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Original Article

Knowledge about Intake and Output Documentation among the Nursing Staffs of Dhulikhel Hospital

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ABSTRACT

Introduction: Documentation of intake and output is written or electronically generated information about client's all the fluid that goes into and eliminated out of the patient's body. Fluid balance monitoring and documentation is a challenging area in nursing practice, since patients' management plan for surgery, renal, cardiac and acute gastrointestinal disease depends on nurse's documentation, it is hence of medical and ethical importance. Thus, we intend to assess the knowledge about intake and output documentation among the nursing staffs of Dhulikhel Hospital.

Materials and Methods: A simple descriptive cross-sectional study was conducted among the 100 nursing staffs using stratified random technique. Self-administered questionnaire was used. T-test was used for comparison. Respondents' knowledge was analyzed by using software SPSS 16.0.

Results: This study showed the mean knowledge percentage score of nursing staffs working in Dhulikhel Hospital was 59.25%. There was significant difference in mean knowledge score between respondents with Certificate Level in Nursing and Bachelor level (p= 0.008), between respondents of Surgical Units and Non-Surgical Units (p= 0.001). Other variables like personal experience and previous in-service or education on intake and output documentation did not have any significant difference in mean knowledge score.

Conclusion: The findings of the study suggested that the knowledge regarding intake and output documentation among nursing staff was average.

Keywords: Intake; Knowledge; Output; Nursing Staffs

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INTRODUCTION

Documentation of intake and output is written or electronically generated information about client's all the fluid that goes into and eliminated out of patient's body.[1]Usually measured in milliliter (ml), total calculated over every 8 hours and at the end totals are added to obtain the 24 hours total for each column. Failure to chart, omissions and poor communication are hard to defend. Regardless of the charting method used, nursing documentation must be objective, legible, free of grammatical/spelling errors, free of errors/erasures, completed in blue or black ink, and accurate. Late entries and any corrections entered should be per policy and procedure. No charting should be done in advance. Documentation should include staff notified and steps taken.

The latest report of Australian National Health and Hospital Reform Commission states that hospital errors kill 4,550 people each year.[2] The Canadian Medical Association also says 24,000 people die annually due to medical errors in Canada.[3] These errors include – failing to provide relevant standard care, medicine errors, documentation errors, negligence of health practitioner, etc. In Nepal though hospital error occurs there is no documentation to clarify it

This documentation is more crucial among patients who have renal failure, burn, cardiac disease or generalized edema since these patients' diagnosis and early treatment are totally dependent on the care providers' education level on documentation of intake and output. Documentation of intake and output in these patients is hence of medical and ethical importance still very few studies have focused on documentation of intake and output. Thus, this study is intended to identify the leading and lacking areas in nurses' knowledge regarding "documentation of intake and output."

MATERIALS AND METHODS

This was a hospital-based, descriptive, observational, cross sectional study conducted in Dhulikhel Hospital, Dhulikhel. The target population were Certificate and Bachelor Level Nursing staffs who are working in clinical side of Dhulikhel Hospital. Nurses who are on leave for 4 whole weeks of data collection and those working on Central Sterile Supply Department(CSSD), Outpatient department, Ultrasound and Endoscopy Unit were excluded. Stratified Random sampling technique was used in this study.Firstly, strata were made between Certificate level in nursing staffs and Bachelor level in Nursing staffs. Sample size was then Certificate level = 90, Bachelor level = 10, calculated as proportion.Then, simple random method i.e. Lottery method was used. Taking the study on knowledge and practice on documentation in 32 medical- surgical units of four hospitas in Tabriz[4], in intake and output fluid section nurse's mean percentage score of knowledge of documentation was 73.55%. Thus, the sample size was calculated as 86 subjects. The outcome measurement was divided into two variables i.e. dependent and independent variables. The following outcome attributes were measured in this study: Independent variables (work experience, level of study, area of practice); Dependent variable (nurse's knowledge on I/O documentation**).** A structured and semi-structured questionnaire was used for data collection. The instrument for data collection contained following parts: Part I – Demographic variables; Part II – Knowledge regarding general information of documentation of I/O; Part III – Knowledge regarding appropriate ways of documentation of I/O and; Part IV – Knowledge regarding measurement of I/O for documentation. For data collection, a cordial relationship was established with subjects and the purpose and objectives of the study was clearly explained. Verbal consent was taken from each respondents prior to data collection. The data was collected by self- administered questionnaire.Identification of the participants was kept confidential.Questionnaires was collected and checked for completeness and accuracy.The collected data was checked for accuracy, utility and completeness. Any errors, incompleteness and inconsistencies in the data that could distort the result of the study were removed. The data collected were analyzed in Microsoft Office Excel and SPSS 16.0 version for both descriptive and inferential statistics.Descriptive statistics such as percentage, frequency, mean, standard deviation was used to analyze independent variables. Inferential statistics (t- test) was applied to identify significance difference between dependent and independent variables at 5% level of significance.

RESULTS

A total 100 respondents were given the questionnaire and the data was collected. The demographic data of the respondents is shown in table 1. Among the respondents only 6 (6%) had taken the trainings/special courses on intake and output documentation

Table 1. Frequency and Percentage Distribution of Demographic Data of Respondents (n=100)

Variables			Frequency (%)
Level of study		Certificate in Nursing	90(90)
		Bachelor level in Nursing	10(10)
Work experience in years		Under-experienced	34 (34)
		Experienced	66(66)
Working site	***Surgical units***	Surgical ward	8(8)
		Operation Theatre	20(20)
		Orthopedic ward	8(8)
		Gynae/Obstetric ward	23(23)
		ICU/ PICU/NICU/Dialysis	23(23)
	Non-Surgical units	Pediatric Ward	5(5)
		Emergency Department	1(1)
		Medicine Department	12(12)

Out of 100 respondents, majority (90%) of respondents belonged to certificate level in nursing. Regarding work experience, about two third (66%) had work experience of more than 1 year and one third had experience less than or equal to 1 year (34%).Regarding area of practice, maximum respondents (82%) were from surgical units and remaining (18%) were from non-surgical units.

Among total respondents, 87% said oral fluids is to be documented in intake chart. Furthermore, 87% thought blood products are also to be documented in intake chart. Parenteral nutrition, intravenous fluids and medications should be documented in intake chart as per 74%, 98% and 53% respondents respectively (Table 2).

Table 2. Percentage Distribution of Respondents' Knowledge on Parameters to be Documented on Intake Chart (n=100)

Questions	Frequency (%)
Oral fluids	87(87)
Blood products	87(87)
Parenteral nutrition	74(74)
Intravenous fluids	98(98)
Medications	53(53)

Among total respondents, 100% said urine output is to be documented in output chart. Also, 95% believed drainage fluid is also to be documented in output chart. 71% of respondents said nasogastric aspirations, 57% said irrigation, 95% said vomitus and 77% said blood loss should be documented in output chart (Table 3).

Table 3. Percentage Distribution of Respondents' Knowledge on Parameters to be Documented on Output Chart (n=100)

Questions	Frequency (%)
Urine output	100(100)
Drainage	95(95)
Nasogastric aspirations	71(71)
Irrigation	57(57)
Vomitus	95(95)
Blood loss	77(77)

Out of 100 respondents, 89% of the respondents answered correctly about documentation of I/O. Regarding measurement scale of intake and output documentation, 94% answered milliliter correctly. More than half (53%) of respondents said documentation of intake and output is done to assess nutritional and output status in nursing practice. Likewise, while delegating the task, majority (77%) said they have to make sure the person understands it. (Table 4)

Table 4: Respondents Knowledge on General Information of I/O Documentation (n = 100)

Correct response	Frequency (%)
Definition of I/O documentation is recording of fluid taken and thrown out of body	89(89)
Milliliter is measurement scale of intake and output	94(94)
Documentation of I/O is done to assess nutritional and output status in nursing practice	53(53)
Delegating the task of I/O documentation make sure the person understands it.	77(77)

Among total respondents, almost all (99%) said major surgeries are the indication of I/O documentation. Also, majority (92%) of respondents said renal cases, 73% said cardiac cases, 54% said acute gastro enteritis and 2% said others i.e. diabetes insipidus, diabetic ketoacidosis is the indication of I/O measurement. Among total respondents, 75% said legal documentation is the purpose of I/O documentation, 56% told communication with the patients and 45% of respondents said research is the sole purpose of I/O documentation. Out of 100 respondents,79% answered accuracy is the quality of I/O documentation followed by 77% completeness and 63% proper timing. Regarding components to be documented in intake chart, majority 99% said amount of fluid taken should be documented, followed by 97% timing of fluid taken, 87% type of fluid taken, 54% signature of staff documenting and 46% rate at which fluid is taken. Majority of the respondents (98%) said timing of output should be recorded in output chart, 92% type of fluid thrown out, 85% route from which it is thrown out, 78% color of fluid, 60% signature of staff documenting, 52%appearance of fluid and 46%consistency of fluid. Majority (98%) of the respondents said it is necessary to record infusion of blood and blood products in intake recording sheet for the patient on whom I/O documentation is ordered. Regarding standard practice of measurement majority (72%) said calibrated mug/jug is the standard practice of measurement. More than half of respondents, (51%) said 2-3 L/day is the normal intake for the healthy person. Less than half of the respondents, (44%) said normal output for healthy person is 0.5-1 ml/kg/min. Similarly, majority (80%) said it is necessary to adopt universal precaution before measuring output. Likewise, majority of the respondents (88%) said we have to take reading of the drain bottle or jug at eye level. Regarding taking reading from drain bottle, only 33% said lower level of meniscus should be read.

The mean knowledge of respondents with Certificate Level in Nursing is 32.43 and respondents with Bachelor Level in Nursing is 38.00 which is statistically significant (p=0.008). The mean knowledge of respondents in surgical wards is 33.97 and respondents in non-surgical wards is 28.50 which is statistically significant (p=0.001). The mean knowledge of experienced respondents is 32.22 and under-experienced respondents is 34.47 which is slightly different but not statistically significant (p=0.09). The mean knowledge of respondents with previous training is 35.66 and respondents without previous training is 32.81 which is slightly different but not statistically significant (p=0.29).

DISCUSSION

This study was conducted to assess nurses' knowledge on documentation of intake and output in the wards.From various literature reviews it becomes very evident that knowledge on documentation of intake and output is of utmost importance. Having adequate knowledge on documentation of intake and output among nurses facilitates in adequate and effective management of various complications and ultimately leading to better patients' outcomes.

This study reveals that the mean knowledge score of the nursing staff was found to be 32.99 ± 6.36 (out of total 54) that is 59.25% which is lower thanthe mean score 13.24± 1.07 (out of 18) that is 73.55% as shown by the study done by Jasemi et al.[4]In our study 74% of the respondents answered correctly to the accuracy of I/O documentation which is significantly higher than in the study by Diacon where 10% of the respondents only answered correctly to the accuracy of I/O.[5] Similarly, regarding knowledge on measurement of intake and output, this study showed 70.1% of respondents answered correctly.

Regarding the purpose of intake and output documentation, this study showed that more than half (58.66%) of respondents answered it correctly which is much higher than in the study done in Singapore, which showed only 25% of the staff answered correctly on purpose of intake and output documentation.[6]

Furthermore, this study highlights the significant difference in mean knowledge score between respondents having Certificate level in Nursing and respondents having Bachelor level in Nursing (p=0.008) which contradicts with the study done by Shepley et al, where statistically there was no significance when years of education and grades received were compared (p=2.4).[7]

Likewise, this study showed significant difference between mean knowledge score of the respondents in surgical units and non-surgical units(p= 0.001). Surgical nurses did better than non-surgical nurses. Similarly, Aghdam et al, showed that there exists statistical difference (p=0.02) between quality of medical and surgical nurse's documents.[8] This study also does not show significant difference in mean knowledge score between the experienced and under-experienced respondents (p=0.095). Ajibade et al. also established that there was no relationship between the specialty trainee nurses' and intake output documentation.[9] In this study, the difference in mean knowledge between respondents who had received trainings or in-service education on intake output documentation and who hadn't is statistically insignificant (p=0.29).This contradicts with the findings of the study by Felliciano et al. which showed that

training beyond regular nursing training is required to understand and cope with the variations in the management of acute stroke patient.[10]

CONCLUSIONS

The significant difference in mean knowledge score between respondents with Certificate level in Nursing and Bachelor level in Nursing was statistically significant. The difference in mean knowledge between respondents of Surgical Units and Non-Surgical Units was statistically significant. Similarly, the difference in mean knowledge between respondents who had received trainings or special courses and who hadn't was found statistically insignificant. Likewise, the difference in mean knowledge between experienced and under-experienced respondents was also statistically insignificant.

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