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Research Article

Multimedia for the Development of Knowledge in Foot Reflexology in Health Personnel

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Abstract

Introduction: According to the World Health Organization, Traditional and Complementary Medicine is an important part of prevention and health care, and is practiced in almost every country in the world.

Objective: To design a multimedia for the development of foot reflexology for health personnel in the Cuban Medical Mission in Venezuela.

Methods: An innovative development study was carried out in the Republic of Venezuela, from February 15 to May 22, 2023. The study sample consisted of 17 Cuban doctors specializing in Comprehensive General Medicine and Venezuelan doctors working providing services in Venezuela who gave their consent to participate in the study.

Results: The specialist group consisted of 7 (5 doctors specializing in MTN and 2 computer science graduates), who agreed with the design of the software for its implementation in all the parameters analyzed. In the knowledge related to the generalities of foot reflexology before the intervention, 11.76% knew that it was the same, a result that changed after the intervention, reaching 100%.

Conclusions: The multimedia fulfilled the use for which it was created as an educational tool, with didactic principles, making it more motivating when incorporating knowledge on the topics of foot reflexology to physicians in service.

Kew Words: educational software; traditional natural medicine; foot reflexology

Introduction

According to the World Health Organization (WHO), Traditional and Complementary Medicine (TCM) is an important part of prevention and health care, and is practiced in almost all countries of the world. These medicines developed with quality, safety and effectiveness, contribute to ensuring people's access to health care.[1] Therefore, the WHO TCM Strategies document (2002-2005 and 2014-2023) recommends that governments support training activities for health personnel in TCM in a comprehensive manner, including the development of TCM skills in response to social needs and in articulation with conventional medicine.[1]

Although traditional Chinese medicine (TCM) is widely practiced in Asian populations such as China, Hong Kong, Taiwan and Singapore, in recent decades many non-Asian countries have also recognized the enormous therapeutic potential of traditional therapies and are intensively taking advantage of the benefits of these medical practices. In the last three decades,

various Western countries such as Germany, the USA, Australia, among others, have begun to apply various therapies of traditional Eastern medicine in public and private health services.[2] In recent years, new policies have been projected aimed at "making Information and Communications Technologies (ICT) become a strategic development sector for the nation, strengthening a knowledge-based economy, which is expressed in significant contributions to exports and the national economy, facilitating broad access to digital content and services by citizens.[3]

As a guarantee for the future, the Medical Teaching Program in Venezuela is strengthened, 19 years after its launch, with the collaboration of Cuban specialists, who have sown in this sister land a quarry of health professionals, essential to safeguard the care of the people. At the end of this year 2023, and just when we have just celebrated the Day of the Educator in Cuba, the Medical Teaching Program in Venezuela shows praiseworthy results, another mark of the consecrated teachers of the island who leave their mark in the classrooms of the Bolivarian nation. [4]

In order to continue contributing to the development of knowledge in this sister nation, we have set ourselves the goal of designing a multimedia program for the development of knowledge of foot reflexology for health personnel in the Cuban Medical Mission in Venezuela.

Method

An innovative development study was carried out in the Republic of Venezuela, in the period from February 15 to May 22, 2023. Structured in three stages, where in the first stage bibliographic searches were carried out in indexed databases (PubMed, CUMED, Google Scholar and SCIELO), to find out about didactic means of teaching and learning capable of delivering knowledge to health personnel in service provision on foot reflexology. In the second stage, the teaching methods of foot reflexology were determined and a diagnosis was made to know the real state of knowledge in the study subjects. And in the third stage, an educational multimedia was designed through a computer platform that complied with didactic elements that make the knowledge to be imparted more accessible, were validated by an expert group and the results obtained with the application of the proposal were evaluated. The study sample consisted of 12 Cuban doctors specializing in Comprehensive General Medicine and 5 Venezuelan doctors providing services who worked in the state of Carabobo, Venezuela, who gave their consent to participate in the study. Through the researchers, a pre-test was applied to diagnose knowledge about foot reflexology to detect educational gaps in the subject, the software was designed and validated by a group of specialists to be applied, educational workshops on multimedia were held for the health personnel of the study for their educational interaction and how to work with it was explained; in case of difficulty, computer advice was offered. Finally, a post-test was applied to compile the knowledge acquired after working with the proposed multimedia. The multimedia consists of a presentation, a content menu where different topics related to foot reflexology are reflected, these topics are related to images and figures for a better understanding of the contents (Figure 1).

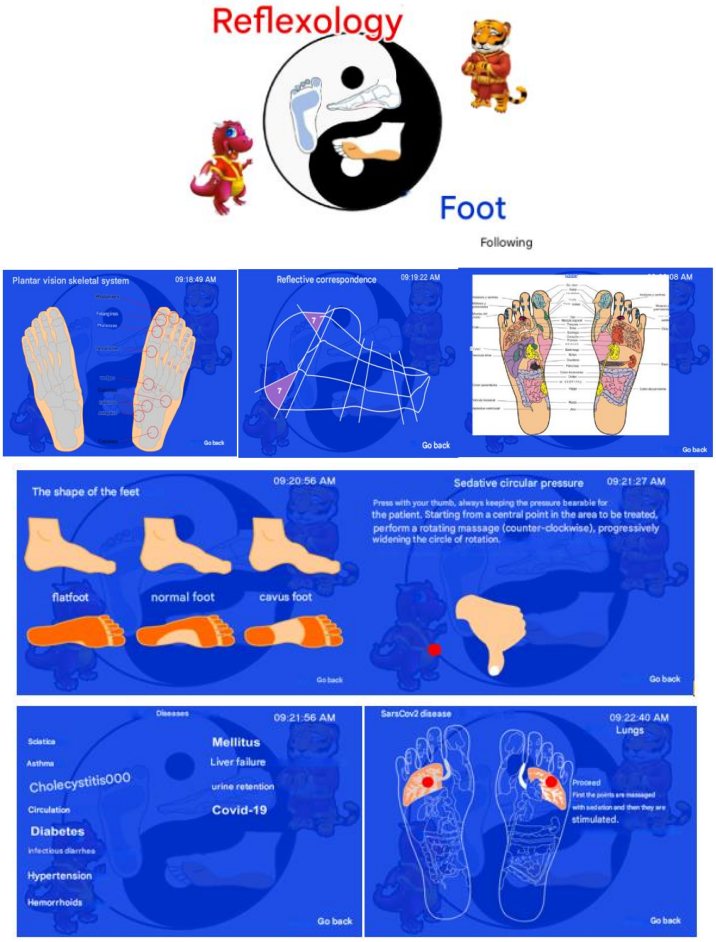

Figure 1. Images from the Educational Software for Foot Reflexology

Source: Authors' creation

This educational intervention was approved by the Directorate of the Cuban Medical Brigade in Venezuelan territory by the training staff and the Science and Technology staff.

Result

The specialist group was made up of 7 members (5 doctors specializing in MTN and 2 graduates in computer science), in the indicators of the form of presentation of the content, scientific validity of the topics, environmental design, representation of a didactic model, usefulness for learning, ease, originality and functionality, everyone agreed (100%) (Table 1).

Features of multimedia	Agree		Don't agree	
	No.	%	No.	%
Content presentation format	7	100	0	0
Scientific validity of the topics addressed	7	100	0	0
Language	6	85.71	1	14.28
Environmental design	7	100	0	0
Relevance	5	71.42	2	28.57
Representation of a didactic model	7	100	0	0
Utility for learning	7	100	0	0
Applicability	6	85.71	1	14.28
Content	4	57.14	3	42.85
Ease	7	100	0	0
Functionality	7	100	0	0
Originality	7	100	0	0
User Interface	6	85.71	1	14.28

Table 1. Evaluation of the proposed multimedia by specialists

Source: survey of specialists

Among the characteristics of the physicians, the age group between 25 and 30 years (47.05%) and the male sex (76.47%) prevailed. 70.58% of the physicians were of Cuban nationality (Table 2).

Age group	No.	%
From 25 to 30 years	8	47.05
From 31 to 40 years old	6	35.29
From 41 to 49 years old	2	11.76
More than 50 years	1	5.88
Total	17	100
Gender	**No.**	**%**
Female	4	23.52
Male	13	76.47
Total	17	100
Nationality	**No.**	**%**
Cuban	12	70.58
Venezuelan	5	29.41
Total	17	100

Source: Survey of doctors

Table 2: Characterization of the doctors in the study according to age, sex and nationality working in Venezuela

In the knowledge related to the generalities of foot reflexology before the intervention, 11.76% knew that it was the same, a result that changed after the intervention reaching 100% (Table 3).

Level of knowledge on general aspects of foot reflexology	Before the multimedia		After the multimedia	
	No.	%	No.	%
Appropriate	2	11.76	17	100
Inappropriate	15	88.23	0	0
Total	17	100	17	100

Source: Survey of doctors

Table 3: Doctors according to their knowledge of general aspects of foot reflexology (before and after the intervention with multimedia)

When analyzing the knowledge that doctors had about the representation of organs and systems in the feet before the intervention with the software, only 11.76% responded adequately; this indicator after the intervention was improved since 94.11% identified these representations (Table 4).

Level of knowledge on representation of organs and systems	Before the multimedia		After the multimedia	
	No.	%	No.	%
Appropriate	2	11.76	16	94.11
Inappropriate	15	88.23	1	5.88
Total	17	100	17	100

Source: Survey of doctors

Table 4: Physicians according to knowledge about the representation of organs and systems on the sole of the feet (before and after the intervention with multimedia)

This is shown in the knowledge about the shapes of the feet before the intervention with the software, where 5.88% responded in the appropriate indicator, and after the intervention 76.47% of the doctors responded favorably. Regarding the diseases to be treated in the appropriate indicator, the doctors were completely unaware, and once the intervention was finished, 94.11% of the doctors responded adequately in this same indicator. In the indicator on knowledge of the sedative circular pressure technique before the intervention with the software, 17.64% responded adequately, after the intervention in this same indicator the level of knowledge improved to 100% (Table 5).

Level of knowledge about foot shapes	Before the multimedia		After the multimedia	
	No.	%	No.	%
Appropriate	1	5.88	13	76.47
Inappropriate	16	94.11	4	23.52
Total	17	100	17	100
Level of knowledge about diseases to be treated	**Before the multimedia**		**After the multimedia**	
	No.	**%**	**No.**	**%**
Appropriate	0	-	16	94.11
Inappropriate	17	100	1	5.88
Total	17	100	17	100
Level of knowledge on the sedative circular pressure technique	**Before the multimedia**		**After the multimedia**	
	No.	**%**	**No.**	**%**
Appropriate	3	17.64	17	100
Inappropriate	14	82.35	0	-
Total	17	100	17	100

Source: Survey of doctors

Table 5: Doctors according to knowledge of foot shapes, diseases to be treated in foot reflexology and knowledge of the sedative circular pressure technique (before and after the intervention with multimedia)

Discussion

Today, teaching aids have ceased to be the classic "auxiliaries" of the teacher and have become components of the teaching-learning system; it is not simply a semantic change, but a complex renewal of functions and concepts.[5]

In our study, the specialist group was made up of 5 doctors specializing in Traditional Natural Medicine and 2 graduates in computer science, who agreed with the design of the multimedia for use as an educational tool. The age group between 25 and 30 years and the male sex prevailed. The majority of the doctors in the study were of Cuban nationality. The knowledge that was had before the intervention with the educational multimedia was below the level of knowledge that should be had to use foot reflexology as an alternative therapy. After the intervention, the levels of knowledge were developed allowing a practical approach in the workplace as a curative alternative in the treatments to be carried out.

Other studies make positive reference to the use of educational software for development in Traditional Natural Medicine, such as those by Suárez et al., [6]. who evaluated the usefulness of the Fitosoft multimedia for knowledge about Natural and Traditional Medicine to 60 third-year medical students at the Faculty of Medical Sciences of Bayamo. Before using multimedia, 70% of students reported a low level of knowledge. After using the computer product, 90% achieved high levels of knowledge.

On the other hand, Guevara and Lorenzo, [7] they developed a multimedia application for the study of Natural and Traditional Medicine integrated into the curriculum of the Medicine degree. 100% of the variables evaluated reached average scores above the value of 7 points, which qualitatively places them in the Very Adequate evaluation. The agreement between the experts' criteria was very significantly reliable with a Kendall coefficient of 0.580.

La O et al., [8] created a multimedia as complementary material to the subject of Traditional and Natural Medicine for fifth-year students of the Stomatology degree at the "Victoria de Girón" Teaching Polyclinic, in Palma Soriano, Santiago de Cuba. The methodological aspects conceived for the adequate selection of the contents, images and videos that constitute the body of the same and the elaboration of the multimedia script with the detailed description of each and every one of the scenes of the audiovisual product

prepared were taken into account. These contents are located in the subject program.

Dominguez, [9] evaluated the educational software MEDINAT on 100 5th year students of the Medicine degree, for the learning of Natural and Traditional Medicine. In the evaluation of the effectiveness of the software, before its implementation, 82% of the students had an inadequate level of knowledge about MNT, after its application, 92% of the students had an adequate level of knowledge, which shows the effectiveness of the educational software MEDINAT with a significance of 0.05.

Robaina et al., [10] they created a multimedia application for the study of natural and traditional medicine integrated into the Pediatrics subject of the study plan for 25 students and 6 teachers of the Medicine degree. Regarding the level of knowledge of techniques that are oriented in Pediatrics and general contraindications, 64% obtained a grade of poor in this variable during the pre-test, 28% of average and 8% obtained a good evaluation. After using the software, 76% then know and are able to guide MNT techniques in Pediatrics and their contraindications (evaluation of good) in relation to 16% of average and 8% who still do not know. Once the software is used, better results are achieved in this aspect, with 60% of the students responding adequately with a grade of good, 24% average and 16% still experiencing certain difficulties, as they are completely unaware of how to integrate MNT in Pediatrics. All teachers interviewed (n=6) stated that Natu Pediafacilitated the integration of MNT-Pediatrics and found it useful in preparing their classes.

Montes de Oca et al., [11] created an educational multimedia on Traditional and Natural Medicine and its use in ophthalmological conditions. Its effectiveness was verified in 210 students from the University of Medical Sciences of Santiago de Cuba through a questionnaire applied before and after using it. Before using the multimedia (Natur Oft), 59% of the students reflected a low level of knowledge, a relationship that was modified after its application where 75.7% reached a high level.

Conclusions

Multimedia fulfilled the purpose for which it was created as an educational tool, with didactic principles, making it more motivating when incorporating knowledge on the topics of foot reflexology to health personnel in service to society.

Conflict of interest

The authors declare that there is no conflict of interest.

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