ORIGINAL ARTICLE

Barriers in Handoffs among Nurses in Public Sector Tertiary Care Hospital of Peshawar, Pakistan

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ABSTRACT

Objective: To identify barriers in shift handover communication among nurses in public sector tertiary care hospital of Peshawar, Pakistan.

Study Design: Cross-sectional study.

Place and Duration of Study: The study was conducted in Hayat Abad Medical Complex Peshawar, Pakistan from November, 2016 to August 2018.

Material and Methods: Sample size was comprised of 112 registered nurses, selected by simple random sampling technique. All the included registered nurses had minimum one year of experience. Those working at the managerial level, who did not participate in handovers, were excluded. Adopted questionnaire of closed-ended questions was used for data collection. Mean and standard deviation were calculated for age. Descriptive statistics of percentages and frequencies were utilized for responses of participants and demographic characteristics of gender, education and experiences. Chi square test was employed to analyze association of gender and barriers (p-value<0.05).

Results: Alarming barriers revealed were messy records (91.1 %), unreadable handwriting (83.1%), out-of-date records (76.8%), poor communication skills(80.4%), not listening and interruption (73.2%), irrelevant information (77.7%), handover with junior/senior (70.6%) and disagreement between clinicians(70.5%), unavailability of relevant information (83.4%), unavailability of doctors (81.3%), background noise (75.9%), staff shortage (75.9%) and poor workforce planning (79.5%). No significant association was found between gender and barriers to shift handover (p-value >0.05) except for unavailability of test results at the time of handover (p-value = 0.02) and difficulty to recognize essential information (p-value = 0.007).

Conclusion: The study identified various barriers in public sector hospital which may negatively affect shift handover.

Key Words: *Barriers, Communication, Registered Nurse, Shift Handover.*

Introduction

Clinical handovers are considerably precarious activities that require substantial coordination and outstanding communication to sustain continuity in patients' care.[1,2] The process of handover serves multiple functions but the most essential one is the transfer of authority, accountability and responsibility of patients' care from the departing health care provider to the upcoming health care provider.[3,4,5] Change of shift require nurses to share vital information that will guide the team of next shift in the continuity of patients' care but this is generally impeded.[6]

Despite positive functions, the process of shift handovers is likely to be problematic, plentiful of risks and hazards, inevitably resulting in active and passive failure.[7] Ineffective handovers contribute to medical error, delayed and inappropriate treatment, adverse event of minor and major harms, extended hospitalization, preventable readmissions and expanding cost of treatments.[4] Similarly evidences revealed that ineffective shift handover increases the chances of medication errors and decreases patients' satisfaction.[8] Researches estimate that patients are 40% more likely to die in ICU than the traffic accidents.[9]

There are multiple reasons for ineffective handovers

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reported by previous literature. It has been demonstrated that handovers are often informal and are faced by potential threats including noise, crowding, heavy workload, interruptions and patients' care activities.[10]

In our country, Pakistan, shift handovers in public sector hospitals are largely communicated verbally and without utilizing any integrated protocol. In absence of an integrated protocol and appropriate environment, patients' care information is not properly communicated. Subsequently, this leads to increased risk of medical errors, loss of continuity in care and adverse events to patients' safety[11] unfortunately, no previous study was found in the context of Pakistan regarding shift handover. Thus there is a dire need to conduct a study and explore the related issues to the subject. The study was conducted to identify barriers in shift handover communication among nurses in public sector tertiary care hospital of Peshawar Pakistan.

Material and Methods

The study was conducted from November, 2016 to August, 2018 at public sector tertiary care hospital Hayatabad Medical complex (HMC) of Peshawar, Pakistan by utilizing the cross-sectional research design. Total 112 registered nurses were selected through simple random sampling technique. Slovin's formula ($n = N/1+N(e)^2$ was used to calculate the sample size. The inclusion criterion was to include all the nurses of Hayatabad Medical Complex not less than one year of experience. All those nurses who did not participate in the shift handover were excluded from the study. These registered nurses were mostly at managerial level.

An adopted questionnaire was utilized for data collection with a few modifications.[12] The questionnaire was related to barriers in shift handover communication, containing two parts. The first section was related to demographic characteristics while the second section revealed the potential barriers to shift handover communication. The questions were in the form of Likert scale having options of strongly agree, agree, disagree and strongly disagree. There were 38 categorical variables in the questionnaire. The responses of the participants were considered alarming when the responses shown agreement of ≥70%. For the same reason the Likert scale responses were converted into dichotomy, strongly agree/agree into agree and disagree/strongly disagree into disagree to minimize the differences in extreme responses and for simplification of analysis.

The approval of study was obtained from the Ethical Committee of Khyber Medical University (KMU) Peshawar. The purpose of the study was explained to participants before filling in of the consent form and the questionnaire.

Data were entered and analyzed by utilizing SPSS 22. Mean and standard deviation were calculated for age of the participants. Descriptive statistics of frequencies and percentages were used for responses of participants and demographic characteristics of gender, level of education and the duration of experiences. Chi-square test was employed to analyze the relationship between gender and barriers to shift handover communication. The p-value of 0.05 was considered significant (CI 95%).

Results

A total of 112 nurses completed and returned the questionnaires. Of the participants 16(14.3%) were male and 96 (85.7%) were female. Approximate mean age of the participants was 27.86(SD= 4.57). Majority of the registered nurses 77(68.8%) had diploma in general nursing, 33(29.5%) were post RN and 2 (1.8%) were generic BScN.

Individual Barriers to Shift Handover among Nurses

The alarming barriers found were: messy records (91.1%), unreadable handwriting (83.1%), out-of-date records (76.8%), poor communication skills (80.4%), not listening and interruptions (73.2%), irrelevant information (77.7%), handover with more junior and senior staff (70.6%), and disagreements between clinicians regarding patients' condition (70.5%). Only incorrectly record information (66.9%) were not alarming barriers. (Table-I)

Environmental Barriers to Shift Handover among Nurses

The alarming barriers were: unavailability of the relevant information (83.4%), the doctor of previous shift is not available for responses (81.3%), background noise (75.9%) and poor workforce planning (79.5%). (Table-II)

Association between Individual Barriers and Gender (Male and Female)

All barriers existed equally among gender (male &

Table I: Individual Barriers to Shift Handover Communication

Individual Barriers	Strongly Agree	Agree	Disagree	Strongly disagree	Dichotomy	
					Agree	Disagree
Messy records	58 51.8%	44 39.3%	7 6.3%	3 2.7%	102 91.1%	10 8.9%
Unreadable handwriting.	17 15.2%	76 67.9%	16 14.3%	3 2.7%	93 83.1%	19 17%
Out of date records.	25 22.3%	61 54.5%	22 19.6%	4 3.6%	86 76.8%	26 23.3%
Poor communication skills.	31 27.7%	59 52.7%	19 17.0%	3 2.7%	90 80.4%	22 19.9%
Not listening and interrupting.	37 33.0%	45 40.2%	25 22.3%	5 4.5%	82 73.2%	30 26.8%
Irrelevant information during handover.	28 25.0%	59 52.7%	21 18.8%	4 3.6%	87 77.7%	25 22.4%
Difficulty to recognize essential information	23 20.5%	52 46.4%	33 29.5%	4 3.6%	75 66.9%	37 33.1%
Handover communication with more junior/senior members of staff.	31 27.7%	48 42.9%	28 25.0%	5 4.5%	79 70.6%	33 29.5%
Disagreements between clinicians regarding a patient's condition.	23 20.5%	56 50.0%	27 24.1%	6 5.4%	79 70.5%	33 29.5%
Incorrectly recalled information.	18 16.1%	50 44.6%	36 32.1%	8 7.1%	68 60.7%	44 39.2%

Table II: Environmental Barriers to Shift Handover Communication

Environmental Barriers	Strongly Agree	Agree	Disagree	Strongly disagree	Dichotomy	
					Agree	Disagree
Unavailability of relevant information	26 23.2%	67 59.8%	11 9.8%	8 7.1%	93 83.4%	19 17%
The doctors of previous shift is not available for responses to queries	21 18.8%	70 62.5%	20 17.9%	1 0.9%	91 81.3%	21 18.8%
Unavailability of relevant tests results	23 20.5%	48 42.9%	39 34.8%	2 1.8%	71 63.4%	41 36.4%
Interruptions by patients relatives	24 21.4%	54 48.2%	30 26.8%	4 3.6%	78 69.6%	34 30.4%
Interruptions by colleagues.	19 17.0%	47 42.0%	44 39.3%	2 1.8%	66 58.9%	46 41.1%
High background noise levels.	23 20.5%	62 55.4%	23 20.5%	4 3.6%	85 75.9%	27 24.1%
Long working hours.	23 20.5%	54 48.2%	28 25.0%	7 6.3%	77 68.8%	35 31.3%
Staff shortages.	23 20.5%	62 55.4%	23 20.5%	4 3.6%	85 75.9%	27 24.1%
Short time for shift over.	17 15.2%	53 47.3%	38 33.9%	4 3.6%	70 62.5%	42 37.5%
Poor workforce planning (for example, poor organization of staff)	26 23.2%	63 56.3%	23 20.5%	0 0.0%	89 79.5%	23 20.5%
The division of responsibility is unclear.	22 19.6%	54 48.2%	32 28.6%	4 3.6%	76 67.9%	36 32.1%

female). No significant association was found between the individual barriers to shift handover communication and gender (male and female) (p-value >0.05) except for difficulty to recognize essential information (p-value = 0.007). (Table-III)

Table-III: Association Individual Barriers to Gender (Male % Female)

Individual Barriers	Gender	Agree	Disagree	p-value
Messy records	Male	11.6%	2.7%	0.137
	Female	79.5%	6.3%	
Unreadable handwriting	Male	13.4%	0.9%	0.217
	Female	69.6%	16.1%	
Out of date records	Male	9.8%	4.5%	0.411
	Female	67.0%	18.8%	
Poor communication skills	Male	9.8%	4.5%	.207
	Female	70.5%	15.2%	
Not listening and interrupting	Male	9.8%	4.5%	0.663
	Female	63.4%	22.3%	
Irrelevant information during handover	Male	10.7%	3.6%	0.781
	Female	67.0%	18.8%	
Difficulty to recognize essential information	Male	5.4%	8.9%	0.007
	Female	61.6%	24.1%	
Handover communication with more junior/senior members of staff	Male	9.8%	4.5%	0.866
	Female	60.7%	25.0%	
Disagreements between clinicians regarding a patient's condition	Male	12.5%	1.8%	0.108
	Female	58.0%	27.7%	
Incorrectly recalled information	Male	8.0%	6.3%	0.693
	Female	52.7%	33.0%	

Chi square test applied, CI= 95%

Association between Environment Barriers and Gender (Male and Female)

All the barriers to shift handover existed equally among gender. No statistically significant association was shown between the environmental barriers to shift handover communication and gender (male & female) (p-value>0.05) except for the unavailability of the tests' results (p-value = 0.02) which is more prevalent in female than male.

Discussion

The findings of the study revealed messy records as the most common barrier in public sector hospital. Conventionally most of the documentation is manual in public sectors hospitals in our country and there is no appropriate filing of the documents of the relevant papers. No systematic way of filing is followed and papers are usually scattered. Thus it is

Table-IV: Association of Environmental Barriers to Gender (Male & Female)

Environmental Barriers	Gender	Agree	Disagree	p-value
Unavailability of relevant information	Male	10.7%	3.6%	0.355
	Female	72.3%	13.4%	
The doctors of previous shift is not available for responses to queries	Male	11.6%	2.7%	1.000
	Female	69.6%	16.1%	
Unavailability of relevant tests results	Male	5.4%	8.9%	0.020
	Female	58.0%	27.7%	
Interruptions by patients relatives	Male	12.5%	1.8%	0.093
	Female	57.1%	28.6%	
Interruptions by colleagues	Male	6.3%	8.0%	0.183
	Female	52.7%	33.0%	
High background noise levels.	Male	10.7%	3.6%	0.928
	Female	65.2%	20.5%	
Long working hours.	Male	8.9%	5.4%	0.560
	Female	59.8%	25.9%	
Staff shortages.	Male	9.8%	4.5%	0.471
	Female	66.1%	19.6%	
Short time for shift over.	Male	8.0%	6.3%	0.577
	Female	54.5%	31.3%	
Poor workforce planning (for example, poor organization of staff)	Male	11.6%	2.7%	0.849
	Female	67.9%	17.9%	
The division of responsibility is unclear.	Male	7.1%	7.1%	0.099
	Female	60.7%	25.0%	

challenging to provide all the documents at the time of shift handovers. The previous literature has documented messy records as the most central obstacles in shift handovers.[12] Of the participants 83.1% considered that unreadable handwriting was alarming barrier. The same finding has also been mentioned in the previous literature.[13,14] The illegible handwriting may results in due to the heavy work burden or it may be due to the shortage of the staff. The out of dated records were also alarming barriers (76.8%). The finding has also been revealed in a study of Czech Republic.[12] The participants in the current study showed that poor communication skills are responsible for the ineffective communication (80.4%). The result is congruent with findings of the previous studies.[13,15] Similarly the participants concluded that there was lack of approach to proper listening and there were interruptions (73.2%). This barriers has also been discussed in the previous literature.[13,10] In the same way literature has demonstrated that there were 1.25 interruptions per handover.[16]

Usually in handover irrelevant information are provided (77.7%). This finding is in line with the previous literature which reported that too much information is being provided during shift handover including irrelevant informaton.[17]

Sometimes it is difficult to include which types of information in the transition of patients (66.9%). It may be caused by lack of training of nursing staff. This issue has been discussed in the previous literature.[4,13,18] Usually it is difficult for the nursing staff to make proper communication with more senior or junior staff. This problem was identified by 70.6% of the participants. This issue can be conveniently eradicated if appropriate training is provided to the registered nurses. Similarly the disagreement between the physicians may also create a hurdle in the proper communication during shift handover (70.5%). The findings were not mentioned in the previous literatures. Incorrectly recalled information is not an alarming barrier in the study (60.7%). This issue can be better explained by the shortage of staff, unavailability of relevant documents and lack of organized documentation of patients' care. Errors of omission and communication gap have been the factors which negatively affected the handovers despite numerous studies.[19]

The findings revealed that unavailability of relevant information was an alarming barrier and was responded positively by 83.4% participants. Of the participants 80 % responded in one of the qualitative study that little relative information were provided to them during shift handover. This causes them the wastage of time to search for relevant information at the end of the shift.[17] This issue in shift handover may cause delay of treatment and the wastage of time. In one of the Korean study it was reported that relevant information is not being provided in shift handovers with 26% of participants' agreement.[20] Sometimes the unavailability of the doctors may results in the ineffective communication. Of the participants 81.3% showed that doctors were not available for queries in shift handover who were responsible for the patients' treatment in the previous shift. There may be limited organizational monitoring due to which the health care team availability cannot be maintained. Of the participants 63.4% revealed that unavailability of the

relevant test results is hurdle in shift handover. This might be explained in the inconsistent record keeping in the hospital settings.[21]

Of the participants 69.6% were of the opinion that the interruptions of the family member create huddles in the shift handover communication. The finding is in line with other previous studies.[10] The interruptions in shift handover may also be caused by colleagues in the hospitals. In the current study 58.9% of the participants agreed that colleagues interrupt shift handover. The lesser agreement of responses may be due to shortage of staff. If there is low number of staff there might be decreased interruptions by the colleagues. Previous studies have also demonstrated that interruption of colleagues negatively affected the shift handover.[4] High background noise was an alarming barrier responded positively by 75.9% of the participants. This barrier has been mentioned in the previous literature.[16] In our health care facilities the presence of large numbers of family members in the hospital units may be the result of high background noise.

In the current study the long working hours was not shown as alarming barrier (68.8%). This factor has been discussed by a systematic review[13] and a cross-sectional study.[12] Staff shortage negatively affects the shift handover (75.9%). This is one the critical problems of public tertiary care hospitals which has adverse impacts on every aspect of health delivery systems. The previous literature has demonstrated that staff shortage caused delay in handovers and resulted in work burden.[22] Sometimes the division of responsibility is not clear among the staff which results in ineffective shift handover (67.9%). This barrier has also been discussed previously.[13] The unclear responsibility may have been underestimated by the participants due to lack of clear job description and shortage of staff.

The findings in the current study, demonstrated that the handovers of public health care system is confronted with multiple issues. Previous studies have shown that the education and training nursing staff could be beneficial to improve the patients' care and coordination of services. It may include communication skills and the process of handover.[23]

The study has limitation in the context that the participants may not have expressed themselves eloquently because we have used closed-ended questionnaire. In future it is recommended that qualitative studies may be conducted to achieve adequate opinions of the registered nurses. Insufficient representation of the male nursing staff may have caused sampling bias. Comparison of local studies could not be conducted because of the unavailability published of literature. This is the first study to provide an insight into the shift handover in the context of Pakistan. Therefore the study results may be helpful in designing protocol and standardization to improve the current status of shift handover in the country.

Conclusion

The findings show the grim issues that exist in the shift handover. The reflection of these issues is demonstration of the fact that further studies are needed to be undertaken to better understand the background of current status of shift handover. Furthermore the findings call for the incorporation of effective education and training to improve shift handover. This will maximize the safety of the patient and improve the patients' treatment process.

Recommendations

It is recommended in the light of the findings that qualitative and interventional studies may be conducted to better understand the inherited issues in the shift handover in Pakistan. Moreover it is also recommended that an integrated protocol should be employed during shift handover to minimize the negative effects.

Acknowledgement

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