

Mobile Applications Incorporated to Nursing Assistance to Intestinal Stomized

RESUMO | Objetivo: investigar as evidências científicas sobre o uso de aplicativos móveis para o cuidado de pessoas com estomias intestinais. Método: Realizou-se revisão integrativa da literatura nas bases de dados MEDLINE, SciELO e LILACS, adotando um recorte temporal do período de 2016-2021. Resultados: Ao total foram selecionados 09 artigos cujos resultados mostraram que a criação de aplicativos móveis em saúde tem se mostrado válida como estratégia de acompanhamento e prescrição de condutas terapêuticas, devido ao seu potencial em aliar a teoria à prática contemplando o indivíduo na sua integralidade e individualidade, promovendo e facilitando a sua reabilitação. Conclusão: Representam, portanto, os aplicativos móveis, ferramentas de promoção de autocuidado em pacientes estomizados intestinais para a prevenção de complicações na pele periestomal, traduzindo-se em uma grande inovação devido aos seus benefícios em relação à qualidade, rapidez, dinamismo e segurança. Entretanto, tem-se ainda uma lacuna relacionada à tímida produção de estudos.

Descritores: Aplicativos Móveis; Assistência de Enfermagem; Autocuidado; Estomia.

ABSTRACT | Objective: to investigate the scientific evidence on the use of mobile applications for the care of people with intestinal ostomy. Method: An integrative literature review was carried out in the MEDLINE, SciELO and LILACS databases, adopting a time frame of the period 2016-2021. Results: In total, 09 articles were selected whose results showed that the creation of mobile health applications has proved to be a valid strategy for monitoring and prescribing therapeutic conducts, due to its potential to combine theory with practice, contemplating the individual in its entirety and individuality, promoting and facilitating their rehabilitation. Conclusion: Therefore, mobile applications represent tools to promote self-care in intestinal ostomized patients for the prevention of complications in peristomal skin, resulting in a great innovation due to its benefits in terms of quality, speed, dynamism and safety. However, there is still a gap related to the timid production of studies.

Keywords: Mobile Applications; Nursing Assistance; Self-Care; Stoma.

RESUMEN | Objetivo: investigar la evidencia científica sobre el uso de aplicaciones móviles para el cuidado de personas con ostomía intestinal. Método: Se realizó una revisión integradora de la literatura en las bases de datos MEDLINE, SciELO y LILACS, adoptando un marco temporal del período 2016-2021. Resultados: En total se seleccionaron 09 artículos cuyos resultados mostraron que la creación de aplicaciones móviles de salud ha demostrado ser una estrategia válida para el seguimiento y prescripción de conductas terapéuticas, por su potencial para combinar la teoría con la práctica, contemplando al individuo en su totalidad y individualidad, promoviendo y facilitando su rehabilitación. Conclusión: Por tanto, las aplicaciones móviles representan herramientas para promover el autocuidado en pacientes ostomizados intestinales para la prevención de complicaciones en la piel periestomal, resultando en una gran innovación por sus beneficios en términos de calidad, rapidez, dinamismo y seguridad. Sin embargo, todavía existe una brecha relacionada con la tímida producción de estudios.

Palabras claves: Aplicaciones Móviles; Asistencia de Enfermería; Cuidados Personales; Estoma.

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INTRODUCTION

In the United States of America, it is estimated that around 120,000 surgeries are performed annually that require the production of an ostomy, with 700,000 Americans, among children and the elderly, at some point in their lives, they have already needed this procedure for intestinal or urinary diversion. In Brazil, this estimate reaches 1,400,000 surgical procedures per year, totaling approximately 34,000 people with an irreversible ostomy in the country.¹

The term ostomy is used to designate a surgically performed opening that allows the exteriorization of an internal organ to the body surface.^{2,3} Intestinal stomata are used for the involuntary elimination of feces, due to the loss of sphincter control, requiring the use of a continuous device called a collection bag.⁴

The presence of an ostomy brings with it changes in the physiology, self-esteem and body image of the person with an ostomy, the most striking being the loss of control of eliminations. Sphincter control is considered essential for social interaction, and the loss of this function can lead to isolation, believing that they are unable to resume daily activities performed before surgery.⁵⁻²¹

Faced with the disruption of their usual pattern of elimination, the individual with an ostomy begins to face physical, psychological and social di-

fficulties, associated with fear, shame, insecurity, coming, many times, to experience a repugnant feeling in relation to himself that culminates in his isolation.⁵⁻⁷ Therefore, the condition of having an ostomy can impact the patient's quality of life due to changes that affect human multidimensionality, requiring adapta-

intestinal ostomy, it is evident that nursing professionals face a challenge in approaching these individuals and their caregivers, since interventions that consider integrality and promote self-care are necessary.⁴ In this context, technologies adapted to the needs of ostomy patients, particularly educational ones, are being identified as a viable alternative, because they are facilitating instruments in the transmission of guidelines, as well as in the prevention of complications and in the development of skills to stimulate autonomy and well-being.⁹

Health professionals can significantly contribute to improving the quality of life of individuals with an ostomy as they plan care, include health education in their care process and develop the person's skills for self-care.⁶ In this way, educational approaches in the process of living with an ostomy can play a decisive role in the physiological, psychological and social adaptation of individuals and their families.²¹

Thus, mobile applications, used for the most diverse purposes, have become important mHealth (mobile health) tools, as they allow remote support to patients, self-care in health, aid of public policies in the promotion and control of diseases, in addition to encouraging the user to maintain or initiate educational practices that can bring benefits to their health.^{10,11} Among the numerous features, mobile devices can represent, in addition to access to information, the solution of problems and, in this way, subsidize various daily activities. In this context, there is the growth of technological devices and the need to incorporate tools for health care, in this way, applications are being developed and used for this purpose.^{11,12}

Noting that it is a topic in the process of development and considering the importance of obtaining data on nursing production in Stomatherapy, it was decided to carry out the present study. Thus, the objective was to investigate the scientific evidence on the use of mobile



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tions and readjustments to harmonize daily tasks, postoperative care, self-care and social interactions. In addition, there is the acceptance of self-image, the feeling of mourning and changes in life habits, due to the stoma and the collection bag.⁸

When considering the magnitude of the impacts generated by patients with

applications for the care of people with intestinal ostomies. The relevance of this study lies in the possibility of pointing out trends, gaps and new directions for the strengthening of knowledge on the subject in question.

METHOD

This is an integrative literature review, the first step of which refers to the definition of the topic to be addressed and, therefore, in the elaboration of the guiding question for conducting the research. In the present study, the following question was formulated to guide the search for studies: What is the scientific evidence on mobile applications for the care of people with intestinal ostomies?

Subsequently, the criteria for inclusion of studies in the survey were established, which for the present study proposal were the following: indexed publications from 2016 to 2021; texts written in Portuguese, Spanish and English; and investigations containing the presence of evidence on the chosen theme in relation to educational technologies in the context of nursing in the approach of patients with intestinal ostomy.

As exclusion criteria for studies in the survey were the following: studies repeated in more than one data source, selecting only one; published in the form of a dissertation, thesis, book chapter, book, editorial, review, comment or critique; free abstracts and investigations whose results do not answer the guiding question.

The evaluation of studies regarding the level of evidence (LE) followed the proposal of Melnyk and Fineout-Overholt (2005)¹³, as shown in Table 1.

Based on the inclusion and exclusion criteria, evidence searches were carried out in the following electronic databases: Latin American and Caribbean Literature on Health Sciences (LILACS), International Literature on Health Sciences (MEDLINE) and Scientific Elec-

tronic Library Online (SciELO), through the PICO strategy, which represents an acronym for Patient/problem, Intervention, Comparison and "Outcomes". The controlled descriptor vocabularies were the Health Sciences Descriptors (DeCS), used in the Virtual Health Library (VHL), inserted in the database, using the PICO strategy, as shown in Table 2.

All titles and abstracts of works identified in the databases, using the descriptors and evaluated as eligible were separated and analyzed in full. The details of the selection of studies for the integrative review are represented in Flowchart 1, prepared in accordance with the

PRISMA guidelines.¹⁴

Flowchart 1 shows that¹⁵ abstracts were found in the LILACS, SCIELO and MEDLINE databases using the chosen descriptors. Of these, 03 were repeated and, therefore, according to the selection criteria, they were excluded. When the exclusion criteria were applied in relation to the publication date prior to the year 2016, of the 10 remaining abstracts, 01 was excluded, and 09 articles were finally selected for the literature review.

RESULTS

09 articles were selected on the use

Table 1 – Classification of levels of evidence.

Level	Study Type
Level I	Evidence related to systematic review or meta-analysis of randomized controlled clinical trials or from clinical guidelines based on systematic reviews of randomized controlled clinical trials;
Level II	Evidence from at least one well-designed randomized controlled clinical trial;
Level III	Evidence from well-designed clinical trials without randomization; level IV, evidence from well-designed cohort and case-control studies;
Level V	Evidence from a systematic review of descriptive and qualitative studies;
Level VI	Evidence derived from a single descriptive or qualitative study;
Level VII	Evidence derived from the opinion of authorities and/or the report of expert committees

Source: (MELNYK; FINEOUT-OVERHOLT, 2005)¹³.

Table 2 – Search for evidence in LILACS, SciELO and MEDLINE databases using the PICO strategy.

	MeSH	DeCS
and P	Ostomy	Estomia
and I	Nursing Care AND Mobile Applications	Assistência de Enfermagem AND Aplicativos Móveis
and C	-	-
and O	Self Care	Autocuidado

Source: (Research Data, 2022).

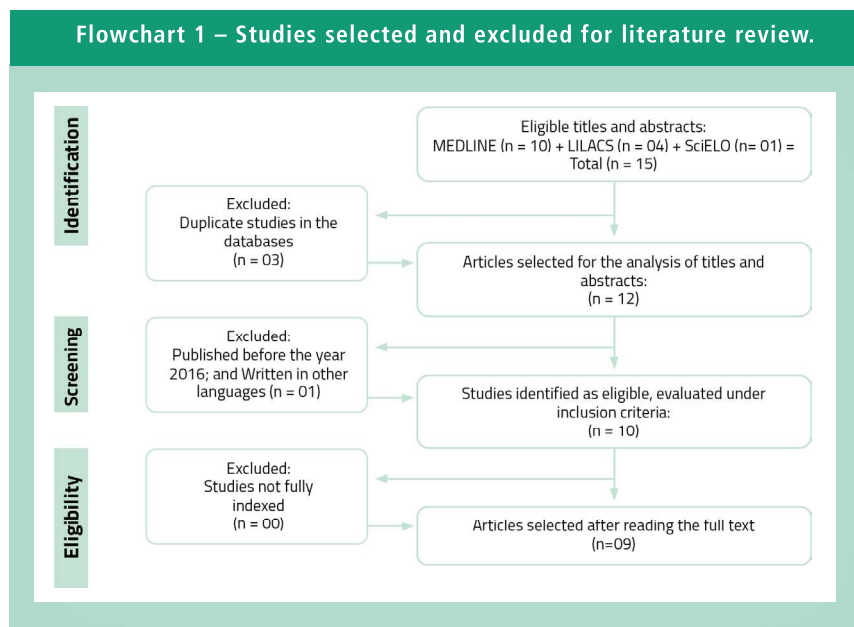
of mobile applications for the care of people with intestinal ostomies. Table 3 presents the data from these studies in a summarized way in relation to authorship, year of publication, objective of the work, methodology and results obtained.

DISCUSSION

In the analysis of the selected studies in relation to the year of publication, it was found that the largest number found appears in 2020, with 4 (44%) articles captured while in 2018 there are 2 (22%) publications, demonstrating that it is a recent theme in the nursing context.

Regarding the level of evidence, it can be identified that nursing still does not have a sufficient amount of scientific research to portray strong evidence related to the use of mobile applications in approaching ostomy patients; and also from well-designed randomized controlled clinical trials, well-designed clinical trials without randomization, and well-designed cohort and case-control studies. In the only randomized clinical trial found, the results were obtained through the psychosocial adjustment level, the self-efficacy scale and the incidence of complications, being followed up and compared between the two groups. Data were collected at four time points: before the intervention (baseline), 1, 3 and 6 months after hospital discharge.

Regarding the answer to the guiding question, the findings in the literature show that mobile applications, due to their functionalities, they are no longer aimed only at the entertainment of individuals, as they facilitate access to information and the solution of problems without time and space limits, thus having a strategic value for the reality and temporality in progress. Therefore, they have been widely used in the health area, in view of allowing remote support and monitoring of patients, self-care in health, aiding public policies in the promotion and control of diseases, in addition



Source: (Research Data, 2022).

tion to encouraging the user to maintain or initiate practices and habits that are beneficial to their health.^{11,16}

Specifically, the creation of mobile health applications (m-health/m-hialita), such as smartphones, for nursing professionals who care for patients with stomas, for example, has been shown to be valid as a training strategy, diagnosis, monitoring and prescription of therapeutic procedures, due to its potential to combine theory with practice and the interrelation of knowledge and contextualization of learning developed in order to contemplate the individual in his entirety and individuality, promoting and facilitating his rehabilitation.^{15,17,19,20}

Performing an ostomy requires the individual to incorporate numerous measures of adaptation and readjustment to daily activities, due to physiological changes in the body, resulting from the diversion of intestinal transit, and the repercussions in the emotional and social spheres. Therefore, there is a requirement to learn self-care actions with the stoma and the peristomal skin. The specific self-care actions of the ostomy

patient are based on three factors: hygiene of the stoma and peristomal skin, observation of the stoma and peristomal skin, and care with the collection system, who need specialized monitoring by the stomatherapist nurse in order to equip the patient for the prevention of complications.⁴

The lack of guidance regarding the ostomy, especially regarding the exchange of the bag, is the main difficulty reported by patients with an ostomy. This digital technology was considered a relevant means of dissemination to reach this population and important for learning self-care.²¹

It is estimated that between 21% and 70% of patients with a stoma have some type of complication, although a significant percentage of these patients could live with the stoma without any complications. It has been shown that stoma malfunction, inadequate stoma location and poor self-care increase the risk of dermatitis, bleeding, prolapse, necrosis, hernias, edema, waste extravasation, parastomal hernia, stenosis and retraction, among other adversities.¹⁹

Health education practices seek the

Table 3 – Distribution of selected articles in the LILACS database and in the SCIELO database according to the variables researched. Rio de Janeiro, 2022.

Author/ Year	Objective	Methodology and level of evidence	Results
Braga et al. ¹⁵ 2016	Build and validate a virtual learning object about intestinal elimination stomas	Applied, descriptive research - Level VI	It is an effective strategy to support nurses in clinical practice and even to increase patient involvement in stoma self-care.
Silva et al. ¹⁶ 2018	To identify in the literature studies on mobile technologies in the nursing area.	Integrative literature review - Level V	Daily care made possible by the mobile application reduces the occurrence of crises in chronic patients, since information about changes in their health status can be evaluated in real time and preventive and therapeutic measures can be prescribed.
Wang et al. ¹⁷ 2018	Explore the effects of a home care mobile app on the outcomes of ostomy patients who have been discharged from the hospital	Randomized clinical trial with a sample of 203 patients divided into two groups: 100 in the intervention group (routine care and support with the application); and 103 in the control group - Level II	Nursing home care using the mobile application feature was effective, significantly improving the psychosocial adjustment and self-efficacy of ostomy patients compared to routine care. In the intervention group, there was also a lower incidence of complications when compared to the control group. Because it is easily accessible, it can be used at home by the patient and caregivers.
Oliveira et al. ¹⁸ 2019	To report the experience of undergraduate Nursing students when using an application related to intestinal elimination stoma care	Descriptive Study - Level VII	The technology is a smartphone application about the care of people in the perioperative period of surgeries generating intestinal elimination stomas
Cardoso et al. ¹⁹ 2020	Develop an application program for the prevention and treatment of intestinal peristomal skin complications	Methodological development research study applied in the modality of technological production - Level VI	Mobile application "Dermatitis Peristomal App" assists in the assessment, preventive measures and therapeutic approaches for ostomized patients
Farahani; Dorri; Yousefi ²⁰ - 2020	Produce and validate multimedia educational software for patients with fecal deviation	Experimental, qualitative study, comprising in the sample 10 ostomy patients and 10 specialists working in a hospital - Level VI	It was feasible to develop software based on the educational needs of self-care related to care with the collector device, the stoma, in addition to psychosocial support. This technological resource has been validated by stoma patients and specialists and can be used to educate patients, families and healthcare teams on the advantages over traditional methods.
Oliveira et al. ¹¹ 2020	Integrate the knowledge produced on the use of mobile applications in health care	Integrative literature review - Level V	Mobile applications emerge as a viable alternative, with satisfactory results in relation to their use in health care, as they facilitate access to information, without limits of time and space.
Dantas et al. ²² 2020	It is to map the scientific evidence on the health education practices used by nursing professionals to promote the self-care of patients with colostomy.	Scope review	Resources to carry out health education are increasingly entering nursing, thus contributing to the promotion of self-care, adding value to patients and providing an improvement in the quality of life of those who depend on a collection bag.
Pozebom; Viégas ²¹ 2021	Synthesize scientific production related to digital health in stomas to promote self-care	Integrative literature review - Level V	The six approaches studied can be used simultaneously in individuals with ostomies and can be considered complementary, as they have action in different aspects of the individual's routine, with the final objective being to improve the quality of life of the person with intestinal ostomy.

Source: (Research Data, 2022).

autonomy of subjects, so that they are authors of their health and illness trajectory. When developing autonomy, the person assumes responsibility for decisions related to their health, incorporating actions for self-care.²¹

Regarding the educational process in health, studies indicate that educatio-

nal interventions are essential resources for nurses to use to achieve adherence to patients' self-care.²²

Therefore, the insertion of mobile applications as a tool to promote self-care in ostomy patients for the prevention of complications in the peristomal skin represents a great innovation due to its

benefits in terms of quality, speed, dynamism and safety. It is, therefore, a technological resource with the potential to arouse interest and motivation for continuous learning, which results in greater adherence to the prescribed treatment and to the guidelines of the health team professionals.^{15,17,19,20}

When performing a search for mobile applications in the virtual store for Android (Play Store), at the time of this study, it was found only the existence of a national production 19 called "App Dermatite Peristoma", made available free of charge with the aim of helping nurses to prevent and treat peristomal skin complications.

In an integrative literature review, it was found that mobile technologies provide nurses with the opportunity to strengthen ties with their patients and families and guide them towards self-care, giving them the roles of consultant and advisor, enhancing the expected results, particularly in the follow-up of chronic diseases, in the postoperative period and in rehabilitation. In general, these resources reproduce the information, guidelines and monitoring of health conditions routinely carried out in person through consultation in digital format.

However, most studies (87%) used some qualitative method to evaluate mobile technology during its development or only described the process and stages of development, and were classified as level VI. Surveys that used randomization (13%) aimed to compare participants' perceptions before and after the development and use of mobile technology.¹⁶

Through a randomized clinical trial, the effects of a mobile home care application on the outcomes of stomized patients were investigated. The sample of 203 patients was divided into two groups: 100 in the intervention group who received routine care plus support with the application; and 103 in the control group who received only routine care. The results obtained showed that the incorporation of the mobile application significantly improved the psychosocial adjustment and self-efficacy of patients with stoma, compared to routine care. In the intervention group, there was also a lower incidence of complications. The authors concluded that with the application, nurses offered

a support system to stomized patients after discharge from the hospital, which became extremely efficient, as they began to be guided at their own home without having to go to a health institution, serving as a complement to outpatient treatment. That is, it is possible to assist the patient through the use of technology, reconciling with systematized actions and scientific knowledge.¹⁷

In another study comprising ostomy patients and specialists in the sample, such as nurses, doctors and information technology technologists, working in a hospital organization, it was found that a multimedia program provides patients with simple, portable, understandable, objective and easy-to-use information about stoma care. The authors also observed that the patient's educational needs should consider psychosocial support, thus contemplating content related to the experience of living and dealing with a stoma, in addition to successful self-care experiences; stating, in turn, that the patient, by improving his knowledge and skills, improves his social and psychological adaptation.²⁰

It is worth noting that the incorporation of mobile technology in the area of Nursing is not intended to replace the personal contact between nurse and patient, as it is considered a complementary resource to consultations, providing opportunities for patient empowerment regarding their health condition, allowing the same awareness about its role in their quality of life. Additionally, the daily care offered by mHealth reduces the occurrence of crises in chronic patients, such as those with stomas, since information about changes in their health status can be evaluated in real time, preventing travel and time spent in health units.¹⁶

Mobile applications have an assistance and educational character, functioning as a complement to the verbal communication of professionals to the patient, an information support, of guidance, clarification and prevention of

complications, that is, a resource in the educational process that will contribute to the patient's recovery. Therefore, they need correct content prepared from evidence, as this can contribute to the construction of critical thinking, as well as the adoption of attitudes that minimize the risk of becoming ill and the strengthening of health promotion. As educational strategies, they support the work of nurses in guiding patients and family members in the process of treatment, recovery and self-care.⁴

CONCLUSION

Patients with a stoma, especially recently formed, face many difficulties in adapting to the new condition, thus presenting multiple learning needs. When approaching these patients, the incorporation of the mobile application has the potential to help in the self-management of the collection bag and peristomal skin, adjusting to the necessary changes in their lives, being, therefore, a convenient way to guarantee the continuity of care.

The evidence obtained so far allows us to verify the progress obtained with the incorporation of mobile applications in nursing care practice, as they serve in the generation, transmission and application of knowledge, as well as in the domain of processes and products and in the transformation of empirical use, in order to make it a scientific approach.

However, there is still a gap related to the timid production of studies on mobile applications for use in the care of ostomy patients, which represents a motivating factor for future research that seeks to identify in practice what has been created, used and in what way, as it is known that much has been produced and made available, but is not being portrayed in health journals, thus making it impossible to obtain higher levels of evidence, justified by the descriptive design of most studies. 🐣

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