significant associated 3.73 times higher for infrequent collaboration compared with respondents has good communication. The Possible justification for poor communication may be due to lack of joyful talking, equal understanding, sharing information and lack of respecting each others. This is consistent with studies conducting in Egypt, Alexandria university.[26]

Finally result on dissatisfied organizational supports showed statistically significant associated 2.94 times for infrequent nurse -physician collaboration which compared with respondents satisfied by organizational support towards nurse physician collaboration. This might be occurred due to low organizational supports on nurse-

physician collaboration, salary payments, professional development and low conflict managements systems. This is consistent with finding done in Jimma Ethiopia organizational support towards nurse physician collaborations.[27]

Conclusion and recommendation

Conclusion

This study indicated nurse- physician collaboration shows more than half of nurse-physician has frequent collaborations. The finding of this study was reasonably good and this was caused by jointly collaborated professional activities but still needs improvements. result showed lower than other studies conducted in Addis Ababa Ethiopia the reason for lower nurse-physician collaboration might be unfavorable attitude towards nurse-physician collaboration, poor nurse-physician communication, low organizational supports and low governance administration were the major problems and factors affecting inter professional collaboration such as nurse-physician attitudes of shared education and team work, nurse physician communication and organizational support were significantly associated with inter-professional collaborations.

Recommendations

1. To nurses and physicians: Physician and nurses should be shared education and team works, develop smooth communication and collaborative practice among them by participating on in service training programs, workshops and morning sessions to increase their professional awareness and their daily collaborative activities.
2. Should take professional respect each other and improve their daily approaches as a colleague, respectful and problem solving-based management.
3. To organizational administers: The administrative support should solve the limitations of professional awareness towards collaboration by provide opportunities for open discussion, problem solving, giving training and sharing knowledge's thus creating an ongoing awareness of the need for improved professional interaction and collaboration.
4. The organization should increase organizational supports of professional growth, motivations and recognitions, taking responsibility, early conflict managements to increase professional satisfaction, mutual understanding of roles and enable both groups to develop collaborative practice.
5. Hospital management should conduct on-job workshops and seminars on inter personal and professional collaboration skills that participate both nurses and physicians.
6. To Regional health institutions: Should be participating on maintain the health professionals to increase professionalism and professional careers.
7. Initiating and developing mutually respectful inter-professional relationships between nurses and physicians to increase understanding of complementary roles of nurses and physician and encourage establishment of an interdependent relationship between them.

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Conflict of interest

The authors declare that they have no compete of interest.

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