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Review Article

TRAINING OF THE HEALTHCARE PROFESSIONALS ABOUT CLINICAL COMPETENCES OF INFECTIOUS DISEASES: A SCOPING REVIEW

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ABSTRACT

Objective: to identify and map the existing literature of the interventions and clinical competences of the procedures in medical care focused on the knowledge and clinical management of infectious diseases. **Material and methods:** A panoramic review was carried out to identify the existing literature on staff training for clinical competences in medical care focused on the management of infectious diseases. **Results:** The search result gave a total of 795 articles that were included for this review, later, an exclusion based on fast reading was made, where only 55 were recovered, and in the end, only 25 fulfilled the selection criteria according to this investigation. **Conclusions:** the findings found in this scoping review indicate that there are different degrees of effectiveness depending on the method used. According to some studies, the best predictors may be through the active participation and the integration of new learning within the clinical context.

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INTRODUCTION

Massive training models have collapsed, so the creation of a personal culture or discipline of professional self-development must emerge in training institutions. They must be introduced in the path of autonomous professional responsibilities helping to build an update habit to train in the work environment. The subject of training must acquire an important place in the educational agenda under new tactics and strategies for the reformulation of competent personnel in order to create a professional development and a permanent culture for their growth and must be a permanent task. (1).

Health education is an integral element of the curricula and training that is widely taught through medical education programs and courses offered to healthcare professionals. The approach to clinical practice is maintained and in other occasions it is limited to only critical information or assessment. Evidence of the impetus for continuous training determines that it acts directly on knowledge, skills and behaviors. The lessons must be integrated with the clinical context, improving the actions and behavior of healthcare

professionals, which in turn affects the patient's health outcome(2).

Educating healthcare professionals about clinical management standards and protocols includes how to identify infectious diseases through training with the intention of disseminating information. These interventions allow rapid training initiatives expansion(3) for the training of healthcare professional in clinical skills and in medical care procedures focused on the clinical management of infectious diseases. If development in healthcare professionals promotion is required, the behavior approach should be maintained as a main axis to analyze the actions, allowing the evaluation of behaviors of knowledge, attitudes and practices, with the purpose to improve the impact of the development of clinical skills to give better medical attention to the community that requires it.

The objective of this scoping review is to identify and map the existing literature of the interventions and clinical competences of the procedures in medical care focused on the knowledge and clinical management of infectious diseases.

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MATERIAL AND METHODOLOGY

A scoping review was carried out during the period from October to November of the year 2018 to identify and map the existing literature on staff training for clinical competencies in medical care focused on the management of infectious diseases. The criteria for the selection of references focused on studies that contain keywords (see table 1), research written in English and Spanish, and published reports to relate the results and identify their differences. The search for the keywords was through indexes such as Pubmed for the English words and Bireme for the words written in Spanish.

Table 1 English and Spanish language keywords used for the search

Keywords in Spanish	
Educación	Enfermedad Infecciosa
Capacitación	Enfermedad reemergente
Competencias clínicas	Enfermedades emergentes
Atención médica	
Keywords in English	
Education	Infection disease
Education	Infection disease
Training	Emerging infectious disease
Health Knowledge, attitudes, practices	Reemerging infection disease
Clinical competence	

As a search strategy to identify the relevant studies, references in indexes such as PubMed, Bireme, databases such as EBSCO, Scielo and Redalyc were used, in addition to the references that are accessed through the University of Guadalajara. For the selection of the studies, the combinations of the keywords (see table 2) and the use of boolean "AND" and "OR" were used. Regarding the search for qualitative studies, 2 keywords were used in the title plus 1 keyword for the category of qualitative studies that are: qualitative and qualitative research.

Table 2 Use of keywords as a selection criteria

Title	Reference	Abstract	Complete Text
		3 keywords	4 keywords
1 Keyword	2 Keywords	Keyword:	Palabra Clave:
Keyword	Keyword	1 from the category	1 from the category
Use of any of all	1 any of all	of vector-borne	of vector-borne
keywords described in	keywords	diseases	diseases
the previous table		2 any of all	3 any of all
		keywords	keywords

The result of the search gave 842 articles, thus the 47 duplicates were eliminated, in the end a total of 795 articles were identified for inclusion in this review, later an exclusion was made based on quick reading, where they only managed to recover 55, and in the end 25 they met the selection criteria according to this research. The final filter was based on the full text reading (see figure 1).

For the systematization, the data were extracted from the articles such as the type of study, location, design, population or sample, dependent variables, independent variables, type of intervention performed, method of data collection and analysis, finding that the references range from 1998 until 2018.

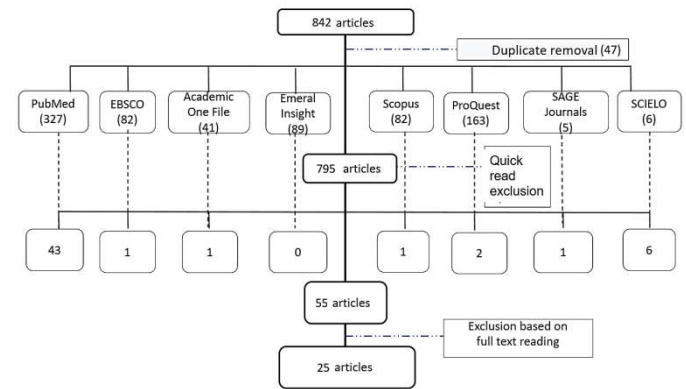


Figure 1 Flowchart of the study selection process

RESULTS

The topics that determined this research were 5: educational interventions such as knowledge modifiers, clinical management, attitudes, promotion and prevention of infectious diseases; structure, components and strategies of interventions for knowledge of infectious diseases; structure, components and strategies of interventions for the clinical management of infectious diseases; structure, components and strategies of interventions for the promotion and prevention of infectious diseases; and lastly, health education regarding infectious disease interventions.

For a better understanding of the results, these concepts should be clear:

Knowledge is described by multiple philosophical currents that address from the epistemological perspective; likewise, there are multiple psychological theories to describe the theoretical topography of the cerebral administration of knowledge; Even today, three interrelated basic concepts have been discussed: 1.- Data as extrinsic realities to the subject, which are perceived and captured by the senses; 2.- Information as a process of understanding and accumulation of data, managing it in your brain and mentally reorganizing it according to your interests; and 3- knowledge as a collection of information used in the decision making process(4). Attitudes are those gestures of manifest exterior that indicate their preference and deliver some observable activity. It is a predisposition to act, the behavior is manifest, and the practices are a series of related behaviors, being an explicit and observable action that a person executes in specific circumstances that is considered necessary to perform in order to reduce or help solving a problem.

You can define competence in the educational field, as an ability to do something. It implies the knowledge, skills, skills, attitudes and behaviors that are harmonically integrated for successful performance in the different circumstances of a function(1). These competences can be demonstrated through observable results, since it is a visible manifestation of the student's abilities; It is generalizable and transferable, refers to various skills and allows you to take advantage of them and is associated with activities from reality.

Regarding educational intervention, it is defined as the intentional action for carrying out actions that lead to the achievement of the integral development of the student. The educational intervention has a teleological character: there is an agent subject (educator-educator) there is the proactive

language (an action is taken to achieve it) and the events are intentionally linked. The action (change of state that a subject causes to happen) of the educator must give rise to an action of the student (which does not have to be intentionally educational) and not just an event (changes of state that occur to a subject on one occasion) as corresponds to the analysis of formal, non-formal and informal intervention processes(5).

Behavioral interventions can be performed through generalization and modeling, the latter can be used to learn new behaviors, inhibit or disinhibit behavior patterns, facilitating responses and increasing the effects of stimuli to increase emotional or affective activation, these characteristics are based on the theoretical basis of the behavioral model that date back to pioneering studies like Pavlov through classical conditioning(6). And informative interventions are all those where knowledge is given through brochures and pamphlets, people are communicated the message they want to convey.

Educational interventions as modifiers of knowledge, clinical management, attitudes, promotion and prevention of infectious diseases

19 articles out of 25 report the interventions that modified knowledge, "corresponding to that disease information identifying the pathology from its transmission, diagnosis, and treatment" of infectious diseases accounted for the vast majority. 12 articles have interventions that modified the diagnosis, clinical management and treatment of infectious diseases focusing on the use of crystalloids, in the same way 12 findings focused on modifying the promotion and prevention of infectious diseases.

The effectiveness of educational interventions showed an increase in knowledge of the disease and the clinical management of infectious diseases, there was a greater effectiveness in changing knowledge, clinical management, attitudes, promotion and prevention of infectious diseases by educational interventions, in 5 articles the moderate change focused on informative interventions(2,7–10)and the minimum change was expressed in a behavioral intervention(11).

Within the global geographic areas 6 articles were identified respectively, encompassing most of the interventions carried out in North America(3,7,12–15)and Latin America (11,16–19);

It should be noted that within these articles an intervention was found in the United States of America with Mexico(14).In the review, no articles were found with educational interventions for the control of infectious diseases within the European Union. 5 items were located in Asia(8,10,20–22), 4 inAfrica (23–26) and 3in Middle East having a breakthrough in educational interventions(2,27,28). In the Oceania region they have an educational intervention(29) and focuses on only obtaining data through questionnaires. These findings determine that the endemic regions of these infectious diseases carry out major interventions to know, treat and prevent the disease.

Structure, components and strategies of interventions for knowledge of infectious diseases

To increase the knowledge of infectious diseases, educational interventions were used, applying courses with a minimum follow-up of 1 month and a maximum of 3 months. These

interventions in which there was a significant change were those with a sequence greater than 1 month(3).

The types of informative interventions were characterized by being used in a complementary way in educational interventions, 4 articles mention that they have used summaries and readings of interest on infectious diseases, in order to increase knowledge of clinical management(2,11,14,26).

In all the studies reviewed, the technique of collecting data on knowledge of infectious diseases was through surveys.

The instruments used for data collection in 19 studies indicate that it was through newly created surveys and validated by experts internally. 2 studies describe that they used instruments indicated by clinical practice guidelines(20,29), 2World Health Organization(16,17)and 2for CDC (Center for Disease Control and Prevention)(3,13).

Structure, components and strategies of interventions for the clinical management of infectious diseases

The educational interventions that modify the practices for the clinical management and treatment of infectious diseases were the most used 5 empirical studies mention it. Regarding the behavioral interventions that modify the practices for clinical management, they were applied in less quantity with 3 articles. In all the reviewed studies, the data collection technique on the clinical management, practices and attitudes of infectious diseases were carried out through surveys.

Structure, components and strategies of interventions for the promotion and prevention of infectious diseases

As the main educational strategy used for the promotion and prevention of diseases was through informative interventions 4 articles describe the use of courses(3,7,10,13), 4 presentations (3,7,10,27), and 4 readings and newsletters (2,11,14,26).

In all the studies reviewed, the data collection technique on the clinical management, practices and attitudes of infectious diseases were carried out through surveys.

Health education regarding infectious disease interventions

The knowledge of clinical practice guidelines on infectious diseases was not reported significantly because only 4 articles mention that they surveyed healthcare professionals of the first level of care(9,15,16,27). It should be noted that both educational, behavioral and informative interventions did not focus on the adherence of clinical practice guidelines, so the epidemiological reports that are recommended by the guidelines are not carried out properly, despite knowing and knowing them. The evidence and recommendations used as clinical management by most articles are those dictated by the World Health Organization and not by national health policies. The main objective of educational interventions was the approach to knowledge of infectious diseases with 19 articles, followed by promotion and prevention with 12 articles. Thus, it was also reported that half of the interventions -8 studies-, focused on the practices of healthcare professionals for clinical management against infectious diseases. In a smaller amount, the direction of the interventions was directed towards favorable attitudes with 4 articles(8,9,14,22).

For the education of the healthcare professional, a greater attachment to the interventions with the strategy of online

courses was identified with 7 articles and 18 articles were presented in person, 2 studies refer to use a joint method where they report having greater response and attachment(3,10). Healthcare professionals mentioned that they prefer online educational methods than face-to-face, therefore, those who took courses by this method fully recommend the implementation of web courses.

CONCLUSIONS

Healthcare professionals must have the autonomous culture of improving knowledge, attitudes and practices to acquire a growing formation of appropriate clinical skills for the control and management of infectious diseases. They must remain constant to achieve the objectives and increase the skills to put into practice the knowledge acquired by incorporating education technologies to achieve optimum performance in professional practice.

The effectiveness of the impact of interventions on medical practice seems to be associated with the degree of active participation, opportunity to solve clinical problems, case-based learning and feedback presentations, have also used evaluations before and after the intervention that in addition to assessing learning seems to reinforce it. All educational interventions have found an increase in knowledge of infectious diseases.

However, the findings found in this scoping review indicate that there are different degrees of effectiveness depending on the method used. According to some studies, the best predictors may be through the degree of active participation and the degree of integration of new learning within the clinical context.

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