

Qualitative evaluation of an educational intervention about healthcare improvement for nursing students

Thematic: Evidence-based practice.

Contribution to the discipline: Development of a culture in *Healthcare Improvement Science* through education, generating positive changes in students with future implications in the systems. This intervention promotes critical thinking in students and provides them with the resources to improve their future working environments. The combination of international students can create a positive crucible and a laboratory of ideas for change and improvement.

ABSTRACT

Objective: To explore the meaning of the experience and knowledge acquired by nursing students trained in healthcare improvement. **Material and methods:** A phenomenological approach based on the Giorgi method was made through a group discussion of 21 European students from four countries in July 2019. The data was triangulated with the testimonies of key informants and with the use of an evaluation tool specific to this topic. The analysis was also triangulated with three experienced researchers who reduced the data by consensus to eight units of meaning. **Results:** Nursing empowerment and horizontal health organizations were two of the most recurrent units of meaning along with professional values such as teamwork and humanization of care. **Conclusions:** The knowledge, attitudes and values acquired are evidence of the shortcomings in the training of future nursing professionals in Europe. The theoretical and practical approach of the sessions, as well as the mixture of cultures, were strengths for the students. It is necessary to follow up on more cases that show the return on the training investment in substantial improvements in real contexts and its impact on the quality of care.

KEYWORDS (SOURCE: DECS)

Quality of health care; nursing education; qualitative research; quality improvement.

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Evaluación cualitativa de una intervención educativa en mejoras en salud en estudiantes de enfermería

RESUMEN

Objetivo: Explorar el significado de la experiencia y los conocimientos adquiridos por estudiantes de enfermería formados en mejora de cuidados de salud. **Material y métodos:** se realizó una aproximación fenomenológica basada en el método Giorgi mediante una discusión grupal de 21 estudiantes europeos de cuatro países en julio 2019. Los datos fueron triangulados con los testimonios de informantes clave y con el uso de una herramienta de evaluación específica para este tema. El análisis también se trianguló con tres investigadores experimentados que redujeron los datos por consenso a ocho unidades de significado. **Resultados:** El empoderamiento de enfermería y las organizaciones sanitarias horizontales fueron dos de las unidades de significado más recurrentes junto a los valores profesionales como el trabajo en equipo y la humanización en los cuidados. **Conclusiones:** los conocimientos, las actitudes y los valores adquiridos evidencian las carencias de la formación de los futuros profesionales de enfermería en Europa. El enfoque teórico-práctico de las sesiones, así como la mezcla de culturas supusieron fortalezas para el alumnado. Es necesario el seguimiento de más casos que evidencien el retorno de la inversión formativa en mejoras sustanciales en contextos reales y su impacto sobre la calidad asistencial.

PALABRAS CLAVE (FUENTE: DECS)

Calidad de la atención de salud; educación en enfermería; investigación cualitativa; mejoramiento de la calidad, estudiantes de enfermería.

Avaliação qualitativa de uma intervenção educativa em melhorias em saúde em estudantes de enfermagem

RESUMO

Objetivo: explorar o significado da experiência e dos conhecimentos adquiridos por estudantes de enfermagem formados em melhoria de cuidados de saúde. **Materiais e métodos:** foi realizada uma aproximação fenomenológica baseada no método Giorgi, mediante uma discussão em grupo com 21 estudantes europeus de quatro países, em julho de 2019. Os dados foram triangulados com os depoimentos de informantes-chave e com o uso de uma ferramenta de avaliação específica para o tema. A análise também foi triangulada com três pesquisadores experientes que reduziram os dados por consenso a oito unidades de significado. **Resultados:** o empoderamento da enfermagem e das organizações sanitárias horizontais foram duas das unidades de significado mais recorrentes junto com os valores profissionais, como o trabalho em equipe e a humanização dos cuidados. **Conclusões:** os conhecimentos, as atitudes e os valores adquiridos evidenciam as carências na formação dos futuros profissionais de enfermagem na Europa. A abordagem teórico-prática das sessões, bem como a fusão de culturas supuseram fortalezas para os estudantes. É necessário seguir mais casos que evidenciem o retorno do investimento em formação em melhorias substanciais em contextos reais e seu impacto sobre a qualidade assistencial.

PALAVRAS-CHAVES (FONTE: DECS)

Qualidade da assistência à saúde; educação em enfermagem; pesquisa qualitativa; melhoria de qualidade.

Introduction

Healthcare Improvement Science emerged in the 1980s at the US *Institute for Healthcare Improvement* (IHI) as a working culture aimed at improving patient care by building bridges between theory and practice (1). This working methodology is designed to improve the health care provided and prevent adverse events arising from it (2), however, this is not a content present in the training of future nursing professionals in most European or Latin American countries. In the report *A Brief Synopsis on Patient Safety*, published in 2010 by the World Health Organisation (3), as well as in its latest online update in 2019, it is still estimated that one in ten patients admitted to hospitals is unintentionally harmed and around 50 % of these cases could have been avoided if lessons had been learned from previous mistakes (4-5). The urgent need to improve patient care is not a one-country phenomenon. In a 2018 study by Linda Aiken conducted in the USA as a result of the *European Registered Nurse Forecast* (RN4CAST) project, it is shown that a combination of educational level and nursing staff skills is associated with significantly lower mortality, higher patient satisfaction with care and fewer associated adverse events (6-7).

Healthcare Improvement Science (HIS) is an Anglo-Saxon concept that focuses on “making it easy to do the right thing” for the patient, promoting strategies that provide safe, effective and person-centred care (8). In general, in Europe, the contribution of HIS has been more focused on clinical practice, where initiatives have been developed more widely in recent years. There are examples of specific projects in Spain, Sweden, the United Kingdom or Ireland, among others (10-11). However, as became clear after the European project *Improvement Science Training for European Healthcare Workers* (ISTEW) from 2013 to 2015, at the educational level, HIS in Europe continues to be an emerging science since specific education in improvements does not exist in all countries and, if it does, it is not standardised (12). One of the main results of this project was the creation of four specific university modules on HIS, accredited by Higher Education Institutions (HEIs) (8).

After the completion of the ISTEW project in 2015, the efforts of the Spanish research team were directed towards the adaptation and implementation of the educational modules created. As a consequence, the summer courses in *Healthcare Improvement*

Science at the University of Alicante, called *Immersion to HIS*, were created. These courses began in 2016 and continue today with a total participation of 76 European students. The modules created at ISTEW were adapted and implemented, incorporating faculties from different academic and professional backgrounds. In addition, it was given an international focus as the students came from different universities in different countries (Scotland, Ireland, Finland, Greece and Spain). The main objective was to foster a critical and analytical mindset in the students, encouraging the continuous search for improvement of their contexts through HIS interventions and self-assessment (13). Through-out these courses, the *Healthcare Improvement Science Evaluation Framework* (HISEF), a specific HIS evaluation framework created by the Spanish team as part of the ISTEW Project, was used as an evaluation tool (13). This has the capacity to effectively identify the strengths, weaknesses and gaps in the education provided on HIS, as well as the return on investment in the systems themselves. After each course, the research team meets and analyses the results. In the course of 2018, a gap was identified in the information collected, there was a set of data on the students' previous experience and the key concepts learned about which more qualitative information could be gathered. Therefore, in the following year of 2019, the qualitative assessment described in this article was included with the aim of exploring the previous learning experience in *Healthcare Improvement Science* and the new knowledge acquired by nursing students from different European countries.

Methodology

Type of study

A qualitative evaluation study was carried out with a phenomenological approach using the Giorgi method as a reference framework. Phenomenological description and reduction was sought through the most relevant basic units of meaning (14). After the consensus on the notes taken, a second group reading was made analysing the students' experience and identifying the basic units of meaning. The different uses of language were discussed, synthesising the comments into concrete ideas and then assigning the concepts. Two of the authors were part of the research team of the ISTEW project and after its completion, they adapted and implemented the educational modules created during the project to real contexts and using the English language as a vehicular language (8).

Scenario

The whole course was carried out by researchers belonging to the European project ISTEW and was held in the facilities of the University of Alicante and in different clinical and provincial hospitals in Alicante, Spain. Since 2016 it has had a total population of 76 participants. For the research described in this article and carried out in 2019, a sample of 21 students participated between 1st and 5th July with a total of 50 teaching hours distributed between 41 hours of theory and 9 hours of practice. Visits were made to public and private hospitals, ideas for improvement were developed by groups and evaluated by means of indicators, finally presentations were made to the rest of the peers. Users were studying nursing at the University of Western Scotland (UK), Laurea University of Applied Sciences (Finland), the University of Alicante (Spain) and the University of the Peloponnese (Greece).

Instruments for collecting information and ethical aspects

Although the evaluation of the course as a whole has been carried out through the *Healthcare Improvement Science Evaluation Framework* (HISEF) (13), the interest of the researchers in capturing reality through the experiences of the participants was the main reason for adding a new section during the course of 2019. After the explanation and prior collection of the Informed Consent, a qualitative evaluation was carried out through a group discussion between the 21 participating students and the teachers. The Informed Consent and the data collection were done according to the Law of Data Protection and Guarantee of Digital Rights (LOPDGDD) (Organic Law 3/2018 of 5 December); furthermore, as an extension of the European Project ISTEW, it has the approval of the IRB/IACUC of the University of Jesenice with code 10/01/002/2014-SHT.

The demographic characteristics of the students, the main actors of the intervention, can be seen in table 1. The users expressed their experiences and opinions about what they had learned, the ideas and concepts acquired, the values in care and the previous experience about HIS. The intervention was guided through four open questions, presented below:

1. What new ideas and concepts have you learned?
2. What would you improve in this context (Spain) and in your own?
3. What caring values have you learned?

4. Have you ever had contact with HIS? Please briefly summarize the basic highlights of your experience.

Data collection, processing and analysis

The data collected through field notes was triangulated with the testimonies of key informants from each group of students and teachers, as well as with the use of data collected through the HISEF. Subsequently, the triangulation of the analysis was carried out by three experienced researchers - one of them from outside the context - extracting and analysing the key concepts that reduced the data by consensus to eight units of meaning (table 2). During this process, the notes taken were re-read and exchanged, detecting the units of meaning, and then, after reduction, arriving at categorisation in a circular process that was feedbacked many times. Finally, once the eight units of meaning had been obtained, their division according to the person responsible for the action can be seen in Table 3: internal (the individual is responsible) or external (the person responsible is an external person/institution). The answers to the first three questions have also been classified in order of repetition, with the first ones in the tables having the highest number of answers associated. Finally, the results of the fourth question were grouped by country, since the analysis of the data showed that the content of the students' answers was consistent with their place of origin. The ultimate interest of the whole analysis carried out as a result of the four questions and the evaluation framework has been the search for units of meaning of the phenomenon studied.

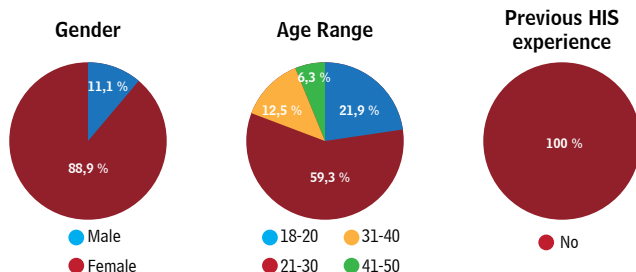
Rigour

The intervention described in this article belongs to an annual educational intervention, which, following Deming's methodology, has been evaluated year after year through short PDCA cycles, improving content and structure. Both the course itself to which this intervention belongs, and the evaluation framework, have not been static, and continuous improvements have been made in accordance with all study participants. In addition, considering the feedback from students, clearly different versions of the framework were created; the latest version (the fourth) was created in 2019. As for the students' experiences, all researchers made their own notes and the conclusions emerged from their consensus. The course has a clear content and structure and could easily be replicated in any other institution, as has been done year after year at the University of Alicante.

Results

The demographic characteristics of the participants in the research and their previous experience in *Healthcare Improvement Science* can be seen in Figure 1. It can be seen that 100 % of the participants had no previous training in HIS, 88.9 % of the total were women and most of the students (59.4 %) were in the 21-30 age range.

Figure 1. Demographic characteristics and previous HIS experience



Source: Own elaboration

As a result of the answers to questions one and two (what new ideas and concepts have you learned? and what would you improve in this context (Spain) and in your own?), eight basic units of meaning have been extracted, according to the Giorgi method, as shown in table 1 (14). After having grouped the basic units, they have in turn been classified into two categories: internal and external according to the owner of the action. In table 2 this division can be seen and in table 3 we find the definition of the units of meaning together with extracts of the participants' answers associated with them. These eight units of meaning allow an approach to the impact and the lived experience of the students in the course. The units of meaning with the highest number of associated responses were "empowerment in nursing" with 21 % of the total responses, followed by "flat health organisations" (16.67 %) and "motivation in health personnel" (14.29 %).

Focusing on question three (What values have you learned in relation to care?), the professional values chosen by the students have been ordered by relevance according to the number of associated answers. As can be seen in table 4, the most recurrent were teamwork, respect and passion, among others.

Table 1. Answers grouped by units of meaning

Units of meaning	Percentage
Nursing Empowerment	21,43 %
Flat health organisations	16,67 %
Motivation of health personnel	14,29 %
Nursing research	14,29 %
Professional recognition	11,90 %
Values in care	11,90 %
Teamwork	7,14 %
Professional development	2,38 %

Source: Own elaboration

Table 2. Responsible for the action

Intern (Responsible -> own person)	External (Responsible -> outsider)
Empowerment	Flat health organisations
Motivation	Teamwork
Recognition (own)	Recognition (from others)
Values (own)	Values (of the system)
Research	Professional development

Source: Own elaboration

Table 3. Units of meaning, definition and examples

Units of Significance	Definition	Student responses
Nursing Empowerment	Empowerment is the process by which people strengthen their capacities, confidence, vision and leadership to drive positive change in the situations they live in (15).	“Better understanding of empowerment in nursing”. (C1) “We don’t have many male nurses there, we feel more able now to inspire others. (C2) “We need more empowerment. We are absorbed in the welfare work but we don’t think about doing something else”. (C3)
Teamwork	When two or more people who interact interdependently have a common purpose, working towards measurable objectives (16).	“Teamwork. In Finland they sometimes don’t even talk to each other”. (C4) “Collaboration between different professionals”.(C5) “Collaboration between other health professionals is impossible. I see this here”. (C6)
Motivation of health personnel	Motivation is the degree to which the individual is willing to exercise and maintain an effort towards the objectives of the organisation (17).	“I have gained in motivation, inspiration and improvement. We have a lot of motivation now. The course has inspired us. (C7) “We have seen a lot of motivation among nurses in Spain. (C2) “The Spanish nurses are very positive and nice. (C8)
Flat health organisations	A flat system is one in which most of the middle managers and their functions have been eliminated, so that senior management is in direct contact with the workers (18).	“I like the concept of the flat system but I don’t see it in reality”. (C9) “We don’t have key people in key positions. (C3) “In Finland our system is more rigid”. (C10)
Professional recognition	Professional recognition has the capacity to renew a nurse’s commitment to her profession, to give greater pride to her work and to deepen her loyalty to both the nursing team and the health organisation (19).	“Nurses in Spain are highly respected.” (C11) “We nurses should feel more proud, not say more: I am just a nurse”. (C12) “There must be more recognition if you continue to study, it must translate into more pay”. (C13)
Nursing research	Research seeks to understand and improve the way societies organise themselves to achieve collective health goals (20).	“Now we feel the need to do research. (C1) “We understand that further research is needed. (C14) “This course opened my mind about research. (C15)
Professional development	Professional development is the lifelong process of managing learning, work, leisure and transitions in order to move towards a personally determined preferred future (21).	“In Greece, the number of nurses doing research is increasing. (C6) “More training and updating is needed”. (C7) “The visible effort in increasing wages needs to be recognized”. (C16)
Values in care	Values are principles that allow us to provide ethical and humanised care in the maintenance of human health (22).	“Positivism about life and work”. (C8) “Family involvement”. (C17) “More respect and humanization of care”. (C14)

Source: Own elaboration

Finally, in table 5, you will find the results for the fourth question (Have you ever had contact with HIS? Please briefly summarize the basic highlights of your experience). Also, and after consensus among the participants themselves, they have been grouped by country.

Table 4. Most repeated professional values

Relevance	Values
1	Teamwork
2	Respect
3	Passion
4	Humanisation in care
5	Communication

Source: Own elaboration

Table 5. HIS experience by country

Country	Answer
Greece	"Previously we have had courses on hospital management, but they have been related to systems, not improvements or HIS. The nurse in Greece feels more empowered in the community. Training in general is improving and more and more research topics are being studied, however, the most important thing for us is that our leaders belong to the nursing field. Usually, the teachers are doctors and they don't even recognize our discipline. We have no specific laws to protect and promote us. (C17)
Finland	"We have university subjects in management, but not anything like this. There are some courses in health improvement, but they are not always in all universities or accessible to everyone. In Finland, a lot depends on the universities. In Laurea we have a subject that includes HIS, but we don't know if it exists in other universities in the country". (C18)
Scotland	"In Scotland there are specific programmes in HIS at universities and hospitals. However, the promotion of research as carried out in this course is not as strong". (C19)
Spain	"Here the nurse works on many initiatives to improve specific aspects of health care, but HIS is not recognized as a concept or discipline. Except for this course we are not aware of any further specific training". (C20)

Source: Own elaboration.

Discussion

The results show the importance of *Healthcare Improvement Science* in all professional and educational stages of nursing (12-13, 23), as well as the lack of training in this area since 100 % of students had no contact with the subject before. The implementation of the ISTEW project modules contributes to the main objective of the project: the dissemination and implementation of HIS culture throughout Europe (8). The annual evaluation has allowed integrating the comments received taking into account the needs and experiences of the students through the participatory action research methodology. However, and at the researchers' discretion, the information received through the *Healthcare Improvement Science Evaluation Framework* (HISEF) had to be complemented with a qualitative intervention in which the main experiences and knowledge acquired by the students as a result of their participation in the course were examined in depth. The group discussion, held last year, was very useful in order to highlight the concepts acquired by the students. Their answers about what they learned in the course revealed gaps in the previous training they had received. All the students participating were in the last years of their degree and yet 100 % had no previous training in *Healthcare Improvement Science*.

The theoretical and practical focus of the sessions, as well as the mix of cultures, became strengths for the students. It is also interesting to highlight the main ideas learned: empowerment in nursing, the incorporation of values in daily practice such as compassion or humanisation of care, professional recognition or health research. There is evidence to suggest that support for healthcare personnel in the early stages of training is the key step to driving systems towards sustainable change and values such as the humanisation of care, always promoting patient-centred care (24). It is therefore clear that this type of educational intervention is needed and has an impact on students, helping to understand how the development of a culture in *Healthcare Improvement Science*, through education, gives them the confidence to make changes in their future working environments, providing safe, effective, person-centred, efficient, equitable and timely care (2).

As a limitation, there is mainly temporality. It is an activity carried out within an annual programme of one week duration, so the results obtained are in a short term. It is necessary to follow up cases that show the return of the training investment in improvements of real contexts and in an impact on the quality of

care and the critical mentality of the professionals. On the other hand, the methodology itself has a potential risk: the perspective of the researchers when analysing the data and drawing conclusions. To avoid this possible bias, three different researchers, one of them from outside the research, participated in the analysis of the results and the reduction of the basic units of meaning agreed upon prior completion. Finally, the relationship of trust between the participants and the educators was taken into account as a possible limitation and a safe and open atmosphere was promoted in order to promote participation and the exchange of ideas.

Conclusions

Following the results of the qualitative research carried out in 2019, the gap in improvement training and between theory and practice for nursing students is evident. The health and education systems must collaborate in a strategic and standardized way to create bridges that help students in this transition to generate

a professional culture based on improved health outcomes for populations, as well as improved care (25). The implementation of training with an international focus based on *Healthcare Improvement Science* could be one of the possible solutions to the gaps in current education, also creating the perfect context for the development of future changes and improvements in work contexts. Due to the temporality of the intervention, there is a lack of long term results, however, as a result of the current data, students are observed to develop a mentality on critical thinking and an increase in their resources to improve patient safety and their future working environments. Education in HIS is at an early stage of development in Europe and elsewhere in Latin America. Its promotion remains a real need. Developing a HIS-based professional and educational culture and investing in a healthcare workforce trained in health improvements could also increase the quality and satisfaction of patient care by reducing unwanted events.

Conflict of interest: None declared.

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