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DESIGN PROCESS OF A TECHNOLOGY FOR THE CARE IN NURSING AND HEALTH[1]

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ABSTRACT

This is an account of experience that addresses the experience of students of the postgraduate course master of science in nursing in health and Technology discipline in nursing. This study aimed to describe the process of designing a technology for the care in nursing and health. The students, encouraged to associate the use of technology to solve a problem of nursing, presented the idea to improve the model of car-litter on the market, since the current product presents several risks to the professionals that the handling, as well as for patients transported. The proposal makes it possible to reduce the labor absenteeism due to ergonomic injuries and provide comfort and safety to the user. The approach of entrepreneurship as a discipline within the Academy provided expand horizons during training in the masters of students who, while future teachers, are aware of the ability of entrepreneurship and the use of technology to provide changes in the scenario on nursing.

Keywords: Nursing; Health of the worker; Management of science, technology and innovation in health.

INTRODUCTION

This study arose from the need of integration of entrepreneurship in nursing as a troubleshooting strategy and emancipatory technologies applied to nursing research and the labour process in nursing.

It presents, in this study, the idea of improving the model of car-litter on the market, since the available product features several risks to the professionals that the handling, as well as for patients transported. In the first case, the risks relate mainly to the possibility of absenteeism and presentism of ergonomic injuries in the workplace, and in the second, refer to the conditions of comfort and safety, in particular in the prevention of trauma impacts and/or falls and maintaining hemodynamics. For that, a reflection on the role of technology in the process of care.

The field of technological development falls within the context of entrepreneurial actions resulting in the incorporation of new knowledge, products, services and processes to meet customer needs in a continuous search for quality method for the range of emerging needs[1].

In the face of this panorama, the nurse should be ready to explore new opportunities and scenarios, because, according to some authors, "being an entrepreneur is to be able to star in new fields and professional practices"[2:41].

However, in the area of health, bad use of technology can influence negatively the process of care in order to undermine the professional-patient interaction, producing cold and distant relations, namely, technology can encourage the mere realization of techniques[3].

However, some authors show that is not technology itself responsible for dehumanization, depersonalization or objectification. This happens according to how the technologies employed and the meanings assigned to them. Therefore, to establish the balance between technological aspects and

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human care makes it possible to perform nursing assistance efficiently and with more quality humanized[4-6].

Some authors complement this thought describing the existence of three categories of technologies in the area of health, which are closely interlinked and present in the Act of nursing, though not always in a transparent manner. Hard technology, represented by the concrete material, equipment, furniture; lightweight technology, including structured knowledge, and take technology expressed through the communication process, and relations of links[4.7].

In addition to the use of technology during the working process of nursing, the nurse is able to advance in this sense, developing technological tools as entrepreneurial practice[8]. Nursing entrepreneur, to develop technologies for the care, faces a challenging process. The use of a technology, in addition to ensuring the safety, effectiveness, ethics, positive social impact and cost-benefit balance, it is necessary to know use it humanized form[9].

When approaching these reflections of the experience of the authors of this study, the proposal reflected in the development of a technology that aims to promote integral well-being to the professional and the patient. The transportation issue has gained importance and inter-hospital, mainly in relation to the care with the patient who relies on a skilled professional and able to drive it safely.

Patients in critical state of health often need to be transported for diagnostic or therapeutic purposes at a moment of potential complications and, once that these are out of intensive care environment, are susceptible to factors that can trigger rapid progressive hemodynamic changes and preventable[10].

In addition, the transport of patients, there may be some adverse events, such as those related to the multidisciplinary team, equipment and physiological changes, and, in that sense, their safety in transport, has facilitated by the development of own equipment, trained teams and development of specific protocols[10].

However, the inadequate transport brings risk not only for the patient; surveys reveal that the number of occurrences of ergonomic work-related injuries has been growing in recent decades. In the area of health, the procedures of handling and transport of patients are the main responsible for musculoskeletal injuries of workers. Researchers add that such planning procedures and the acquisition of equipment and auxiliary materials are of paramount importance to minimize the risk of injury[11].

Therefore, if you know that the use of technology in healthcare can be part of the process of care, since the goal is optimization of assistance, namely, technology can mean humanization according to the shape that employed and can affect new forms of work organization of nursing[12]. Thus, the involvement of nurses in the development of such technology is an opportunity to enhance the success of the project by the fact this Pro, since its formation, be trained to develop a comprehensive and thorough look.

This study aimed to describe the process of designing a technology for the care in nursing and health.

METHODOLOGY

This is an account of experience that occurred during the postgraduate course-Msc in nursing, discussing the experience of students in health and Technology discipline in nursing.

The discipline, with total workload of 30 hours, lasted two months, a period that coincided with the time of conception of the technological model here exposed. The aim of discipline: address the methodological bases for the care in nursing, and national and international policies applied to watch the human relationships involved in the process and in an approach, that seeks innovation and technology development in nursing and health. For the development of this technological proposal, there were three consultation specialists with experience in the field of technologies for nursing, entrepreneurship and technological development.

Aiming at the development of entrepreneurial skills and encompassing a technological proposal to help address health needs, initially a survey of ten situations-problems and their possible solutions, taking into account the creation of a new instrument/equipment as health technology. Among the ten situations raised, the idea of an

innovative litter featured due to its applicability, relevance and possible impact for patients and healthcare professionals.

In this way, it was thought in a stretcher to bring benefits to all those involved in the transport process and, for operationalizing this idea, a "business plan" for the work team (students and teachers responsible for discipline cited).

The business plan is a form of organization of ideas, which has planning as key tool. For its implementation, it is necessary to describe intended objectives and which route should done to reach them. With that, the decrease of risks, uncertainties and errors[13].

RESULTS AND DISCUSSION

The business plan[13] prepared by authors contains the following items: summary identification of the idea and its innovative features; substitute products and services and/or complementary; competitive advantages and disadvantages; profile of target clients; size and growth potential; expression of interest/contact with potential customers or partners; identification and characterization of the current competitors' products; SWOT analysis[14] (strengths, weaknesses, opportunities and threats); PESTA analysis[15] (which identifies the future scenarios in relation to political-legal aspects; technological and economic; environmental sociocultural;); *marketing;* physical characteristics of the product; human resources; identification of promoters and social impact.

The proposal consists of a Gurney that will be innovative features: stainless steel material, with 1.90 dimensions (length) x 0.70 (width) x 0.80 (height), with silent motor actionable in slope; braking system for slope manual (manual bar similar to shopping carts); buffer system (similar to bicycles); Security sidebars; seat belts; silicone wheels highly impact resistant and chemical action; removable support for serum; reclining headboard and foot lifting (allowing positions as *Trendelenburg* and *fowler*) for circulatory and respiratory needs of the patient.

The mattress in the options: coated in special protective gloves or Napa, waterproof and resistant to chemicals, 28 and 33 densities. Tyre with Pillow attached (distributes body pressure alternately through a 5-minute cycle of inflation and deflation, switches the pressure by stimulating blood circulation, providing injury prevention, in addition to greater comfort for the patient. Waterproof, resistant and flexible). Alternatively, the "egg box" mattress with Pillow attached (it has air modules that redistribute the weight of the patient on the bed, with excellent ventilation, providing a uniform support. Durable and washable).

Two analyses were extremely important to check the feasibility and potential of the product: SWOT analysis (SWOT) analysis and PESTA[14-15]. The SWOT analysis, as stated earlier, identifies the *strengths, weaknesses, opportunities* and *threats of the product*. The acronym SWOT is the translation of the acronym in English derived from words SWOT strengths, weakness, opportunities and threats, which, in turn, is divided into two parts: the external environment, which contains opportunities and threats and the internal environment, in which the strengths and weaknesses[14].

The weaknesses found related to costs in the manufacturing process and maintenance in relation to conventional stretchers, once, according to estimates carried out, this product would cost on average 8000 reais.

Opportunities already refer to the lack of similar products in the market and the reduction of: removal of professionals from work due to illness related to ergonomic injuries, falls, discomfort and insecurity of users during transport and hemodynamic instability due to the transport users.

The threats related to a possible difficulty of a manufacturer to invest in new product and difficulty for part d the institutions in prioritizing this investment.

For the operationalization of this new litter, PESTA, analysis responsible for highlighting the future scenarios in relation to political-legal aspects, socio-cultural technological and economic. From this analysis tool, it becomes possible to identify the challenges as well as opportunities and trends present in the competitive context[15].

As an exercise of the idea to a prospective client a "Pitch" in the classroom. This can called "*elevator pitch*", which consists in the

presentation of innovative product to a potential buyer in a time not exceeding three minutes, that is, the time of a rise or fall in an elevator. To perform a "pitch", there is a need for articulation of the situation-problem and to solve it, which the product created. Thus, it is imperative that there be a clear and effective communication and use of creativity in order to convince and reach the objective proposed.

Entrepreneurship is subject discussed very seriously in countries classified as developed, in which this theme approached from the preschool building and by stimulating the growth of Nations whose ideas have focused on economic independence[16]. China, classified as emerging country, presents a considerable percentage of registered patents, which can interpreted as a strong potential for development, whereas patents are unpublished entrepreneurial ideas that may carried out in practice. Can bring economic and social resources to the country as the developed and/or recorded[17].

The current discussion of economic stability brings technological development as a secure base for the construction and maintenance of a strong economy of a country, as a main source of income based on the exploitation of natural resources and agricultural production presents itself vulnerable to factors such as: offer/demand; seasonality and natural disasters[16.18].

Thinking on nursing Brazilian birth of entrepreneurship is to explore a field still worked within this profession, which is in the process of strengthening their scientific-theoretical bases. In addition, is also to be at the forefront of a process that needs to be stimulated in the academies and professional practice[8].

The experience in the discipline, which culminated in this work, allowed the breaking of paradigms regarding the difficulty of having and develop entrepreneurial ideas. Showed the ability of nurses, as well as any other professional or student, who, from the everyday difficulties, can build entrepreneurial solutions both locally, nationally, and internationally.

As you approach the nursing of entrepreneurship and to introduce and stimulate its professionals the possibility of autonomous action, allows these professionals extension of expectations of nurses by the possibility of exploring new fields; strengthening the professional image next to the team and to the patients and the nursing and scientific growth[8].

Nursing care, coupled to the use of technology, allows the optimization of working time, standardization of procedures, increasing the security of the professional involved in care and the patient, and in improving the quality of care and the protection of health teams involved[4].

The resource developed, detailed litter previously, with the name track n ´ flex, is a hard technology, which seeks to reduce the problems described in the transportation of the patient in intrainstitutional environment. The benefits cover both patients as the professionals involved and the institution, being listed as: minors work absenteeism rates related to the reduction of risks – accidents at work; meeting the needs of the patient hemodynamic – based on the fact the project reduce vibration and allow therapeutic placements for the patients; provision of care with more quality; less judder perception by the patient – resulting in greater comfort and safety; lower risk of ergonomic injury on the part of the professional responsible for transport-since there will be less professional endeavor in uphill and downhill; greater productivity for professionals-on the fact that the same work more safely and quickly; major machine life-due to the damping system; pollution reduced sound-damping system and silicone wheels; greater safety and comfort for the patient and the professional responsible for transport.

FINAL CONSIDERATIONS

The approach of entrepreneurship as a discipline within the Academy provides expansion of horizons during training and is able to provide changes in nursing. To stimulate the development of new ideas and technologies facilitates the dynamics of care, improving the quality of care and respecting the work of security professionals involved.

The design of the car-Gurney presented represents an important step for health, in his concept expanded, since it reveals the real concern for the client and professional team entered in the complex transport Act. Take into account the biological aspects (hemodynamic and protection) and emotional (safety, comfort)

of paciente, offering an idea whose investment material is offset by several benefits involved.

It is the use and hard technology approach to well-being, physical and emotional health of the patient. Is the health care institution thinking truly integral medicine in practice, which can detect and enhance all dimensions of needs of its safety norms and employees?

The proposal from a team of nurses shows how nursing has strengthened as a science, concerned with not only the immediate biological factors of your patients, but also having an overview of your desktop and its action through the power of entrepreneurship. Is able to disseminate and carry out their practice with quality and theoretical knowledge.

PROCESSO DE CONCEPÇÃO DE UMA TECNOLOGIA PARA O CUIDADO EM ENFERMAGEM E SAÚDE

RESUMO

Trata-se de um relato de experiência que aborda a vivência de alunas do curso de pós-graduação Mestrado em Enfermagem na disciplina Tecnologia em Saúde e em Enfermagem. Este estudo teve como objetivo descrever o processo de concepção de uma tecnologia para o cuidado em enfermagem e saúde. As alunas, estimuladas a associar o uso da tecnologia para solucionar um problema de enfermagem, apresentaram a ideia de aprimorar o modelo de carro-maca existente no mercado, uma vez que o produto atual apresenta vários riscos para os profissionais que o manuseiam, como também para os pacientes transportados. A proposta possibilita reduzir o absenteísmo laboral por motivo de lesões ergonômicas e proporcionar conforto e segurança ao usuário. A abordagem do empreendedorismo como disciplina dentro da academia proporcionou ampliar horizontes durante a formação no mestrado das alunas que, enquanto futuras docentes, estão conscientes da capacidade do empreendedorismo e do uso da tecnologia para propiciar mudanças no cenário na enfermagem.

Palavras-chave: Enfermagem; Saúde do Trabalhador; Gestão de Ciência, Tecnologia e Inovação em Saúde.

PROCESO DE CONCEPCIÓN DE UNA TECNOLOGÍA PARA EL CUIDADO EN ENFERMERÍA Y SALUD

RESUMEN

Se trata de un relato de experiencia respecto a la vivencia de alumnas del curso de postgrado Máster en Enfermería en la asignatura de Tecnología en Salud y Enfermería. Este estudio tuvo como objetivo describir el proceso de concepción de una tecnología para el cuidado en enfermería y salud. Las alumnas, estimuladas a asociar el uso de la tecnología para solucionar un problema de enfermería, presentaron la idea de perfeccionar el modelo de carro-camilla existente en el mercado, una vez que el producto actual presenta varios riesgos para los profesionales que lo manejan, así como para los pacientes transportados. La propuesta posibilita reducir el absentismo laboral por motivo de lesiones ergonómicas y proporcionar comodidad y seguridad al usuario. El abordaje del emprendimiento como asignatura dentro de la academia proporcionó ampliar horizontes durante la formación en el máster de las alumnas que, como futuras docentes, están conscientes de la capacidad del emprendimiento y del uso de la tecnología para propiciar cambios en el escenario en la enfermería.

Palabras clave: Enfermería; Salud del trabajador; Gestión de Ciencia, Tecnología e Innovación en Salud.

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