International Journal of Africa Nursing Sciences 13 (2020) 100239

Contents lists available at ScienceDirect

International Journal of Africa Nursing Sciences

journal homepage: www.elsevier.com/locate/ijans

The effect of hourly nursing rounds on patient satisfaction at Debre Markos Referral Hospital, Northwest Ethiopia: A non-randomized controlled clinical trial

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ARTICLE INFO

Keywords:
Hourly nursing rounds
Nursing care
Patient satisfaction
Ethiopia

ABSTRACT

Background: Today, implementation of hourly bedside nursing rounds is an important component of evaluating the excellence of hospitals and it is one of the strategies to increase the quality of care. Nevertheless, there has been little emphasis on the implementation of hourly nursing rounds and limited evidence is available on its effect on patient satisfaction with nursing care in Ethiopia. Hence, the objective of this study was to determine the effect of hourly nursing rounds on patient satisfaction with nursing care.

Methods: A quasi-experimental nonequivalent groups study design was used to determine the effect of hourly nursing rounds on patient satisfaction with nursing care at Debre Markos Referral Hospital. A convenience sample of 104 hospitalized patients participated in this study (52 in control and 52 intervention group). The control group received the usual care in the selected units compared with the intervention group who received care with hourly nursing rounds. Patient satisfaction with nursing care scores was taken on the second and fifth days of hospitalization in both groups. Independent *t*-test was used to compare the statistical difference between the mean satisfaction scores of the two groups. A P-value of less than 0.05 was considered significant.

Results: The result of the *t*-test demonstrated that patients in the intervention group had a higher satisfaction score than patients in the control group on the second day of hospitalization although it was not statistically significant ($P = 0.215$). However, there was a significant difference in the mean satisfaction scores on the fifth day of hospitalization (from 71.02 ± 14.37 in the control group to 79.69 ± 12.21 in the intervention group, $P = 0.001$).

Conclusion: This study revealed that patients in the intervention group have higher satisfaction scores than the control group, providing evidence that hourly nursing rounds improve patient satisfaction with nursing care and quality of care. Therefore, policymakers (FMoH) need to consider the implementation of consistent hourly nursing rounds in our hospitals to improve patient satisfaction and overall quality of care at large.

Trial registration ID: PACTR201907735468929.

1. Background

Patient satisfaction has been widely considered as one of the critical components to measure the quality of healthcare provided in the hospitals (Laschinger, Hall, Pedersen, & Almost, 2005; Salmani, Abbaszadeh, Rasouli, & Hasanvand, 2015). It is the patient's opinion and response about the fulfillment of their expectations and needs in the hospitals (Ammo, Abu-Shaheen, Kobrosly, & Al-Tannir, 2014; Johansson, Oleni, & Fridlund, 2002; Kulkarni, Dasgupta, Deoke, & Nayse, 2011). Patient satisfaction with nursing care is patients' attitude of care received from the nursing staffs during their hospitalization (Tang, Soong, & Lim, 2013). It is a multidimensional concept that has the following content: the art of care, the technical quality of care convenience, cost, a physical and environmental organization, availability of the resource, continuity of care and outcomes (Johansson et al., 2002; Wagner & Bear, 2009).

Nurses are the bedrock of the healthcare system, spend more time with hospitalized patients as compared to the other health care

Abbreviations: NSNS, Newcastle Satisfaction with Nursing care Scale; FMoH, Federal Ministry of Health; LOS, Length of Stay; SD, Standard Deviation

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https://doi.org/10.1016/j.ijans.2020.100239
Received 6 April 2020; Received in revised form 8 August 2020; Accepted 15 August 2020
Available online 20 August 2020

professionals. Hence, patient satisfaction with nursing care is an important determinant of the overall quality of care in the hospital (Hughes, 2006). Current literature suggests that patient satisfaction with nursing care is the key determinant of the overall quality of healthcare care and positively related to patient outcomes (Farahani, Shamsikhani, & Hezaveh, 2014; Freitas, Silva, Minamisava, Bezerra, & Sousa, 2014; Tang et al., 2013). Some of the common factors, but not limited, associated with patient satisfaction are patient's socio-demographic characteristics, attitudes, and expectations (Batbaatar, Dorjdagva, Luvsannyam, Savino, & Amenta, 2017; Thi, Briancon, Empereur, & Guillemin, 2002).

Hourly nursing rounds are a planned patient visit in which two or more nurses frequently check patients for comfort, safety, needs and perform routine nursing care regularly (Langley, 2015; Walker, Duff, & Fitzgerald, 2015). Rounding allows nurses to meet patient's needs, ensure patient safety, and increase patient satisfaction. More precisely, it is considered as the best practice to enhance both the quality of patient care and outcomes (Daniels, 2016; Konduru, Sujatha, & Judie, 2015). Hourly nursing rounds have the following key components: pain management, positioning, safety and comfort, attention, toileting, feeding, skincare, bedside documentation, mouth care, oxygenation, checking IV pump, and vital signs assessment (Castledine, Grainger, & Close, 2005; Konduru et al., 2015; Meade, Bursell, & Ketelsen, 2006).

Several studies have been conducted worldwide to assess the impact of hourly nursing rounds on patient satisfaction. Hourly nursing rounds have shown to have an impact on increasing patient satisfaction with nursing care (Blakley, Kroth, & Gregson, 2011; Brosey & March, 2015; Meade, Kennedy, & Kaplan, 2010; Saleh, Nusair, Al Zubadi, Al Shloul, & Saleh, 2011). Although it has a significant effect on patient outcomes, workload issues, lack of adequate staff, luck of sustainability, and lack of leadership support are some of the challenges that have been reported on its implementation (Toole, Meluskey, & Hall, 2016).

Today, only physicians' rounds are organized and practicable in most of Ethiopian hospitals. However, nursing rounds are not well structured, and it is not performed in a standardized manner. Moreover, the impact of performing hourly nursing rounds on patient satisfaction has not been studied previously in Ethiopia. Therefore, the objective of this study is to determine the effect of hourly nursing rounds on patient satisfaction with nursing care. The findings of this study will be critical to providing information to policymakers (FMoH) about the benefit of hourly nursing rounds on patient satisfaction and quality of care at large.

2. Methods

2.1. Study design, area, and period

A non-randomized controlled trial was conducted at Debre Markos Referral Hospital from May 1-June 1, 2019. Debre Markos referral hospital is one of the referral hospitals in the Amhara region, Northwest Ethiopia. It is found 300 km away from Addis Ababa, the capital city of Ethiopia.

2.2. Study population and eligibility criteria

All patients admitted to the medical and surgical ward of Debre Markos Referral Hospital during the study period were the study population. All adult patients admitted and staying in the medical and surgical ward for at least three days were included, and critically ill patients who were not able to respond to the questions were excluded.

2.3. Sample size and sampling procedure

We want to know whether there is a significant difference in patient satisfaction with nursing care offered through hourly nursing rounds versus without hourly rounds (usual care). A previous study estimated that satisfaction with nursing care scores has an effect size(δ) of 6 and pooled standard deviation (S^2) of 11 (Negarandeh, Bahabadi, & Mamaghani, 2014). The formula of calculating sample size is: $N = 2 \times [(Z_{1-\alpha/2} + Z_{1-\beta})/\delta]^2 \times S^2$, where N = sample size per group; $Z_{\alpha/2}$: This depends on the level of significance, for 5% this is 1.96; $Z1\text{-}_{\beta}$: This depends on power, for 80% this is 0.84; δ = a clinically acceptable margin; S^2 = Polled standard deviation of both comparison groups.

$N = 2[(1.96 + 0.84)/6)]^{2*}11^2 = 52$, Therefore, the sample size required per group is 52. Hence, the total sample size required is 104 (52 in each arm). Finally, a proportional number of patients were taken from the medical and surgical wards of DMRH based on the number of beds, and then samples who fulfill the inclusion criteria were taken from the wards with a convenience sampling technique.

2.4. Variables

Patient satisfaction, Socio-demographic characteristics (age, sex, marital status, educational status, occupation, residence, income, family size), Patient-related factors (previous history of admission, having another disease), Service-related factors (length of hospital stay, ward of admission, payment for the service), hourly nursing rounds.

2.5. Outcome and operational definition

The outcome of this study was a difference in patient satisfaction with nursing care scores between control and intervention groups. Patient satisfaction with nursing care is defined as the patients' opinions of the care received from the nursing staff (Wagner & Bear, 2009).

2.6. Data collection procedure and instrument

The data were collected using Newcastle Satisfaction with Nursing Care Scale (NSNS), which was adapted from other studies. NSNS is a standard scale with 19 items to measure the multi-dimensional aspect of nursing care using 19 items rated on a 5-point Likert scale (not at all satisfied, barely satisfied, quite satisfied, very satisfied, completely satisfied). Participants were asked to rate their satisfaction with various aspects of nursing care by selecting only one number that best described their opinion on each item of the scale (Alhusban & Abualrub, 2009; Chaka, 2005; Sharew, Bizuneh, Assefa, & Habtewold, 2018). The questionnaire was prepared in English and translated into the local language, Amharic, and back to English for consistency. The reliability and validity of the NSNS tool are well reported (Cronbach's alpha = 0.98) (Sharew et al., 2018). The control group received the ward's usual care and trained nurses performed hourly nursing rounds every 1-to-2 h for the experimental group under supervision. In the treatment group, nurses visited each patient they cared regularly and performed nursing activities by focusing on their pain, comfort, assistance, and other nursing tasks. The nurses were taught to perform their rounds under supervision to ensure their correct performance throughout the rounds. Data were collected through an interview by trained four BSc nurses on the third and fifth days of hospitalization. Patients were interviewed to rate their satisfaction with various aspects of nursing care by selecting only one number that best described their opinion on each item of the scale. The data were collected from May 1-June 1, 2019. Two supervisors closely supervised the process of data collection.

2.7. Data quality control

Training about the questionnaire was given to the data collectors for one day before data collection. The collected data were checked for its completeness and clarity daily, and follow up and supervision was conducted by supervisors during the data collection.

2.8. Data processing and analysis

The collected data were cleaned and entered into **Epi-Data** version 4.2 and exported to STATA version 14 for analysis. A Chi-square test was performed to compare the socio-demographic and other characteristics of patients in the control and intervention groups. Further, independent *t*-test was performed to determine whether there is a statistical difference between the mean satisfaction scores of the two groups on the second and fifth days of hospitalization. Statistical tests were performed at the level of significance of 5%. The results were presented in text and tables.

3. Result

3.1. Sociodemographic characteristics of the study participants

The study sample consisted of 104 participants (52 in each group). The study was conducted in the medical and surgical ward, proportionally 57 and 47 participants from the medical and surgical ward respectively. The majority of patients (25% in control and 33 in the intervention group) were in the age group 18–39 years old. About 30% of patients in the control and 32% in the intervention group were male and most of the participants in both groups did not attend formal education. About 43% of the control sample and 18% of the intervention sample comes to the hospital from urban areas. Besides, most of the participants (45.2%) had a family size between 4 and 6. There was no statistically significant difference between control and interventional groups regarding sociodemographic characteristics based on the chi-square test (Table 1).

3.2. Hospital stay and other characteristics of respondents

Thirty-one (29.8%) of the participants (25% in control and 34.6% in the interventional group) had a history of previous hospitalization. About 40.4% of patients in the control group and 34.6% in the interventional group had paid for hospital service. Furthermore, the majority of the participants had comorbid diseases and stayed for more than six days in the hospital (Table 2).

Table 2
Hospital stay and other characteristics of the participants.

Variables	Response	Total N (%)	Control N (%)	Intervention N (%)
Previous history of admission	Yes	31(29.8)	13(25)	18(34.6)
	No	73(70.2)	39(75)	34(65.4)
Having another disease	Yes	33(31.7)	16(30.8)	17(32.7)
	No	71(68.3)	36(69.2)	35(67.3)
Length of hospital stay	3 days	8(7.7)	2(3.8)	6(11.5)
	4 days	21(20.2)	8(15.4)	13(25)
	5 days	32(30.8)	20(38.5)	12(23.1)
	≥6 days	43(41.30	22(42.3)	21(40.4)
Ward of admission	Medical	57(54.8)	26(50)	31(59.6)
	Surgical	47(45.2)	26(50)	21(40.4)
Payment for the service	Yes	39(37.5)	21(40.4)	18(34.6)
	No	65(62.5)	31(59.6)	34(65.4)

3.3. Nursing care patient satisfaction scores in control and intervention group

The amount of time nurses spent with a patient, nurses' treatment of the patient as an individual, the amount of freedom patient was given on the ward were the three top scores in the second days of admission in the control group. Similarly, the amount of freedom patient was given on the ward, the frequency of nurses checked to see if patients were well, and how nurses listened to patient worries and concerns were the three top scores in the second days of admission in the intervention group (Table 3).

How nurses helped put patient relatives' or friends' minds at rest, nurses' manner in going about their work, nurses' awareness of patient needs were the three top scores in the fifth days of admission in the control group. Similarly, how often nurses checked to see if patients were well, wow willing nurses were to respond to patient requests, nurses' awareness of patient needs were the three top scores in the fifth days of admission in the intervention group (Table 4).

3.4. The effect of hourly nursing rounds on patient satisfaction scores

Patient satisfaction with nursing care scores of the control and intervention groups were compared using the independent *t*-test.

Table 1
Sociodemographic characteristics of the study participants.

Variables	Categories	Total N (%)	Control N (%)	Intervention N (%)	Chi-square test
Age	18–39	56(53.8)	25(48.1)	31(59.6)	$X^2 = 2.83$
	40–49	18(17.3)	12(23.1)	6(11.5)	P = 0.42
	50–59	7(6.7)	4(7.7)	3(5.8)	
	≥60	23(22.1)	11(21.2)	12(23.1)	
Sex	Male	62(59.6)	30(57.7)	32(61.5)	$X^2 = 0.16$
	Female	42(40.4)	22(42.3)	20(38.5)	P = 0.69
Marital status	Single	21(20.2)	12(23.1)	9(17.3)	$X^2 = 2.56$
	Married	56(53.8)	25(48.1)	31(59.6)	P = 0.63
	Divorced	11(10.6)	6(11.5)	5(9.6)	
	Widowed	7(6.7)	5(9.6)	2(3.8)	
	Separated	9(8.7)	4(7.7)	5(9.6)	
Educational level	No formal education	48(46.2)	27(51.9)	21(40.4)	$X^2 = 2.60$
	Primary	29(27.9)	15(28.8)	14(26.9)	P = 0.46
	Secondary	19(18.3)	7(13.5)	12(23.1)	
	College and above	8(7.7)	3(5.8)	5(9.6)	
Occupation	Farmer	38(36.5)	22(42.3)	16(30.8)	$X^2 = 7.24$P = 0.12
	Housewife	20(19.2)	6(11.5)	14(26.9)	
	Private	18(17.3)	11(21.2)	7(13.5)	
	Merchant	8(7.7)	2(3.8)	6(11.5)	
	Governmental	20(19.2)	11(21.2)	9(17.3)	
Residence	Urban	43(41.3)	18(34.6)	25(48.1)	$X^2 = 1.94$
	Rural	61(58.7)	34(65.4)	27(51.9)	P = 0.16
Family size	≤3	44(42.3)	18(34.6)	26(50)	$X^2 = 3.57$
	4–6	47(45.2)	25(48.1)	22(42.3)	P = 0.17
	≥6	13(12.5)	9(17.3)	4(7.7)	

Table 3
Second day satisfaction scores of nursing care in the control and experimental group.

No	Item	Control group / Experimental group				
		Not at all Satisfied, n (%)	Barely satisfied, n (%)	Quite satisfied, n (%)	Very satisfied, n (%)	Fully satisfied, n (%)
1	The amount of time nurses spent withpatient.	4(7.7)/0(0)	4(7.7)/7(13.5)	16(30.8)/14(26.9)	10(19.2)/24(46.2)	18(34.6)/7(13.5)
2	How capable nurses were at their job.	1(1.9)/0(0)	6(11.5)/4(7.7)	14(26.9)/15(28.8)	23(44.2)/21(40.4)	8(15.4)/12(23.1)
3	There always being a nurse around when needed.	3(5.8)/0(0)	3(5.8)/5(9.6)	22(42.3)/12(23.1)	7(13.5)/26(50)	17(32.7)/9(17.3)
4	The amount nurses knew about patient care.	1(1.9)/1(1.9)	5(9.6)/2(3.8)	26(50)/12(23.1)	13(25)/27(51.9)	7(13.5)/10(19.2)
5	How quickly nurses came when patient called them.	2(3.8)/0(0)	6(11.5)/7(13.5)	23(44.2)/8(15.4)	11(21.2)/26(50)	10(19.2)/11(21.2)
6	The way the nurses made patient feel at home.	4(7.7)/1(1.9)	6(11.5)/2(3.8)	23(44.2)/12(23.1)	8(15.4)/28(53.8)	11(21.2)/9(17.3)
7	The amount of information nurses gave to patient about their condition and treatment.	2(3.8)/1(1.9)	5(9.6)/3(5.8)	22(42.3)/13(25)	12(23.1)/25(48.1)	11(21.2)/10(19.2)
8	How often nurses checked to see if patients were well.	2(3.8)/1(1.9)	0(0)/3(5.8)	21(40.4)/11(21.2)	16(30.8)/25(48.1)	13(25)/12(23.1)
9	Nurses' helpfulness.	3(5.8)/1(1.9)	0(0)/3(5.8)	22(42.3)/14(26.9)	18(34.6)/24(46.2)	9(17.3)/10(19.2)
10	The way nurses explained things to patient.	0(0)/0(0)	2(3.8)/8(15.4)	22(42.3)/10(19.2)	21(40.4)/24(46.2)	7(13.5)/10(19.2)
11	How nurses helped put patient relatives' or friends' minds at rest.	4(7.7)/1(1.9)	6(11.5)/1(1.9)	20(38.5)/19(36.5)	10(19.2)/21(40.4)	12(23.1)/10(19.2)
12	Nurses' manner in going about their work.	0(0)/0(0)	2(3.8)/3(5.8)	23(44.2)/16(30.8)	12(23.1)/22(42.3)	15(28.8)/11(21.2)
13	The type of information nurses gave to patient about his/her condition and treatment.	2(3.8)/1(1.9)	6(11.5)/1(1.9)	19(36.5)/19(36.5)	16(30.8)/21(40.4)	9(17.3)/10(19.2)
14	Nurses' treatment of patient as an individual.	2(3.8)/0(0)	1(1.9)/1(1.9)	20(38.5)/18(34.6)	11(21.2)/21(40.4)	18(34.6)/12(23.1)
15	How nurses listened to patient worries and concerns.	1(1.9)/0(0)	6(11.5)/2(3.8)	17(32.7)/14(26.9)	16(30.8)/24(46.2)	12(23.1)/12(23.1)
16	The amount of freedom patient was given on the ward.	2(3.8)/0(0)	3(5.8)/1(1.9)	18(34.6)/18(34.6)	11(21.2)/20(38.5)	18(34.6)/13(25)
17	How willing nurses were to respond to patient requests.	1(1.9)/0(0)	3(5.8)/3(5.8)	14(26.9)/19(36.5)	18(34.6)/18(34.6)	16(30.8)/12(23.1)
18	The amount of privacy nurses gave patient.	7(13.5)/0(0)	1(1.9)/3(5.8)	12(23.1)/19(36.5)	15(28.8)/18(34.6)	17(32.7)/12(23.1)
19	Nurses' awareness of patient needs.	4(7.7)/1(1.9)	3(5.8)/7(13.5)	10(19.2)/15(28.8)	17(32.7)/19(36.5)	18(34.6)/10(19.2)
	Mean Score ± SD	68.62 ± 11.04 / 71.46 ± 12.20				

Accordingly, the mean satisfaction score was 68.62 ± 11.04 and 71.46 ± 12.20 on the second day of hospitalization in the control and intervention groups respectively. Furthermore, the result of the test indicates that patients in the intervention group had higher satisfaction scores than patients in the control group on the second day of admission although it was not statistically significant (P = 0.215). However, there was a statistically significant difference in the mean satisfaction scores between the groups on the fifth day of admission (from 71.02 ± 14.37 in the control group to 79.69 ± 12.21 in the intervention group, P = 0.001) (Table 5).

Table 5
Comparisons of patient satisfaction with nursing care mean scores on the second and fifth days of admission between control and intervention groups.

Measure	Admission	Group		P-value
		Control	Intervention	
Mean satisfaction score (Mean ± SD)	2nd Day	68.62 ± 11.04	71.46 ± 12.20	0.215
	5th Day	71.02 ± 14.37	79.69 ± 12.21	0.001

Table 4
Fifth day satisfaction scores of nursing care in the control and experimental group.

No	Item	Control group/Experimental group				
		Not at all Satisfied, n (%)	Barely satisfied, n (%)	Quite satisfied, n (%)	Very satisfied, n (%)	Fully satisfied, n (%)
1	The amount of time nurses spent withpatient.	1(1.9)/2(3.8)	4(7.7)/3(5.8)	27(51.9)/12(23.1)	9(17.3)/24(46.2)	11(21.2)/11(21.2)
2	How capable nurses were at their job.	0(0)/0(0)	4(7.7)/1(1.9)	21(40.4)/9(17.3)	14(26.9)/24(46.2)	13(25)/18(34.6)
3	There always being a nurse around when needed.	1(1.9)/1(1.9)	2(3.8)/2(3.8)	27(51.9)/6(11.5)	10(19.2)/26(50)	12(23.1)/17(32.7)
4	The amount nurses knew about patient care.	0(0)/2(3.8)	4(7.7)/0(0)	28(53.8)/7(13.5)	8(15.4)/27(51.9)	12(23.1)/16(30.8)
5	How quickly nurses came when patient called them.	1(1.9)/0(0)	4(7.7)/1(1.9)	25(48.1)/6(11.5)	12(23.1)/26(50)	10(19.2)/19(36.5)
6	The way the nurses made patient feel at home.	3(5.8)/0(0)	4(7.7)/1(1.9)	24(46.2)/6(11.5)	10(19.2)/26(50)	11(21.2)/19(36.5)
7	The amount of information nurses gave to patient about their condition and treatment.	2(3.8)/1(1.9)	9(17.3)/1(1.9)	21(40.4)/3(5.8)	10(19.2)/27(51.9)	10(19.2)/20(38.5)
8	How often nurses checked to see if patients were well.	0(0)/0(0)	4(7.7)/1(1.9)	19(36.5)/3(5.8)	13(25)/26(50)	16(30.8)/22(42.3)
9	Nurses' helpfulness.	1(1.9)/0(0)	3(5.8)/1(1.9)	17(32.7)/5(9.6)	15(28.8)/27(51.9)	16(30.8)/19(36.5)
10	The way nurses explained things to patient.	3(5.8)/2(3.8)	3(5.8)/2(3.8)	17(32.7)/ 1(1.9)	16(30.8)/29(55.8)	13(25)/18(34.6)
11	How nurses helped put patient relatives' or friends' minds at rest.	2(3.8)/1(1.9)	3(5.8)/2(3.8)	13(25)/0(0)	11(21.2)/29(55.8)	23(44.2)/20(38.5)
12	Nurses' manner in going about their work.	1(1.9)/0(0)	1(1.9)/0(0)	12(23.1)/5(9.6)	13(25)/29(55.8)	25(48.1)/18(34.6)
13	The type of information nurses gave to patient about his/her condition and treatment.	2(3.8)/0(0)	8(15.4)/0(0)	15(28.8)/7(13.5)	10(19.2)/25(48.1)	17(32.7)/20(38.5)
14	Nurses' treatment of patient as an individual.	1(1.9)/0(0)	2(3.8)/0(0)	19(36.5)/5(9.6)	8(15.4)/29(55.8)	22(42.3)/18(34.6)
15	How nurses listened to patient worries and concerns.	0(0)/1(1.9)	5(9.6)/2(3.8)	14(26.9)/2(3.8)	15(28.8)/26(50)	18(34.6)/21(40.4)
16	The amount of freedom patient was given on the ward.	2(3.8)/0(0)	3(5.8)/1(1.9)	14(26.9)/4(7.7)	12(23.1)/26(50)	21(40.4)/21(40.4)
17	How willing nurses were to respond to patient requests.	0(0)/0(00	3(5.8)/1(1.9)	15(28.8)/4(7.7)	12(23.1)/24(46.2)	22(42.3)/23(44.2)
18	The amount of privacy nurses gave patient.	4(7.7)/1(1.9)	2(3.8)/0(0)	16(30.8)/3(5.8)	10(19.2)/29(55.8)	20(38.5)/19(36.5)
19	Nurses' awareness of patient needs.	3(5.8)/1(1.9)	5(9.6)/1(1.9)	6(11.5)/2(3.8)	12(23.1)/25(48.1)	26(50)/23(44.2)
	Mean Score ± SD	71.02 ± 14.37 / 79.69 ± 12.21				

4. Discussion

Measuring the nursing service is important to determine the overall quality of care provided in hospitals (Konduru et al., 2015). Nursing rounds have been implemented in many settings to improve patient care and outcome. The inability of nurses to deliver safe and effective nursing care is also one of the core reasons for the introduction of regular nursing rounds. Despite the need for efficient regular hourly nursing rounds, less attention has been given for its implementation (Jarman, 2009; Mahanes, Quatrara, & Shaw, 2013).

Consistent hourly nursing rounds are significant aspects of the nursing profession. It ensured that all patients received regular care (Ulanimo, 2011). In Ethiopia, the overall patient satisfaction with nursing care is poor. This might be related to several factors such as job satisfaction, less attention given to the nursing care, and others (Mulugeta, Wagnew, Dessie, Biresaw, & Habtewold, 2019). However, there is a lack of evidence to indicate the effect of hourly nursing rounds on patient satisfaction. The current study was conducted to determine if hourly nursing rounds could increase patient satisfaction with nursing care.

In the present study, nurses perform hourly nursing rounds every 1-to-2-hours in a 24-hour period in the intervention group and the control group received the ward's usual care. Then, patient satisfaction scores were taken on the second and fifth days of hospitalization. The result of the current study showed that patient satisfaction increased during the rounding time both on the second and fifth days of hospitalization. Although patient satisfaction scores increased among the intervention group on the second day of hospitalization, it was not statistically significant ($P = 0.215$). However, patient satisfaction scores were significantly increased in the fifth day of hospitalization in the intervention group when compared with the control group($P = 0.001$). This finding agrees with and supports previous findings of the effect of hourly regular nursing rounds in increasing patient satisfaction with nursing care scores in the intervention group (Blakley et al., 2011; Meade et al., 2006; Negarandeh et al., 2014; Saleh et al., 2011; Woodard, 2009). Similar to our findings, a review by Halm (2009) found that eight of the nine studies revealed improvements in overall patient satisfaction as a result of hourly nursing rounds. This suggests that conducting routine hourly nursing rounds is safe and beneficial for improving the nursing practice. It leads to greater patient satisfaction of care provision, and it is a key tool for increasing safety and quality of care at large (Ford, 2010). Besides, Meade et al. (2010) revealed that the implementation of hourly nursing rounds in the emergency department increases patient satisfaction with emergency care and patient safety.

Another similar study conducted by Gardner, Woollett, Daly, and Richardson (2009) and Kalman (2008) demonstrated no significant differences in patient satisfaction scores between control and intervention groups with the implementation of regular hourly nursing rounds. The small number of participants might be the possible justification for no effect results in both studies as the researchers explained. Similarly, O'leary et al. (2016) revealed a non-significant effect of interprofessional regular bedside rounds on patient satisfaction. This non-significant effect might be due to improper implementation of hourly nursing rounds with its key components.

In addition to increasing patient satisfaction, available evidence also suggests that implementation of hourly nursing rounds reduce patient's call light use and improve patient safety (Ford, 2010; Meade et al., 2006; Woodard, 2009). Moreover, Brosey and March (2015) noted a reduction of patient falls, pressure ulcers, and improve pain management during the nurse rounding. This implies that conducting hourly nursing rounds positively affects patients' clinical outcomes (Harrington et al., 2013; Lobatch, 2017).

Length of hospital stay is one of the factors influencing the overall patient satisfaction with nursing care (Mrayyan, 2006). In this study as the length of hospital stay increases, patient satisfaction with nursing care also increases both in the control and intervention groups. This suggests that the length of hospital stay is related to patient satisfaction. It is expected to observe increased patient satisfaction scores in the intervention group as hourly nursing rounding fulfills the patients' needs with the increasing length of stay (Blakley et al., 2011). Similarly, Rosenheck, Wilson, and Meterko (1997) demonstrated that long hospital stays linked to higher patient satisfaction levels. On the contrary, related literature revealed no significant relationship between longer LOS and patient satisfaction (Cleary et al., 1991; Hall & Dornan, 1990).

The findings of this study have implications in clinical practice. Determining the effect of hourly nursing rounds on patient satisfaction with nursing care is useful for nurses to organize this new proactive approach for the better quality of nursing care and to produce positive outcomes. Although this study provides up-to-date evidence that better patient satisfaction could be achieved by implementing hourly nursing rounds, some limitations should be considered in future research. First, it is a quasi-experimental design, which doesn't ensure equivalence between groups. Second, it is a single-center study with small sample size, so that the generalizability of its results might be questionable. Lastly, the perception of nursing staff regarding hourly nursing rounds was not assessed.

5. Conclusions

In this study patients in the intervention group has higher satisfaction scores than the control group, indicating that the implementation of hourly nursing rounds has a positive effect. Patient satisfaction scores also increased as the patient length of stay increases both in the control and intervention groups. This implies that hourly nursing rounds in the intervention group meet basic patient needs with the increasing length of hospital stay which could increase their satisfaction. Therefore, policymakers (FMoH) need to give attention and develop a guideline to implement consistent hourly nursing rounds in our hospitals which is a key for improving patient outcome, safety, and overall quality of care at large. In addition, nursing leaders should work collaboratively with policymakers for the implementation of this protocol to nursing practice. Further, a multisite study with larger a sample size is recommended to enhance the representativeness of the results.

Ethics approval and consent to participate

The current study was conducted after the approval of the proposal by the Ethical committee of Debre Markos University College of Health Science. First, ethical clearance letter was obtained from Debre Markos University College of Health Science. Then, a written letter was submitted to Debre Markos Referral Hospital administrative office to get permission. Verbal consent was obtained from the eligible participants after explaining the purpose of the study and their confidentiality was kept.

Consent for publication

Not applicable.

Availability of data and materials

All the data are available from the corresponding author upon a reasonable request.

Funding

Funding for this study was provided by Debre Markos University.

Authors' contributions

HM, AD and FW have participated in the design of the study, data

collection, and data analysis. DH, AT, and GDK have contributed to data collection, statistical analysis, and interpretation of the findings. HM prepared the final draft of the manuscript. All other authors critically revised the manuscript and approved the final draft of the manuscript.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgments

The authors would like to thank Debre Markos University for funding the study; participants and Debre Markos Referral hospital nurses who made the study possible.

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