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SURGICAL INSTRUMENTATION AND FACTORS THAT INTERFERE IN THE PRACTICE OF NURSING GRADUATE STUDENTS

INSTRUMENTAÇÃO CIRÚRGICA E FATORES QUE INTERFEREM NA PRÁTICA DOS GRADUANDOS DE ENFERMAGEM

INSTRUMENTACIÓN QUIRÚRGICA Y LOS FACTORES QUE INTERFIEREN EN LA PRÁCTICA DE LOS ESTUDIANTES DE GRADO EN ENFERMERÍA

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ABSTRACT

Objective: identifying the factors that interfere with the practice of surgical instrumentation of the Nursing students. **Method:** a descriptive study with a qualitative approach developed with 10 students of the Graduate Nursing Course of a federal public university who attended the Surgical Nursing subject. The data were produced through interviews during the months from June to July 2014, and then analyzed by Thematic Analysis Technique. The research had the project approved by the Research Ethics Committee, CAAE 30656214.8.0000.5188. **Results:** there were identified that factors related to the training field, to the interpersonal skills, motor skills and to the emotional factors negatively contribute to the practice of surgical instrumentation. **Conclusion:** the graduate students sought emotional balance, overcoming the obstacles encountered during surgical instrumentation. The same referred that extracurricular course in this area provides greater safety for the performance of surgical instrumentation. **Descriptors:** Harmful Factors; Surgical Instrumentation; Nursing Graduates.

RESUMO

Objetivo: identificar os fatores que interferem na prática de instrumentação cirúrgica dos graduandos em enfermagem. **Método:** estudo descritivo com abordagem qualitativa desenvolvido com 10 alunos do Curso de Graduação em Enfermagem de uma universidade pública federal que cursaram a disciplina Enfermagem Cirúrgica. Os dados foram produzidos por meio de entrevista entre os meses de junho a julho de 2014, e em seguida, analisados pela Técnica de Análise Temática. A pesquisa teve aprovado o projeto pelo Comitê de Ética em Pesquisa, CAAE 30656214.8.0000.5188. **Resultados:** foram identificados que fatores relacionados ao campo de estágio, ao relacionamento interpessoal, à habilidade motora e aos fatores emocionais contribuem negativamente para a prática da instrumentação cirúrgica. **Conclusão:** os graduandos buscaram equilíbrio emocional, superando os obstáculos encontrados durante a instrumentação cirúrgica. Os mesmos referiram que curso extracurricular nesta área oferece maior segurança para o desempenho da instrumentação cirúrgica. **Descritores:** Fatores Prejudiciais; Instrumentação Cirúrgica; Graduandos de Enfermagem.

RESUMEN

Objetivo: identificar los factores que interfieren con la práctica de la instrumentación quirúrgica de los estudiantes de enfermería. **Método:** este es un estudio descriptivo con enfoque cualitativo desarrollado con 10 alumnos del Curso de Pregrado en Enfermería de una universidad pública federal que asistió a la disciplina de Enfermería Quirúrgica. Los datos fueron producidos a través de entrevistas durante los meses de junio a julio de 2014, luego analizados por la Técnica de Análisis Temático. La investigación había el proyecto aprobado por el Comité de Ética en la Investigación, CAAE 30656214.8.0000.5188. **Resultados:** se identificaron que los factores relacionados con el campo de la formación, las habilidades interpersonales, habilidades motoras y a los factores emocionales contribuyen negativamente a la práctica de la instrumentación quirúrgica. **Conclusión:** los graduandos buscan el equilibrio emocional, la superación de los obstáculos encontrados durante la instrumentación quirúrgica. Dijeron que los cursos extracurriculares en esta área ofrecen una mayor seguridad para el desempeño de la instrumentación quirúrgica. **Descritores:** Factores Nocivos; Instrumentación Quirúrgica; Graduandos de Enfermería.

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INTRODUCTION

The Surgical Center is seen as a complex unit, both for its specialty; constant presence of stressful experiences, as well as at high risk of impairment in health status. Thus, it is considered a highly stressful environment for both staff working in the place, as for the patient. This whole situation reflects in the teaching-learning process of nursing students inserted this state.¹

In this sector, we find an interdisciplinary team, such as medical-surgical and nursing; which together perform various techniques inherent in the sector. As the surgical team component, the instrumentalist plays an important role in surgery. This professional promotes the delivery and receiving of surgical instruments, in order to save the time spent and ensure exemption of the presence of microorganisms when using this technique, so that the safety during the procedure translates quality in the surgical setting.

The role of surgical instrumentalist is extremely relevant for the performance of their duties, which is currently in the National Congress the Project Law nº 642/2007, which provides for the regulation of instrumentalist nurse profession. In April 2010 this project was approved in the House of Representatives and later approved the Commissions of Social Security and Family, Working Committee, Management and Services and Committee on Constitution and Justice and Citizenship. Currently awaits appeal decision in the Presiding Officers of the House of Representatives and Senate vote.²

As there is still no legislation that specifies for professionals in the surgical instruments, this happens to be operationalized by any professional in the health field, but the professional who performs this practice is termed instrumentalist. Regardless of the legal formalities that currently this category is passing, surgical instrumentalist should exercise his activities responsibly. Among these responsibilities of the surgical instrumentalist must know the surgical technique, asepsis of intervention, set the table, promote the provision of specific instruments and correctly, safely and accurately to the surgeon, following each surgical procedure in order to mitigate it during surgery.³

The main attributions of the surgical instrumentalist include:

The checking of materials, surgical equipment and instruments required for surgery; is robe-, with aseptic technique, about fifteen minutes before starting the

surgery; know the surgical instruments by name and arrange them on the table, according to their use in each surgical procedure; preparing needles and sutures appropriately and in accordance with the operating time; assist the surgeon and assistants during surgical instrumentation and placement of sterile drapes; preview and request additional material to the room of circulating, be responsible for sterilization, cleaning and instrumental accommodation during surgery; deliver the surgical instruments the surgeon and assistants with skill and dexterity; perform counting swabs, gauze, needles, in collaboration with the current [...].⁴

Given the importance and responsibility that the surgical instrumentalist undertakes, and to cool the surgical instrumentation basis, the Federal Council of Nursing (COFEN) has the number of Resolution 214/98, Articles 1 and 2 of the surgical instrumentation defining it as nursing activity, and is not, yet private act the same and determines that the nurse, working as a surgical instrumentalist, by law, is subject to only the nurse responsible for the unit.⁵

Regarding the ethical principles of the instrumentalist nurse is first to preserve the aseptic operative field and the integrity of the patient's health. So this nurse should always inform the surgical team when there is accidental contamination of any equipment or material involved in the surgery. As a result, it is stated that:

*It is essential that this professional possesses knowledge about sterilization, aseptic technique, care and maintenance of surgical instruments, sutures, surgical positions, surgical organization as operating times, concepts of anatomical and surgical plans, surgical times, equipment and accessories.*³

To performing the practice of surgical instruments, the students need to develop psychomotor skills and manual dexterity, which are extremely important for the instrumentation. Amid the teaching and learning of these skills the student process stumbles upon some factors that directly interfere in such practice, as the level of anxiety, fear, insecurity, the complexity of practiced technique and own operating room. These emotional reactions are observed significantly initially in the nursing laboratory in simulated situations that the student trains repetitively procedures that will later perform on stage field.¹⁻⁶

Taking into consideration the settings of the authors above, it is clear that these factors are resulting from the fear of the

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unknown situation, since in this context the students are not fully familiar with the sector, with the team, with patients and with instrumental. Added to this the need to learn and perform a new procedure, enhancing the appearance of anxiety and making the student insecure, scared and anxious.⁷ Studies show that:

*[...] levels of anxiety and stress can make learning disability, as high levels of stress and anxiety present in a substantial effect on the attention with the ability to lead to errors, lack of concentration and attention level oscillation.*⁸

Monitoring of stages in the operating room, it can be observed that among the activities in this sector, students have a greater difficulty in the surgical instrumentation activity. As a result, the choice of this theme was due to this observation the theoretical and practical training in Surgical Nursing I discipline where it was realized that some students had fear, anguish and anxiety before the surgical instrumentation practice.

The nurse's role in the operating room as a instrumentalist, should be found from the academic training with theoretical and practical classes in order to enable graduate students to experience activities such as aseptic technique, room to move and surgical instruments.⁹

It is emphasized the importance of surgical instruments in the Nursing Graduate curriculum, so that not only the student to experience the activities of the operating room as a mere spectator, but which mainly falls within surgical anesthetic procedures as part of the team working on this environment.¹ Faced this fact emerges the question: Which factors infer on the practice of surgical instrumentation of nursing graduates? To address this question there was drawn up the following goal:

- Identifying the factors that interfere with the practice of surgical instrumentation of the students in nursing.

METHOD

A descriptive study with a qualitative approach aiming to observe, record, analyze, classify and interpret facts, without interference from the researcher,^{10,11} developed in the Campus I of the Federal University of Paraiba/UFPB in the Health Sciences Centre/CCS with students who attended the Surgical Nursing I discipline belonging to the clinical nursing department.

The subjects were students enrolled in the ninth period of the Nursing course at the

Federal University of Paraiba who have attended the Surgical Nursing discipline I and have developed actions in the Surgical Center.

With regard to the sample of the research subjects, to conduct a qualitative research concern should be less about the widespread and more with the depth, scope, and diversity in the process of understanding, is a social group, an organization, an institution, a political or a representation, although almost always the investigator needs to justify the delimitation of those interviewed, the size and the definition of space.¹¹

It can be considered that an ideal qualitative sample is reflecting all of the multiple dimensions of the object of study. For this investigation was considered a sample of 10 students with exclusion criteria: not having any link with the OR, and the instrumentation before attending the Surgical Nursing discipline I. Inclusion criteria: having taken the course Surgical Nursing I; being enrolled in the ninth period of the Nursing course at the Federal University of Paraiba.

The study was conducted between the months of April to June 2014, during which the data were collected regardless of gender, age, socioeconomic and cultural conditions. To quote the hospitals on the training field of graduate students will use the acronym HFe to the Federal Hospital and HFI for Philanthropic Hospital both located in João Pessoa - Paraiba.

The survey was conducted after approval by the Research Ethics Committee of the Health Sciences Center of the Federal University of Paraiba and followed the ethical principles adopted by the Resolution nº 466/2012 governing research on humans and the COFEN Resolution No. 311/2007.¹²⁻¹³

The data production occurred from June to July 2014, the technique adopted for data collection was the interview using a semi-structured script. The interview technique guides a dialogue with a purpose, which is characterized as a promoter of the opening and deepening in communication. A semi-structured interview combines closed and open questions, allowing the respondent to express his opinions without a certain condition pre-established by the researcher, the interview is a conversation in two, made on the initiative of the interviewer in order to provide information about a particular subject used in social research for data collection.¹¹

This script was used individually for the components of the sample, in a reserved manner to avoid any kind of embarrassment and facilitate freedom in the answers.

The interviews coming from recording were transcribed using Microsoft Word version 2013® and qualitative data program were analyzed using thematic analysis where it covers three steps:¹¹

1) Pre-analysis: is the choice of documents to be analyzed. There are certain registration units (descriptors or phrases), the context units, the clippings, the form of categorization and general theoretical concepts that guide the analysis, taking into account the central and objective research question;

2) Exploration of Material: it is the transformation of the initial data, aiming to understand the text from its core sense. The procedure is the text of the crop in record units (which can be a word, a phrase, a theme as established in the pre-analysis); still performs the classification and aggregation of data;

3) Treatment of Results Obtained: is the interpretation of data, as categorized by correlating them with the theoretical framework underlying the research.

RESULTS

To achieve an understanding of the objectives, it was first traced the profile of nursing undergraduates who was willing to participate. For this characterization was built Table 1 which considered variables related to age, gender, marital status and occupation.

According to Table 1, regarding the age of the students surveyed, it is evident that 50% is in the age group between 22 and 26 years old, 30% corresponds to 18 and 22 and 10% in the same ratio 26 and 30 and above 30 years old. Regarding gender, 90% were females and only 10% were males.

Regarding marital status, 80% are single, 10% divorced and married, respectively. Of profession-related data, 90% are students of nursing graduate and 10% already have the technical nursing course.

The survey also took into account the period that these students were enrolled during the collection of data and it was observed that 100% were in the ninth semester of nursing degree.

It attaches itself to the data obtained that the ninth nursing students are mostly single women aged between 22 and 26 years old. The predominance of women in the nursing program is a reality in the academic setting. A reflection of this is the prevalence of female professionals. COFEN data report that more than one million two hundred thousand nursing professionals in Brazil, belong to the female gender.¹⁴

A survey focusing on the characterization of nursing students when analyzing the age of the students, it was observed that most students who attended nursing in 2007 was between 18 and 23 years old. These data coincide with those found in this study. It is thought that student enrollment in nursing program mostly when young is because being a full schedule of course that does not allow to combine work with study.¹⁵

Regarding marital status, it is believed that the fact that most of the students were single, is also directly related to the structuring of course, to require full dedication in alternating periods, thus hindering the life of the married individual who naturally need to work.

Table 1. Distribution of the variables according to age, sex, marital status and occupation. Nursing degree graduates. UFPB. João Pessoa- PB, June/ July 2014.

Variables	N=10	%
Age (in years)		
18 - 22	03	30
22 - 26	05	50
26 - 30	01	10
>30	01	10
Gender		
Female	09	90
Male	01	10
Marital Status		
Single	08	80
Married	01	10
Divorced	01	10
Profession		
Nursing Student	09	90
Nursing Technician	01	10

The instrumentation as part of the nursing activities in the Surgical Center requires by nurses scientific expertise to enable them to develop this activity not as part of their daily lives but to enable them to train their staff in the act of sectoral admission and as with frequency, thus ensuring the quality of services in the operating room.

The instrumentation required by the nurse dexterity, manual skills, knowledge of sterilization, aseptic technique and synchronization of surgical time contributing to a successful outcome of the surgery. The same author argues for the importance of surgical instruments inside the workload of graduate and even students in the practical field fall within the surgical procedure as part of the team and not just as observers.³

The following data shows the responses of nursing students by analyzing the information from the interviews that allowed the identification of common themes. They were selected for qualitative approach the following categories: experience of students in practical scenario; students' expectations in the practical context of surgical instruments; Emotional factors affecting the surgical instrumentation and difficulties during surgical instrumentation.

● Experience of students in practical scenario

Respondents, when asked whether they had obtained experience with operating room and the surgical instruments before attending the Surgical Nursing discipline, answered:

I had no experience. (E₁)

I had never had any experience in the operating room, or in instrumentation before picking up the subject. (E₂)

Yes, during the nursing technical course in HFe, was a pleasant experience, but didn't get security in relation to surgical instrumentation. (E₅)

The data revealed that students do not have experience in the operating room and the only respondent in the case the practical nurse who claimed to have the experience, claimed not to feel safe, this technical wove comment as his field at graduation in HFi stating:

The experience was unforgettable in the HFi, the block is smaller than the HFe, but the materials required for surgeries abound and the team is very responsive to students, get in the mood for work in the Surgical Block and not presented difficulties during the internship. (E₅)

Adequate training field appears as a facilitating mechanism for student learning and calls for the same to experience the

activities performed in the operating room as part of the team.¹

It was noted that the Surgical Nursing I subject has two fields of internships, surgical block HFe and HFi, in which the class is divided for a better use of the practice. Of the respondents, 50% have developed their practice activities in the HFE the rest, equivalent to the same proportion in HFi. As result, there are observed different views of respondents to be addressed on the training field.

In HFe, it was troubled at first because we had to share the practical field with technical students were on an extension and that in principle they had resistance in instrument along with us, like they did not opening. (E₆)

I did my internship at HFe and despite being a teaching hospital there is still a certain difficulty in integration of students, mainly with respect to instrumentation. (E₃)

Statements like these show that some students felt resistance from the staff to be included in the daily work of the HFE. It is believed that this situation be given by the unpreparedness of some professionals who work in this university hospital, not knowing how to get student.

Study seeks to understand this unpreparedness found that some nurses feel unmotivated to receive students due to the collection of the Academy to offer the best, and therefore did not prepare them and does not meet their needs. Another factor reported is the lack of student motivation because nurses say the same are studying the discipline only for the fulfillment of the workload.¹⁶

Associated with this is the accumulation of functions of a nurse in the hospital, thus hampering the provision of assistance to graduating. Contrary to this, students who went to the HFi, reported great experiences as the host team, which can be observed in the speech above E5 or in speech:

My internship was at HFi. Great internship field, where it is possible to put into practice the knowledge acquired in the classroom. It is a site that offers plenty of opportunities, since it presents a large number of surgeries; recalling also that the professionals were very receptive and willing to teach. (E₇)

By this, one imagines that the HFi, for being a philanthropic institution and professionals don't wait so much feedback from the Academy as HFe professionals, they are more willing to accept students.

♦ Expectations of students in the practical context of surgical instrumentation

In the analysis of this thematic category, it was possible to learn about the expectations of students before going to practice field, understanding that the students expressed a desire to improve their theoretical and practical knowledge in the classroom and set in the workshops also showed willingness to overcome their insecurities by surgical practice. As shown in the following speeches:

I had expected [...] the anxiety of having contact with the operating room. Thus, identifying the nurse practices within the operating room, I had this expectation to understand what our role within the surgical block was and also confirm that the discipline was as good as the testimony I heard. (E8)

I do not know if I could memorize the names of all the clamps, I thought were many tweezers and some very similar, we even joked, making schedules to see how it was going to learn it? For example: kkk, kelly, Krause. (E2)

I really was way too excited because it was an area I had never had experience, but thought it was very easy in tutoring and after just fooling myself about that, because it really has a lot of detail, are very minute things you need to know but I had good expectations for instrumentation stage. (E9)

I was extremely excited and apprehensive at the same time for not knowing the temperament and behavior of physicians with whom I would work. (E₆)

The way students describe their expectations reveal anxiety attitudes through to the surgical block and surgical instrumentation. It is thought that this occurs because students do not know the block routine, do not know the team that will get them, or do not know what the hope, therefore that feeling acceptable during their first contact with the training field. We must consider that anxiety is always present in our lives and it becomes important to the search for solutions of the difficulties that are encountered in daily life.⁹

A study which sought to identify the anxiety level of students in surgical instrumentation showed that this feeling, to some extent, can bring benefits to the student, becoming incentive and motivator for

the performance of students in instrumentation practice. However, high levels of anxiety negatively interfere in student achievement.¹

♦ Emotional factors that interfere in surgical Instrumentation

Upon analysis of the discourses of graduates were identified some of the feelings expressed by the students during the internship, as: anxiety, stress, fear, nervousness and insecurity, as evidenced in the following testimonials:

[...] nervousness interfere, because I'm nervous when it came time to pass the instrument, in time to have agility of thinking which was what he was asking, put in the right position and pass me being nervous, really obstructed [...] (E₉)

[...] I was afraid of instrument, not doing the right thing, to make mistakes, but in the end it all worked out. (E₃)

The results show that these feelings arise from the concern of the students with the technical procedures performed during surgery. Imagine that this fact is related to the fear of graduating from harming the performance of the procedure. It is also believed that in this case, the environment negatively influence on the growth of these factors, being a location different from the others that the student used. These factors interfere with the acquisition of motor skills such as muscle firmness and precision, also influencing the level of attention and concentration of the student.³

♦ Difficulties during surgical instrumentation

When students asked about the main difficulties encountered in instrumentation, responded mostly to the difficulty was the lack of manual dexterity and emotional factors. To analyze the results obtained in that category, there was built the Chart 1.

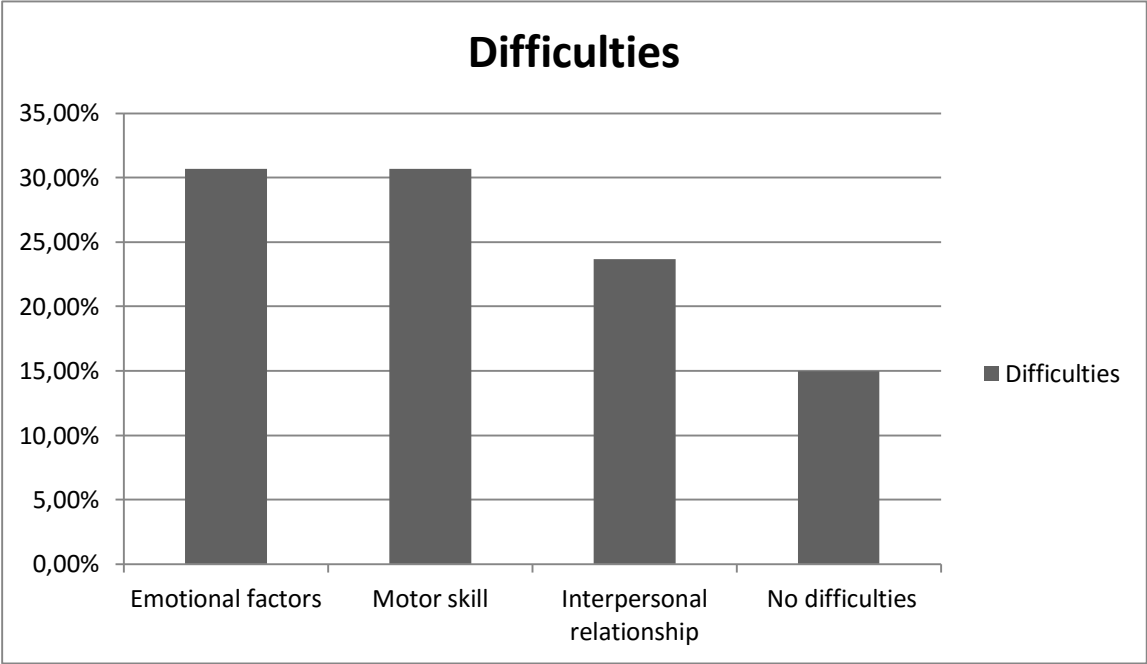


Figure 1. Opinion of the participants about the difficulties encountered during the practice of surgical instrumentation. Nursing degree graduates. HFe. João Pessoa- PB, April/June 2014.

According to Figure 1, the graduates when asked about the difficulties encountered in the stage, 30,7% respectively responded that emotional factors interfere in their practice and found it difficult when it comes to handedness, 23,7% felt resistance Team for placement in the practical field and 14,9% of respondents said they did not find difficulty during the stage.

It is believed that the difficulties encountered by the students reflect the fact that it is developing stage in a different environment than are used to, their inexperience added to an impersonal attitude of health professionals.

Study says that manual dexterity and skill by the nurse is one of the most valued features and requires learning and voluntary coordination of members to achieve the task goals. Thus, we understand the importance of previous training this ability in practical class laboratory.⁶

The emotional aspect can interfere directly in the daily lives of people, in a way beneficial or detrimental, depending on the individual situation. If the individual doesn't know to balance his feelings, this anger influences his psychological state and consequently reflects on practice. It is believed that the students to confront situations of hardship, these contribute to his emotional maturity.¹⁷⁻¹⁸

Already in relation to interpersonal relations, it is of extreme importance to the practice of nursing communication as a basic instrument for the professional performance. In contrast was found reports about the students' dissatisfaction with the receptivity of the professionals of the team.³

[...] some professionals they are not so receptive, they're not as collaborative or accept both our presence, but out of 90% of the staff are wonderful, facilitate the resourcefulness of the people, the progress of the stage for us to learn. (E₉).

Still on the chart 1, there were found students who did not observe any difficulties during the stage of surgical instrumentation as it can see in the keynote address below:

There was no complication that the teacher of the discipline or the monitors could prevent. (E₅)

These same students expressed how gratifying was the stage of surgical instrumentation, made the field of training, teachers, monitors and teams that received them, stated that the anxiety was present during the initial process, but over time, were getting more self-confidence, contributing to the overcoming of the anxiety.

Anxiety can be defined as a psychological and physical response to the threat of the self-concept, characterized by a subjective feeling of apprehension, realized by consciousness, and great activity of the autonomic nervous system.¹⁹

CONCLUSION

The profile of nursing graduates who attended the course is mostly young and single women who have not had previous contact with the instrumentation and surgical block. They identified that the main factors that interfere with the practice of the instrumentation of the students are related mainly to the training field, the interpersonal

skills, and motor skills beyond the emotional factors.

Regarding the practical field, there was a higher stage of use in HFi, as the amount of instrumented surgeries by students as the host team. It is believed that this finding may contribute to the reflection of the teachers who make up the discipline and the division of the groups to the stage. It is unfortunate that in a teaching hospital have deficit regarding student achievement in the practice field. Proves inadequate for its operations where it should understand the needs of students and help them to a good working performance.

In respect to interpersonal relationships, it was observed difficulty of insertion in the team. It is believed that this difficulty can be overcome by bringing the teachers with the welcoming staff of students, to improve the interaction between the intuitions and so provide encouragement and support for the work. It is noteworthy that in this case, the teacher's role is very important in the integration of students as it becomes the only link between the student and the team. Another point that has been suggested to improve the team's involvement with the students, the academic institution would propose a training course for humanization of the working environment in interpersonal relationships.

It was understood that emotional factors are related to the fear of the unknown, to harm the surgical anesthetic procedures and be reprimanded by the team with the emotional immaturity of students and the lack of previous experience. All these feelings interfere directly in all the other difficulties encountered by students, mainly in manual dexterity. It is believed that the nursing student should get an emotional balance, not only for the stage in the surgery room, but for the whole academic background, because it reflects on his professional performance.

Respondents reported having been able to overcome their difficulties with the course of discipline and harnessed more surgical instrumentation in a course offered by the Federal University of Paraiba, with the load time of 200 hours and extracurricular course that is of paramount importance for the nursing student's education, since, everyone who participated in this course have reported that they felt safer to instrument.

It is hoped that this study will serve to improve the graduate nursing curriculum, aiming at structuring reflection of Surgical Nursing I and to serve as a basis to stop further work on this same subject due to the scarcity of studies related to the theme.

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