

MATERIAL RESOURCES IN NURSING: A STUDY ON UNDERGRADUATE STUDENTS' KNOWLEDGE ABOUT COSTS

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MOREIRA, Leila Maria Vieira et al. Material resources in nursin: a study on under-graduate students' knowledge about costs. *Salusvita*, Bauru, v. 21, n. 3, p. 27-33, 2003.

ABSTRACT

The aim of this study was to investigate the knowledge concerning the unitary price of materials and equipments used in nursing practice. The practice of thirty students attending “Nursing Administration II”, of the School of Nursing at Universidade do Sagrado Coração, in Bauru-SP, Brazil, in September, 2002, was investigated. The data were obtained from a plan containing items used in or diary nursing practice, materials that students have already handled in order to assist patients, and blank spaces to be filled out with each product price, which were later compared to the market price. Our results attested the students' unawareness about the material resources prices, pointing out the need for strategies to give undergraduate students the opportunity to analyse the cost of the material resources in the assisting process.

KEY WORDS: Cost, material, Nursing.

Received on: November 12, 2002
Accepted on: February 14, 2003

INTRODUCTION

Administration of material resources in health institutions is a main concern in nursing practice and has become an area of relevance in the professional practice.

According to Castilho and Leite (1991), material resources accounts for 75% of the organization capital and represents 30% to 40% of the cost expenses in health institutions.

The quality of service, the diversity of material and equipments and the constant technological updating are aspects that should be taken into consideration in the organization policies of material resources. Nursing services uses most of these materials and, therefore, nurses should express an opinion on this issue, both regarding quality and sufficient quantity to fulfill the needs of patients (MAEDA; CAMPEDELLI, 1991).

Taking this scenario into consideration, the involvement of nurses in the policy of material and equipment acquisition should be precocious, i.e., in the undergraduation years. Teachers should advise not only in what concerns the use and applicability of resources, but also on costs.

According to Padilha (1990), besides the knowledge on hospital costs, nurses should orientate his/her team regarding the cost of assistance, preventing wastefulness and assuring the adequate use of resources. Romano and Veiga (1993) stress that is a role for nurses to systematize the nursing actions in the purchasing process, to establish minimal essential requisites for material and to elaborate records of the characteristics of quality for materials used in different departments.

Ortiz and Gaidzinsk (1999) conducted a study that revealed that nurses are not aware of the actual price of common use materials. Taking this result into account and moved by the need to prepare nursing students to face professional challenges, mainly in this specific area, the present study aims to identify the knowledge that students of the four years of the Nursing Course have on the costs of the most frequently used materials in nursing services in health institutions. The authors understand that the education of undergraduate students should expand to interactive activities involving teachers, students, professionals, market operators, health institutions and research.

The present study involves Administration of Nursing Assistance and has as objective to study the knowledge of nursing undergraduate students on the costs of materials used in the assistance process, which is an issue rarely focused by research. By interview-



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wing the students, it was investigated their estimate of unitary cost for materials used in the professional practice. It was also compared this estimation to the actual price in the market and strategies were sought to promote the knowledge related to material resources management in nursing.

METHODOLOGY

The study was conducted at the University of the Sacred Heart, Bauru-SP with a sample of 30 students enrolled in the subject of Nursing Administration II during the curricular 7th semester. Data were collected in September 2002.

Initially, 25 items were selected as materials used in the nursing practice at collective health units and that have already been used by students (FIGURE 2). The unit price was assessed and registered for each selected item in three market operators and the mean value was calculated.

Data collection form included the inventory number, age, sex and a spreadsheet with selected materials and a blank to be filled with the unitary cost estimated by students.

Data was fed afterwards into a Microsoft Excel[®] spreadsheet for calculation of the mean value attributed by students for each item. Another value was the mean error, in absolute and relative values, calculated by subtraction of the mean market value from the value estimated by each student for each material. For this information it was not considered any sort of super or under estimation since if it was taken positively or negatively it would mischaracterize the real knowledge of the studied sample.

Data also allowed to verify the maximum and minimum value for each category and the number of students that over or underestimated each material.

RESULTS AND DISCUSSION

Characterization of investigated students, according to sex and age, can be seen in TABLE 1. The mean age was 24.86 years with a higher prevalence in the range of 18 to 25 years. 25 students (83.33%) were females and 5 (16.66%) males. The difference is probably due to usual tendency for nursing to be a woman's job.

In FIGURE 1 it can be seen the list of investigated materials, the mean market value, the mean estimated value and the mean error being this last expressed in absolute and relative values (in percentage). Results reveal that for all materials there were differences between the mean market value and the mean estimated value.


The mean error for values attributed to each material revealed the lack of knowledge of such aspect by students, since the values varied from 36.7% (crepe tape) to 933.87% (monitorization electrode).

TABLE 1 - Sample characteristics according to sex and age.

Sex/ Age	18-25		26-30		31-35		Above 35		Total	
	Abs.	Rel.(%)	Abs.	Rel.(%)	Abs.	Rel.(%)	Abs.	Rel.(%)	Abs.	Rel.(%)
Fem.	19	76.00	2	8.00	2	8.00	2	80.00	25	100.00
Male.	3	60.00	1	20.00	0	0.00	1	20.00	5	100.00
Total	22	73.33	3	10.00	2	6.67	3	10.00	30	100.00

The analysis of FIGURE 2 shows maximum (UL) and minimum (LL) values estimated for each material and reveal a marked disagreement among values being wheelchair the item with greatest difference (UL R\$ 800.00 and LL R\$ 40.00) confirming the lack of knowledge on costs of routine material in nursing practice. Considering data on over and underestimation, it can be seen that most products are overestimated. It is interesting to note that in two items all the students overestimated their prices, which did not occur while underestimating values.

In this context, it is emphasized the importance of contents in nursing courses that develop competences and induce commitment in future professions in what regards the policies related to the administration of material resources. Such proposal should be extended to other undergraduate courses promoting knowledge related to this area and resulting in better-qualified professionals to face the professional activity. Fernando and Gonçalves (1994) report that the experience with nurses while managing material resources has shown very positive results.

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FIGURE 1 - Mean values (in Brazilian cur rency) for mark et prices, estimated price and mean error for each investigated material

Material	Mean market value (R\$)	Mean estimated value (R\$)	Mean error	
			Absol. (R\$)	Relat. (%)
Capillary glicemy tester	161.17	156.00	61.54	38.18
Oil can 250ml	1.06	2.52	1.73	163.21
Nebulizer Inhalation system	61.93	73.26	23.32	37.66
Adult sphygmomanomete w/ Velcrum	122.00	69.43	56.97	46.70
Children sphygmomanometer				
pressure gauze w/ Velcrum	122.03	70.00	60.29	49.41
Crepe bandage 10cm	0.61	1.63	0.86	140.98
Wheelchair	125.20	215.06	121.48	97.03
Disposable material collector 7L.	2.84	5.20	3.34	117.61
Bed pan inox	87.66	33.43	58.38	66.60
Monitoring electrode w/micropore	0.62	6.23	5.79	933.87
Infusion set	0.53	3.60	3.15	594.34
Stetoscope	13.98	26.23	14.32	102.43
Crepe tape	2.10	1.83	0.77	36.67
Disposable surgical cap	0.16	0.55	0.42	262.50
Flashlight	10.61	15.12	11.30	106.50
Sterile surgical glove	0.90	1.46	0.74	82.22
Micropore 0.25mmx45m	3.52	3.76	1.34	38.07
Surgical mask	0.16	0.66	0.51	318.75
Sterile dressing –pack with 5 gauzes	0.29	1.04	0.80	275.86
Urinal (Inox)	45.92	28.23	26.38	57.45
Vein scalp set # 23	0.28	1.80	1.61	575.00
Disp. syringe 10ml without needle	0.26	0.72	0.47	180.77
Disp. syringe 5ml without needle	0.13	0.50	0.38	292.31
Clinical thermometer	2.50	5.69	3.23	129.20
Digital thermometer	17.61	18.71	9.70	55.08


FIGURE 2 - Upper and lower limit (in Brazilian currency) for each material and number of over and underestimation attributed by students.

Material	Upper Limit (R\$)	Lower Limit (R\$)	Overestimation (Number of students)	Underestimation (Number of students)
Capillary glicemy tester	300.00	20.00	17	13
Oil can 250ml	21.00	0.20	17	13
Nebulizer Inhalation system	350.00	25.00	13	17
Adult sphygmomanometer w/ Velcrum	160.00	20.00	2	28
Children sphygmomanometer pressure gauze w/ Velcrum	200.00	25.00	3	27
Crepe bandage 10cm	5.00	0.20	19	11
Wheelchair	800.00	40.00	19	11
Disposable material collector 7L.	36.00	0.80	19	11
Bed pan inox	150.00	5.00	1	29
Monitoring electrode w/micropore	75.00	0.20	19	11
Infusion set	16.00	0.20	27	3
Stethoscope	90.00	15.00	30	0
Crepe tape	5.00	0.50	8	22
Disposable surgical cap	20.00	0.05	24	6
Flashlight	120.00	1.90	15	15
Sterile surgical glove	5.00	0.10	24	6
Micropore 0.25mmx45m	10.00	1.00	15	15
Surgical mask	3.50	0.05	27	3
Sterile dressing – pack with 5 gauzes	3.00	0.10	26	4
Urinal (Inox)	150.00	4.00	5	25
Vein scalp set 23	12.00	0.30	30	0
Disp. syringe 10ml without needle	3.70	0.10	28	2
Disp. syringe 5ml without needle	1.50	0.10	27	3
Clinical thermometer	30.00	2.00	29	1
Digital thermometer	80.00	4.00	8	22

CONCLUSIONS

The investigation on costs of materials used for nursing assistance revealed lack of a wareness by undergraduate students regarding costs of most products and , in many instances the price w as overestimated.

In order to modify this picture it is suggested to introduce in the curriculum of the course items that stress the importance of the knowledge of costs in the professional practice and, in addition, the

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participation of students in the purchasing process of materials used in the assistance practice.

Such proposals will contribute to the participation of nurses, while working in institutions, should take active part in budgeting and in the continuous analysis of quality and costs.

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