

## ASSISTANCE CONVERGENT RESEARCH: NURSING TEAM SHARING OCCUPATIONAL RISK KNOWLEDGE AND PROPOSING INTERVENTIONS

PESQUISA CONVERGENTE ASSISTENCIAL: EQUIPE DE ENFERMAGEM COMPARTILHANDO SABERES SOBRE RISCOS OCUPACIONAIS E PROPONDO INTERVENÇÕES

INVESTIGACIÓN CONVERGENTE ASISTENCIAL: EL EQUIPO DE ENFERMERÍA INTERCAMBIA CONOCIMIENTO SOBRE LOS RIESGOS OCUPACIONALES Y PROPONE INTERVENCIONES

Marli Maria Loro <sup>1</sup>  
Vivian Lemes Lobo Bittencourt <sup>2</sup>  
Regina Célia Gollner Zeitoune <sup>3</sup>

<sup>1</sup> RN. PhD in Science. Professor. Regional University of the Northwest of Rio Grande do Sul – UNIJUÍ, Department of Life Science – DCVida. Ijuí, RS – Brazil.

<sup>2</sup> RN. MS in Comprehensive Health Care. Professor. Integrated Regional University of Alto Uruguai and Missões – URI, Department of Health Science. Santo Ângelo, RS – Brazil.

<sup>3</sup> RN. PhD in Nursing. Full Professor. Federal University of Rio de Janeiro – UFRJ, Anna Nery Nursing School – EEAN, Department of Public Health Nursing. Rio de Janeiro, RJ – Brazil.

Corresponding author: Vivian Lemes Lobo Bittencourt. E-mail: vivillobo@hotmail.com  
Submitted on: 2017/05/19 Approved on: 2017/08/17

### ABSTRACT

**Objective:** analyze an educational practice about occupational risks developed with a nursing team that works in a hospital emergency unit. **Method:** qualitative, developed with the Assistance Convergent Research modality. Participants were 24 workers at an Emergency and Emergency Unit of a hospital in the Northwest of the State of Rio Grande do Sul. Data were collected through participant observation, interviews, and educational workshops, and later analyzed in the light of the thematic analysis. The research was approved by the Research Ethics Committee under CAAE: 03182412.8.0000.5505. **Results:** the educational actions involved the team in a participatory and reflexive process, in order to allow a critical look at the work process and to decide what strategies needed to promote, maintain and recover the health. Encourage workers to reflect on their practices and perceive weaknesses in the process, implies taking the attitude of the group with a view to anticipating the possibilities of exposure. **Conclusion:** educational activities, in which the worker assumes the role of protagonist of the work process, through the socialization of experiences, allows them to implement propositions with the potential to culminate in safe behavior in the face of occupational risks.

**Keywords:** Nursing; Occupational Risks; Health Education; Occupational Health; Protective Devices.

### RESUMO

**Objetivo:** analisar uma prática educativa acerca dos riscos ocupacionais, desenvolvida com uma equipe de enfermagem que atua em unidade de emergência hospitalar. **Método:** qualitativo e desenvolvido com pesquisa convergente assistencial. Participaram 24 trabalhadores atuantes em uma unidade de urgência e emergência de um hospital do noroeste do estado do Rio Grande do Sul. Os dados foram coletados por meio de observação participante, entrevistas e oficinas educativas e, posteriormente, examinados à luz da análise temática. A pesquisa foi aprovada pelo Comitê de Ética em Pesquisa sob CAAE:03182412.8.0000.5505. **Resultados:** as ações educativas envolveram a equipe em um processo participativo e reflexivo, de modo a permitir um olhar crítico sobre o processo de trabalho e decidir quais estratégias necessárias para promover, manter e recuperar a saúde. Estimular os trabalhadores a refletir sobre as suas práticas e perceber as fragilidades do processo implica a tomada de atitude do grupo com vistas a antever as possibilidades de exposição. **Considerações finais:** atividades educativas em que o trabalhador assume o papel de protagonista do processo de trabalho, pela socialização de vivências, lhe permitem implementar proposições com potencial de culminar em comportamento seguro frente aos riscos ocupacionais.

**Palavras-chave:** Enfermagem; Risco Ocupacional; Educação em Saúde; Saúde do Trabalhador; Equipamentos de Proteção.

---

#### How to cite this article:

Loro MM, Bittencourt VLL, Zeitoune RCG. Assistance convergent research: nursing team sharing occupational risk knowledge and proposing interventions. REME – Rev Min Enferm. 2017[cited \_\_\_\_\_];21:e-1044. Available from: \_\_\_\_\_ DOI: 10.5935/1415-2762.20170054

## RESUMEN

**Objetivo:** analizar una práctica educativa sobre los riesgos ocupacionales. Investigación realizada con un equipo de enfermería que actúa en la unidad de emergencias hospitalarias. **Método:** investigación cualitativa con metodología convergente asistencial. Participaron 24 trabajadores de un hospital del noroeste del estado de Rio Grande do Sul. Los datos fueron recogidos por medio de observación participante, entrevistas y talleres educativos y, posteriormente, fueron analizados según el análisis temático. La investigación fue aprobada por el Comité de Ética en Investigación bajo CAAE: 03182412.8.0000.5505. **Resultados:** las acciones educativas involucraron al equipo en un proceso participativo y reflexivo, lo cual ha permitido una mirada crítica sobre el proceso de trabajo y decidir qué estrategias eran necesarias para promover, mantener y recuperar la salud. Estimular a los trabajadores a reflexionar sobre sus prácticas y notar las fragilidades del proceso, implica en la toma de actitud del grupo con miras a prever las posibilidades de exposición. **Consideraciones finales:** las actividades educativas en las que el trabajador asume el papel de protagonista del proceso laboral, por la socialización de experiencias, le permiten implementar propuestas con posibilidades de culminar en un comportamiento seguro ante los riesgos ocupacionales. **Palabras clave:** Enfermería; Riesgos Laborales; Educación en Salud; Salud Laboral; Equipos de seguridad.

## INTRODUCTION

The repercussions of work on workers' lives and health have been the subject of evaluation and study since ancient times. At the same time, changes and advances have occurred, but the consequences of living, working and getting sick are still present. It is important to emphasize that the context of hospital work absorbs a large number of nursing workers and it is a working environment with the potential of compromising the health of workers, since there is daily exposure, throughout the professional life, in an admittedly unhealthy space. This means that the professional works under a high level of occupational risk.<sup>1</sup>

Also, in the hospital universe, there are emergency services standing out as highly tensionogenic and also have a dynamic working process, requiring constant alertness related to unpredictability, overcrowding, insufficient numbers of workers and, sometimes, lack of materials and equipment. These factors generate work overload, being a conditioning factor for the development of work-related diseases and work-related accidents.

Thus, the nursing team deserves attention in their safety and well-being at work, due to frequent exposure to several risks, whose recognition and control are fundamental.<sup>2</sup> It is up to professionals to develop a safe attitude towards procedures to ensure their protection as well as the staff and the patient. Also, it is necessary to understand, know and expand the understanding of social transformations to re-meaning the reality of health professionals. Predetermined habits can also be transformed in the measure in which the education of the group and the socialization of knowledge are prioritized. In the meantime, it is important to instigate them to a critical-reflexive and participatory action, in which the worker is an active subject in the process.<sup>3</sup>

The daily work in the hospital environment can influence the use of safety measures that may be related to the excess of confidence, practicality, and banalization of risks over the years.<sup>4</sup> In this scenario, actions aimed at worker safety to preventing and/or reducing the risks inherent to health work should encompass guidelines, principles, strategies, procedures, and knowledge that contribute to increasing the safety

of workers and services offered in the hospital environment. Thus, the educational dimension is configured as a strategy to prevent intercurrents.<sup>5</sup>

In the perspective of the problematizing education of Paulo Freire, the dialogue must be constant for the solutions of the daily problems. In this process, the worker takes on the role of active, critical, reflective, participant agent and knowledge builder.<sup>6</sup> The transformation of the practice scenario takes place from the awareness of the reality in which the individual is inserted.<sup>7</sup> For this, education and the change of a practice occur from the problematization of experiences and imply a critical return to them.<sup>8</sup>

It is up to the health educator to rework and re-establish knowledge from the experience of the workers. In this educational perspective, the worker is the subject responsible for transforming his reality, understanding the roots of problems and seeking solutions.

Thus, it is thought that implementing educational actions based on a critical-reflexive process on the occupational risks the nursing professionals are exposed has the potential to lead to safe and effective behavior. Based on these considerations, the study seeks to analyze an educational practice about occupational risks, developed with a nursing team that works in a hospital emergency unit.

## METHOD

It is a qualitative research developed with convergent assistance research (CAR).<sup>9</sup> The researcher was guided by the conception that to implementing educational actions in which the worker is perceived as a participant in the process, by the discussion and reflection in a convergence group, he is in the strategy of excellence. Thus, the interventional theory was the problematizing education of Paulo Freire and the chosen CAR as a methodological reference of the study, as it enables to obtain information about participant "experiences and, at the same time, to suggest strategies for overcoming frailties.

The study was carried out with a nursing team working in the emergency unit of a hospital in the northwest region of Rio Grande do Sul. During the data collection period, there were 39 workers in the unit, of which two were on leave maternity, three on health leave and 10 did not agree to participate in the study, resulting in 24 study participants. As inclusion criteria, they proposed to integrate the nursing team for at least six months, to act in the emergency sector, to accept participation in the research and to sign the Informed Consent Term (TCLE). The exclusion criteria were as follows being on health leave in the period of data collection and not accepting to sign the TCLE.

The data were collected by the researcher from May to August 2013, in three stages. The first step was through participant observation to bring the researcher closer to the reality of the study participants. Eight observation shifts were performed at different times for a period of five days, with an average duration of three hours, which constitute an important process in which information was obtained about the object to be studied, observing the precepts of the CAR method. Sequentially, interviews were conducted with closed questions regarding sociodemographic characterization, such as age, gender, marital status, educational level, professional category, another job, nursing time, among others.

Subsequently, four educational workshops were held, with an average duration of 1 hour and 30 minutes each meeting, held at times defined by the institution. They were programmed, organized and developed with a focus on the observations, as they enabled the grouping of information about how workers in the sector under study faced the occupational risks that the activity demanded, as well as rethinking the risk situations experienced daily by this group. At this stage, the researcher had the participation of previously trained research assistants to develop the interventions. The discussions, reflections, and testimonies were recorded with the consent of the participants and later transcribed and analyzed.

It is important to point out that for a period of 60 days, the researcher returned weekly to the field of research to interact with the workers, to discuss the applicability and viability of the measures of changes suggested by them and, in this way, to validate them.

The project was approved by the Research Ethics Committee under the CAAE: 03182412.8.0000.5505 and ethical aspects were verified according to Resolution 466/2012., the participants were nominated PE to preserve their identity, participating in the educational activity and receiving the numbering from 1 to 24 and VS to the health care workers and the manager. To the data were applied thematic analysis techniques, resulting in two empirical categories.

## RESULTS

The nursing team working in the emergency unit was composed of 33 nursing technicians and six nurses. Of them, 24 team members participated in the interviews and workshops, with six nurses and 18 nursing technicians. The study participants were predominantly female and in the age group between 20 and 39 years old. Regarding marital status, 50% were single.

Regarding the religion, both groups had a predominance of the Catholic religion. As for nurses' education, two had postgraduate degrees and four technicians attended higher education. The duration of nursing work was from one to four years, characterized by being a young group. All nurses stated that they had received training on occupational safety. Among the nursing technicians, two reported not having received. In the category nurses, two had another job in reverse shift, and in the technical category in nursing, 33% of the group worked in another hospital institution, in reverse shift. Data analysis resulted in two thematic categories described and analyzed sequentially.

### EDUCATIONAL INTERVENTION: NURSING TEAM REFLECTING THEIR PROFESSIONAL PRACTICE

As a methodology, the CAR is essential foreseeing the participation of those involved with research as a fundamental element in the process. In this way, the educational activities developed with the group allowed the team to reflect on their conduct towards the safety actions/norms.

Through the dialogue, the group said that the greatest concern was with the patient to the detriment of the care with his health, as the stories are reproduced:

*[...] We are more worried about helping the patient soon and getting out of this situation than being protected (PE7).*

*[...] We care more about the patient than about us. Everyone has this vision (PE2).*

The reports reveal the group's reflection about the team's behavior regarding the risks that the nursing work imposes and conclude that changes are necessary. Moreover, it is important to highlight that the overcoming of inappropriate practices has only the potential to be modified when emerging from the group and, to the same extent, if it is based on the transformation of conduits when understood as necessary.

*[...] We talked about the protection measures we have to use (PE17).*

*[...] There are times that we fail to desire, we do not use PPE, and then it is our mistake and we have to admit that we are wrong (PE14).*

The group discussed the possibilities of facilitating access and encouraging adherence to the use of security devices, since the shared understanding was that accessibility and availability favor its use, according to the reports:

*[...] Soon we have to use a glove, mask, with all the equipment together (PE11).*

*[...] Keeping the PPE together makes it easier to use. When you are attending to an emergency, you cannot say: wait there, I'll get my goggles, my mask [...] (PE9).*

A debate has also surfaced that the non-use of protective measures implies the possibility of the worker's illness and having them close is strategic and, to the same extent, a facilitating action for the use of safety devices.

*[...] We have to think that patients are sick and can pass on diseases to us and the ideal is to prevent them (PE14).*

Caring for oneself and the other becomes necessary, especially for nursing, the profession of care.

*[...] It's not worthy to take care of a patient... I wanted to take care of my patient, to the fullest, and I was not eating, not drinking water, and one day I was sick and I had to be taken care and my patients stayed there [...] It was no use to go without food, without drinking water to care for patients (PE5).*

*[...] It is necessary to be healthy to adequately attend to patients, to be willing, to be satisfied. Because if we are not well, how can we assist the other? [...] When a colleague is sick and lacking, he overloads the team (PE23).*

It is important to remember that the workshops began with the discourse of subjects based on their priority being the patient in an emergency situation. During the activities, the group mentioned that to carry out the activities with excellence, a goal imposed by the institution, the professional first needs to be protected.

*[...] The priority for us from nursing should be the protection of the employee [...] there is no point in wanting to make a miracle in the emergency if it is not protected (PE9).*

*[...] If you are seeing that the patient has blood, he will get blood on his face while you are doing a procedure, come with goggles and change with your colleague [...] this is called a team (PE7).*

It is important to highlight the relevance of the reflection in the convergence group regarding aspects of the behavior of the nursing professional in the context of their praxis, as they pondered the need for care and adoption of safety measures for all patients accessing the service.

*[...] It is important in the emergency that, when a patient arrives to attend, you are in bed (PE9).*

*[...] If someone arrives who does not know what he has, he has already talked, he has given a hand, and patted in the back... it is contaminated. And? It may be contaminated. We have to use the equipment with all (PE14).*

The participants of the study also reflected that the use of goggles and gloves is essential for the nursing worker who works in emergency care. However, there was much difficulty in wearing goggles, as they did not have it with them, nor was it practical for the group to use them, which can be evidenced in the following accounts:

*[...] Of course sometimes you will not be able to put on an apron, but goggles and gloves are essential to take care, but when you do not have your goggles in your pocket we do not use them. Everyone gets yours and there are even goggles available in the emergency room when you're not with him (PE9).*

*[...] In practice, this does not happen, you do not use it... Will you leave the patient there to get the goggles? (PE7).*

In the nursing praxis, it is necessary that all the safety devices are used to maintain the health of the worker.

*[...] Actually, in the emergency room, I believe it is our lack of attention not to use PPE (PE15).*

This aspect was a point of reflection in the group, which mentioned that the non-use of the devices constitutes a lack of attention of the worker. Thus, during the development of the workshops, the group scored several situations of risk experienced and presented proposals, which were implemented gradually during the workshops.

## PREVENTION CULTURE BASED ON EDUCATIONAL INTERVENTIONS

The construction of new care practices with the health of the worker to be more effective needs to emerge from the group, as well as to re-establish concepts and behaviors. Thus, the changes made during the interventions are mentioned below. Participants in the study understood that it was necessary to elect one member of the group in turn to be the healthcare worker (VS) recommending to the team the need to conduct a safe behavior in the risks arising from the activity. There was a rotation between the members of the group for the exercise of the function. Subsequently, when the researcher returned to the field to verify the result of the intervention, it was verified that more care was taken by all the members of the team regarding the protection measures, according to reports that:

*[...] In the first week, everyone adjusted how to routinely wear goggles and gloves in their pockets. Just to see us, the colleagues took care more (VS).*

The adoption of this behavior was important because it emerged from the group and it is understood that everyone may be in this place, because this action is effective and, in the same measure, educational.

However, there may be interurrences at work, but it is necessary to abolish banalization in relation to occupational risks and, consequently, to reduce the worker's sickness related to his or her praxis. From the testimonies, the participants of the study modified the security behaviors from the decision that they needed to be reminded about the safe behavior. This implies turning knowledge into attitude.

*[...] Now almost all carry along the gloves (VS).*

Another aspect addressed by the group was the incipient use of safety goggles. In the meetings, several times the team discussed this problem because during the period when we were developing the research in the field there were two accidents with exposure to the biological material and the professionals did not use this device at the time of the accident. They understood that this security device is the least used by the service team because it is not part of their routine and they have difficulty keeping it with them, as explained in the following report:

*No one has the goggles together. They are very bad to carry them in the pockets, it is big, we cannot be with the goggles always. I still warn myself because I wear prescription glasses, but it is open from the sides and does not protect well (VS).*

They recognized the need to wear safety goggles as a way to protect the eyes from possible splashes and this provoked collective reflection regarding the low adherence to the equipment. They reported that, at the time of an accident, everyone is alert to the safety measures and, in a short time, the routine comes back to prevail. With the socialization of the problematic, the group analyzed behaviors and constructed possibilities, and the first one was the use of silicone cord to have them with him when it was necessary. The second measure was the placement of another plastic container with safety goggles in the emergency room and another in the nursing station, to facilitate its use.

After two weeks of adopting the use of the silicone cord, we returned to the field to identify the positive and negative aspects of the adopted behavior. The positive aspects evidenced by the participants were:

*[...] Cord hygiene facility. Be always with the material together and expand your own safety (VS).*

However, they mentioned aspects related to the perceived difficulties, which was decisive so some of the team members no longer used the goggles attached to the silicone cord.

*[...] The cord is not very firm, so when necessary some quick and strong movement, it escaped and the goggles fall to the ground, and two goggles were broken (VS).*

Given that workers are the subjects of this process, the implementation, and adoption or modification of a measure adopted by the group needed to be evaluated by the workers involved in the process. To that extent, we returned to the field to jointly construct other possibilities based on collective knowledge and experiences.

Another important product resulting from the intervention, discussed and analyzed by the group, was that, from the report of a staff member who said he was concerned about his protection and after considering several possibilities, he decided to adapt his uniform to have always available to the PPE, when they are necessary, as it is explicit in the report:

*[...] I had the idea of adjusting my uniform, watching the military clothes, they have pockets on the sides of the pants... I adapted mine too and I had pockets in the pants of my uniform. So PPEs are always on hand, which is much more practical (PE11).*

The interacting group felt that this is a necessary strategy as yet another way to stimulate self-care. The manager accepted the suggestion and understood that this change was

possible, under the responsibility of the institution, because the moment was favorable because they are making new uniforms for workers in this sector. To the same extent, as this strategy was conceived in the group, it was understood that it has the potential to motivate them to improve the protection of their health.

*[...] I had already noticed that the XX had the pockets, but had not thought about it... And if they proposed the modification it will work, we will arrange the modification of the uniform. It is a good idea and it is another way of stimulating and facilitating the use of PPE (Manager).*

Another product of the intervention that emerged in the group was the elaboration of educational material by posters to be placed in the sector, which reminded the discussions raised in the workshops. This is due to the fact that activities are not enough since they need to be remembered on a daily basis. The educational activities implied a participatory process, which awakened the participants to the change from the awareness of the need for all safety measures to be used and, also, in the nursing staff practice way of thinking.

## DISCUSSION

Teaching and learning is a greater process than knowing. Thus, the worker becomes an educator, insofar as he appropriates knowledge about the reality in which he is inserted.<sup>10</sup> The reflection of praxis challenged and stimulated the group to construct possibilities for change from their realization that occupational risks are part of their professional work and to maintain their health, it is necessary to change their attitude towards them.

This is a fundamental aspect because when those involved in the problem participate in the construction process, the interventions are more likely to be effective in a participatory process. Also, when an intervention in the workplace takes place, the participation of workers is necessary and fundamental.<sup>11</sup> This is because there is no human action without dialogical communication, and when this communication is horizontal, in which social subjects share experiences, there is transformation and self-transformation.<sup>12</sup> This is due to the fact that man is situated in his culture and in the society to which he belongs, and his conscience is not empty, but conditioned by the scope in which it is inserted.<sup>13</sup> To the same extent, reality has the potential to redirect a professional doing.

Regarding the workers' understanding of the use of security measures, this knowledge is a fact. However, they express difficulty in turning that knowledge into attitude. In this process, the socialization of the experiences of workers who develop their praxis under the same environmental conditions and

work process enables the realization of consciousness in which the spontaneous sphere of the apprehension of reality is surpassed to reach a critical sphere, which develops from the contact of man with the world. This results in a critical reflection of the consciousness/world relationship and the creation of a new reality, as an act of knowledge and practice of freedom.<sup>10</sup> In the meantime, when seeking a transformative educating practice, the nursing professional is transformed by the magnification of his critical awareness of his own work process. Such subjectivation of work allows bringing new meanings to his practice, beyond the norms and routines imposed by work,<sup>14</sup> and in this sense, the convergence group enabled the perception, reflection and, consequently, an action overcoming weaknesses and taking security attitudes.

However, this knowledge sometimes does not become a safe activity in the exposure situations and highlights the need for effective actions to change reality.<sup>14</sup> On the other hand, the interacting group understood that this path is neither linear nor easy, but in this process of re-meaning of concepts and behaviors, praxis assumes differentiated dimension and amplitude.

Problematizing education necessarily means overcoming inconsistency. It brings the concept of equality between individuals, regardless of the position they hold, in the sense that everyone has prior knowledge in the face of a learning or exchange situation because there will be the possibility of building an indispensable dialogic relationship.<sup>15</sup> Socializing knowledge from the formation of convergence groups has the potential to help subjects to develop a critical eye on their praxis, it is a new entity with its own mechanisms to perform tasks, socialize and expand self-care. The group dynamics favors reflection and collective construction on a lived reality and, above all, it values the different knowledge and allows intervening, creatively, in the health-disease process.<sup>16</sup> In this re-meaning aspect of worker protection, on several occasions, they remembered who were a team and, as such, needed to take care of themselves and the other.

It is important to remember that the Ministry of Labor's Normative Regulation (NR) 6 establishes that safety devices are a legal obligation and workers must use them whenever they maintain an activity that could compromise their physical integrity.<sup>17</sup> However, complexity of the issue of adherence to safety devices goes beyond availability and suffers interference from individual factors, beliefs, and relationships with the work environment in decision-making for deprotection.<sup>18</sup>

The educational actions in the emancipatory scenario imply to enable the workers to problematize their insertion in the work process and discuss possibilities to qualify the lived reality.<sup>19</sup> As the knowledge is shared, a new knowledge is constructed and this process favors the autonomy of the worker of nursing.<sup>10</sup> Thus, education is a strategy for the individual to have more training and the possibility of building in the world of work.

This comes from the fact that workers still perform their tasks mechanically. The knowledge of their functions seems fixed in representations acquired during their professional performance and shapes attitudes, sometimes translating into unthought actions.<sup>20</sup>

Professionals face various risk situations arising from their work process and sometimes work without the use of appropriate PPE, with the knowledge that they are exposed to several risk agents.<sup>21</sup> It is important to note that the use of PPE is an ethical and effective action to reduce worker exposure, as well as increasing safety in performing procedures when used at the correct frequency and form.<sup>22</sup> In this scenario, the nursing worker should be the protagonist and assume his role in this process.

The interventions aimed at increasing the perception of the risks arising from emergency nursing work and the joint construction of actions aiming to increase the protection of the professional, since the education in occupational health is expected to involve the participants in real problems of the work environment and they take more responsibility for their health.<sup>16</sup> Thus, it is necessary to focus on the reality for which it is intended and to contemplate the space in which health problems are experienced.<sup>16</sup>

It is also important to help professionals to anticipate the situations of exposure that arise from their praxis, offering them the conditions to perform the procedures safely.<sup>21</sup> To that extent, safety at work is done through vigilance, permanent education, and commitment of the worker with the maintenance of his health and physical integrity.

The adoption of these prevention measures is based on the acceptance of the group and its applicability depends on the worker, but their agreement can be influenced by several issues, such as cultural ones. In this sense, all the implemented measures need to be fomented and observed by the workers, so they can be effective and last for long periods until they become permanent and they are part of the routine of protection.

In this sphere, knowledge is designed to enable understanding and subsidizing actions that can make life better. It is not enough only to follow established norms, but to carry them out through a process that stimulates dialogue, inquiry, and reflection.<sup>23</sup> This path is not linear, but it is human, of trials, mistakes, hits and stumbles, advances and setbacks. Also, in the joint production of knowledge, there is no neutrality since all are participants in the process.<sup>24</sup>

Understanding and discussing the limitations of doing presupposes maturity to establish a joint reflection and overcome weaknesses, building a new process. Also, they need to be constantly nurtured, so they do not fall into oblivion or banalization.

For Freire, educational actions need to equip workers to understand the essence of the problems of the groups, through dialogue and the exchange of knowledge. Knowledge is designed

to understand and subsidize actions that can make life better, the noble objectives of the process of knowledge production.<sup>21</sup> Also, it leads to critical reflection of the world in which the participant is inserted, to the construction of a new praxis valuing the being in its integrity. The educational practices carried out in a permanent way, with nursing professionals, need to value the dialogue, listening to the other, with a view to considering the multiples and re-meaning the knowledge.

## FINAL CONSIDERATIONS

The results of the research allow inferring that participants accumulated experiences that influenced their attitudes towards the risks of the work process, which made them sometimes have a risk behavior. Thus, it is necessary an educational activity that stimulates reflection, promotes autonomy and the protective posture of oneself and the other.

The educational strategy used to solidify the worker's knowledge about taking care of his own health was challenging and, to the same extent, stimulating them to evidence their exposure, as well as seeking alternatives to a preventive practice that goes beyond the daily routine of their praxis. In fact, it resulted in active participation and allowed the construction of possibilities to intensify the actions of caring for oneself.

Also, when participants feel provoked to reflect on their practice and perceive the weaknesses of the process, they have made it necessary for the group to take action to anticipate the possibilities of exposure. In this scenario, reflection is an action aimed at overcoming frailties. Such a way of conducting the dialogue has the potential to produce in the worker co-responsibility and the incorporation in his work routine of the actions of health promotion, prevention of diseases and work accidents, as he appropriates knowledge about the reality he is inserted.

It is necessary to reflect on the pertinence in favoring PCA as a methodology, which added elements that, in the educational actions developed up to that time, did not integrate such practices. Still, PCA values collective construction and privileges elements that revitalize nursing practice as it makes each one responsible as a participant and team, in the care of their health and the other.

It can be inferred that carrying out educational actions based on a critical-reflexive process on the occupational risks to which nursing professionals are exposed has the potential to culminate in a safe behavior in the face of occupational risks.

## REFERENCES

1. Mendonça KM, Tipple AFV, Sousa ACS, Pereira MS, Rappardini C. Acidentes com material biológico em serviços de urgência e emergência. *Ciênc Enferm.* 2014[cited 2017 Jan 15];20(2):65-71. Available from: [http://www.scielo.cl/scielo.php?script=sci\\_arttext&pid=S0717-95532014000200007&lng=es](http://www.scielo.cl/scielo.php?script=sci_arttext&pid=S0717-95532014000200007&lng=es)

2. Mori K, Tateishi S, Hiraoka K, Kubo T, Okazaki R, Suzuki K, *et al.* How occupational health can contribute in a disaster and what we should prepare for the future-lessons learned through support activities of a medical school at the fukushima daichi nuclear power plant in summer. *J Occup Health.* 2013[cited 2017 Jan 15];55:6-10. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/23183025>
3. Loro MM, Zeitoune RCC, Guido LA, Silva RM, Kolankiewicz ACB. Occupational risks and health of nursing workers - seeking evidences. *Rev Pesqui Cuid Fundam online.* 2014[cited 2017 Jan 15];6(4):1610-21. Available from: <http://www.seer.unirio.br/index.php/cuidadofundamental/article/view/308>
4. Rieth GH, Loro MM, Stumm EMF, Rosanelli CLSP, Kolankiewicz ACB, Gomes JS. Use of individual protection equipments by nursing in an hospital emergency unit. *Rev Enferm UFPE online.* 2014[cited 2017 Jan 15];8(2):321-7. Available from: <http://www.revista.ufpe.br/revistaenfermagem/index.php/revista/article/viewArticle/3381>
5. Ferreira MD, Pimenta FR, Facchin LT, Gir E, Canini SRMS. Subnotificação de acidentes biológicos pela enfermagem de um hospital universitário. *Ciênc Enferm.* 2015[cited 2017 Jan 15];21(2):21-9. Available from: [http://www.scielo.cl/scielo.php?script=sci\\_arttext&pid=S0717-95532015000200003&lng=es](http://www.scielo.cl/scielo.php?script=sci_arttext&pid=S0717-95532015000200003&lng=es)
6. Freire P. *Pedagogia da autonomia: saberes necessários à prática educativa.* 43ª ed. São Paulo: Paz e Terra; 2011.
7. Borges AMS, Silva DF, Almeida MCV, Rocha LP, Bonow CA, Cezar-Vaz MR. Avaliação do ensino em saúde do trabalhador por acadêmicos de enfermagem. *Rev Pesqui Cuid Fundam.* 2014[cited 2017 Jan 15];6(4):1349-60. Available from: [http://www.seer.unirio.br/index.php/cuidadofundamental/article/view/3324/pdf\\_649](http://www.seer.unirio.br/index.php/cuidadofundamental/article/view/3324/pdf_649)
8. Freire P. *Pedagogia do oprimido.* 60ª ed. Rio de Janeiro: Paz e Terra; 2016.
9. Trentini M, Paim L. *Pesquisa convergente-assistencial.* 2ª ed. Florianópolis: Insular; 2004.
10. Freire P. *Pedagogia da autonomia: saberes necessários à prática educativa.* 43ª ed. São Paulo: Paz e Terra; 2011.
11. Uchiyama A, Odagiri Y, Ohya Y, Takamiya T, Inoue S, Shimomitsu T. Effect on mental health of a participatory intervention to improve psychosocial work environment: a cluster randomized controlled trial among nurses. *J Occup Health.* 2013[cited 2017 Jan 15];55:173-83. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/23585499>
12. Souza GC, Peduzzi M, Silva JAM, Carvalho BG. Teamwork in nursing: restricted to nursing professionals or an interprofessional collaboration? *Rev Esc Enferm USP.* 2016[cited 2017 Jan 15];50(4):642-9. Available from: [http://www.scielo.br/scielo.php?script=sci\\_arttext&pid=S0080-62342016000400642&lng=en](http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0080-62342016000400642&lng=en)
13. Lima GHA, Sousa SMA. Violência psicológica no trabalho da enfermagem. *Rev Bras Enferm.* 2015[cited 2017 Jan. 15];68(5):817-23. Available from: [http://www.scielo.br/scielo.php?script=sci\\_arttext&pid=S0034-71672015000500817&lng=en](http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0034-71672015000500817&lng=en)
14. Loro MM, Zeitoune RCC, Guido LA, Silveira CR, Silva RM. Desvelando situações de risco no contexto de trabalho da Enfermagem em serviços de urgência e emergência. *Esc Anna Nery Rev Enferm.* 2016[cited 2017 Jan 15];20(4):e20160086. Available from: [http://www.scielo.br/scielo.php?script=sci\\_arttext&pid=S1414-81452016000400204&lng=en](http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1414-81452016000400204&lng=en)
15. Ritter CB, Aires M, Rotoli A, Santos JLG. Group as a care technology for nursing work in public health. *Saúde Transform Soc.* 2014[cited 2017 Jan 15];5(3):83-90. Available from: <http://stat.saudeetransformacao.incubadora.ufsc.br/index.php/saudeetransformacao/article/view/2494/4023>
16. Nery, VAS. Práticas educativas contemporâneas e suas contribuições na promoção da saúde de pessoas com hipertensão arterial. *C&D-Revista Eletrônica da Fainor, Vitória da Conquista.* 2013[cited 2017 Jan 15];6(1):119-111. Available from: <http://srv02.fainor.com.br/revista/index.php/memorias/article/view/199>
17. Ministério do Trabalho (BR). *Normas regulamentadoras: segurança e medicina do trabalho.* São Paulo: Atlas; 2013.
18. Sulzbacher E, Fontana RT. Concepções da equipe de enfermagem sobre a exposição a riscos físicos e químicos no ambiente hospitalar. *Rev Bras Enferm.* 2013[citado cited 2017 Jan 15];66(1):25-30. Available from: [http://www.scielo.br/scielo.php?script=sci\\_arttext&pid=S0034-71672013000100004](http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0034-71672013000100004)
19. Freire P. *Pedagogia da esperança: um reencontro com a Pedagogia do oprimido.* 9ª ed. Rio de Janeiro: Paz e Terra; 2002.
20. Donatelli S, Vilela RAG, Almeida IM, Lopes MGR. Acidente com material biológico: uma abordagem a partir da análise das atividades de trabalho. *Saúde Soc.* 2015[cited 2017 Jan 15];24(4):1257-72. Available from: [http://www.scielo.br/scielo.php?script=sci\\_arttext&pid=S0104-12902015000401257&lng=en](http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0104-12902015000401257&lng=en)
21. Luz FR, Loro MM, Zeitoune RCC, Kolankiewicz ACB, Rosanelli CSP. Occupational risks of a shoe industry from the workers' perspective. *Rev Bras Enferm.* 2013[cited 2017 Jan 15];66(1):67-73. Available from: [http://www.scielo.br/scielo.php?script=sci\\_arttext&pid=S0034-71672013000100010](http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0034-71672013000100010)
22. Ribeiro G, Pires DEP, Scherer MDA. Práticas de biossegurança no ensino técnico de enfermagem. *Trab Educ Saúde.* 2016[cited 2017 Jan 15];14(3):871-88. Disponível a partir de: [http://www.scielo.br/scielo.php?script=sci\\_arttext&pid=S1981-77462016000300871&lng=en&nrm=iso](http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1981-77462016000300871&lng=en&nrm=iso)
23. Dehdashti A, Mehrizadeh S, Kashani MM. Incorporation of Project-based Learning into an Occupational Health Course. *J Occup Health.* 2013[cited 2017 Jan 15];55(1):125-31. Available from: [http://joh.sanei.or.jp/pdf/E55/E55\\_3\\_02.pdf](http://joh.sanei.or.jp/pdf/E55/E55_3_02.pdf)
24. Asim S, Sadhu HG. Occupational injury proneness in young workers: a survey in stone quarries. *J Occup Health.* 2013[cited 2017 Jan 15];55(5):333-9. Disponível a partir de: [https://www.jstage.jst.go.jp/article/joh/55/5/55\\_12-0150-OA/\\_html](https://www.jstage.jst.go.jp/article/joh/55/5/55_12-0150-OA/_html)