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Mobile Application in Stoma Care Education: STOMA-M

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Abstract

Colorectal cancers are the third leading cause of cancer-related deaths worldwide. Stoma surgery still remains a surgical treatment and life-saving procedure for colorectal cancers. Stoma care nurses play an important role in ensuring the continuity of care in the process until and after the discharge of patients with a stoma. They can help patients cope with the diagnosis, teach practical skills related to stoma care and provide supportive counselling. However, recent advances in technology, as robotic and laparoscopic procedures shortened hospital stay, patient and their families do not have enough time for stoma care counselling during their stay. In our country, due to the scarcity of the number of stoma care nurses and designated colorectal surgery units, individuals with stoma fail to acquire the necessary information related to stoma care. These patients and relatives have to deal with many problems after being discharged. To fill this gap, Stoma-Mobile (STOMA-M) application is designed to provide a standardized basic stoma care approach to patients and caregivers. In this article, the description, development purpose and the characteristics of STOMA-M application for those who suffer from STOMA-M and their relatives, and the health care professionals will be shared. In this article, the purpose of STOMA-M application, development purpose and characteristics of STOMA-M applications will be discussed. With STOMA-M application, individuals with a stoma will have the necessary information about stoma care, living with stoma and complication management. STOMA-M is intended to be a guide for patients who have undergone stoma surgery, their caregivers, stoma and wound care nurses, physicians and other healthcare professionals.

Keywords: Stoma care, mobile application, STOMA-M

Introduction

Humans are living beings with physical, emotional, social, and intellectual needs. Physiological needs constitute one category of the basic needs of human beings for survival. An intervention to treat a problem impairing normal functions of the body may not only meet the needs of the individual but cause a lifestyle change as well. One such procedure with the potential to lead to a lifestyle change is intestinal stoma creation because of disorders such as cancer, inflammatory bowel disease, or injury.[1]

The word "stoma" is Greek, meaning an opening or a mouth. An intestinal stoma is an artificial opening where a bowel segment is anastomosed to the abdominal wall. A stoma can be created in patients of all age groups, and stomas can be either temporary or permanent. Whereas a permanent stoma is aimed to remain a lifelong structure, a temporary stoma is planned to be closed via another surgical operation after the resolution of the problem that led to stoma creation. Intestinal stomas can be categorized into 2 groups, colostomies and ileostomies. Whereas a colostomy is usually performed by anastomosing the sigmoid, descending, or transverse colon through the abdominal wall, an ileostomy is performed by anastomosing the terminal ileum or the ileum, usually the distal end, through the abdominal wall.[2]

Although intestinal stomas that are created for specific reasons continue to be important surgical and life-saving interventions for patients, such operations are included in the types of surgical procedures that lead to a change in lifestyle affecting the quality of life unfavorably.[3-5] An individual with a stoma may face many physiological, psychological, and sociocultural problems that impair the quality of life of the individual.[3,6] Creating a stoma will lead to psychological and social consequences, resulting in complex and permanent effects on individuals.[4] Patients' lives change with a stoma, and it becomes important for them to cope with this situation.[7] Patients with a stoma have been demonstrated to have higher depression levels than those without a stoma, impaired social relationships,

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and problems with body image, reflecting the unfavorable effects of the stoma on interpersonal relationships and the quality of life.[5] Studies in the literature report that individuals with a stoma suffer from physical problems, including fatigue, frequent leakages of feces, foul odor, gas noise, and changes in bowel habits, and psychological problems, including changes in body perception, decreased self-esteem, impaired sexual functioning, depression, anxiety, adjustment disorders, loneliness, fears, dependence on family members, and feelings of shame.[3,4,7,9] Furthermore, it is reported that individuals tend to limit their lifestyle activities by traveling less frequently and avoiding social interactions because of the stoma.[9] It is accepted that stomal and peristomal skin complications pose unfavorable effects to individuals with ostomies, leading to considerable problems.[10] Nurses have important responsibilities for training and supporting patients with a stoma, who have to deal with such complex problems especially in the postoperative period.[6]

Training Patients with a Stoma

As stated in the following guidelines and position paper, including the Ostomy Care and Management Guidelines published by the Registered Nurses Association of Ontario in 2009; the joint position statement of the American Society of Colon and Rectal Surgeons; and the Wound, Ostomy, and Continence Nurses Society, the importance of training patients with a stoma and their relatives, especially in the preoperative period, is underlined based on the evidence obtained from studies in the literature (Ib: Evidence was obtained from at least one randomized controlled study). The guidelines and the joint statement further recommend that such training should continue in the postoperative period and after the hospital discharge of the patient and that patients and their relatives should be trained to prevent potential stomal and peristomal complications.[10-13]

In the Ostomate Bill of Rights for patients with a stoma, it is stated that the patient has the right to receive counseling services that will enable the patient to understand the benefits of surgery and the reality of living with a stoma. Furthermore, the Ostomate Bill of Rights states that, both in the preoperative and postoperative periods, the patient has the right to receive medical support from medical professionals with experience in inpatient and outpatient settings and to receive support from stoma care nurses.[14]

Today, advances in laparoscopic and robotic surgical techniques have shortened the length of hospital stays. For this reason, training of ostomy patients should start in the preoperative period and should continue in the hospital in the postoperative period.[15,16] Preoperative training should cover the diagnosis and prognosis, the type and effects of the planned operation, discussion of the anatomy and physiology of the gastrointestinal system in a way that the individual will understand, the process of adjusting to daily life, marking of the stoma area, stoma care (demonstration of how to use one-piece and two-piece ostomy appliances), and information to create awareness of potential psychological and sexual issues.[16-18] Postoperative training of patients with a stoma during the hospital stay should be continuous to cover the management of stoma and associated issues including stoma care, the correct use of stoma appliances, prevention of peristomal skin complications, diet, activities of daily life, and psychological support.[2,18,19] Before the hospital discharge, the patient should learn the basics of living with a stoma (e.g., how to empty and replace the bag, how to order supplies, current manufacturers, diet and fluid instructions, potential complications, medications, and management of gas and odor issues).[17-20]

A literature review shows that videos (DVD, CD-ROM) and web-based training methods are used for training patients with a stoma in addition to conventional face-to-face training with supplementary written resources. When compared with conventional patient training methods, online training programs have been demonstrated to be beneficial in improving patients' health knowledge, inducing behavioral changes, and increasing patient satisfaction with clinical nursing care.[5,21-24] Although mobile applications are available for training patients with a stoma, such applications appear to be developed only by companies that supply stoma products, only in the English language, and with limited content.

Mobile Health Applications

Along with the rapid advances in technology, computer and internet use have become necessary tools for everyday life and have gained a new dimension through the introduction of mobile technologies.[25,26] Increased availability of mobile technologies in the health field leads to an increase in the number of mobile applications for health-related training. With easily accessible and portable mobile technologies, patient education can continue outside the hospital. Mobile learning can be defined as a location-independent learning method through the use of mobile technologies providing educational content, benefits of the dynamic services, and communication with others. Mobile learning increases productivity and efficiency of work performance by instantly responding to the user's individual needs.[27] Mobile health applications provide opportunities for individuals to track their health status and access health information whenever and wherever they wish. On the other hand, such applications can help healthcare professionals achieve person-centered care. A review of mobile application markets shows the availability of many applications related to health.[28] Several examples of mobile health applications about vaccination, quitting smoking, dermatology, diabetes, hypertension, medication, and diet and exercise management are available.[28-31] In particular, well-designed mobile health applications that use a language that is understandable for the user can have a significant effect on the health behavior of individuals.

Aim of Developing the Stoma-Mobile Application

The frequent use of laparoscopic and robotic surgery methods today has reduced the length of hospital stays but also limited the time needed for training patients with a stoma and their relatives about stoma care and lifestyle adjustments. Furthermore, pain, nausea, the presence of the stoma, and emotional distress make stoma training difficult in the early postoperative period.[23]

Stoma and wound care nurses have important roles in maintaining the continuity of care for patients with a stoma. Such responsibilities include helping patients cope with the diagnosis, teaching skills related to stoma care, and providing supportive counseling. Because the number of stomatherapy units in our country is inadequate, it becomes difficult for patients with a stoma to find solutions when they have problems. For example, not being able to identify a peristomal skin complication and not knowing which product to use cause the ostomy patient to lose time. In addition, losing time causes deterioration of complications affecting the individual physically, socially, and psychologically. Moreover, patients with a stoma face extra out-of-pocket spending because products used for stoma care are not defined as medical products and are provided in limited quantities.

Based on all these problems, it becomes necessary to ensure continuity of training of patients with a stoma. Thus, mobile health applications have become an important option.

The aim of developing the Stoma-Mobile (STOMA-M) application is to provide information to patients with a stoma and their relatives in

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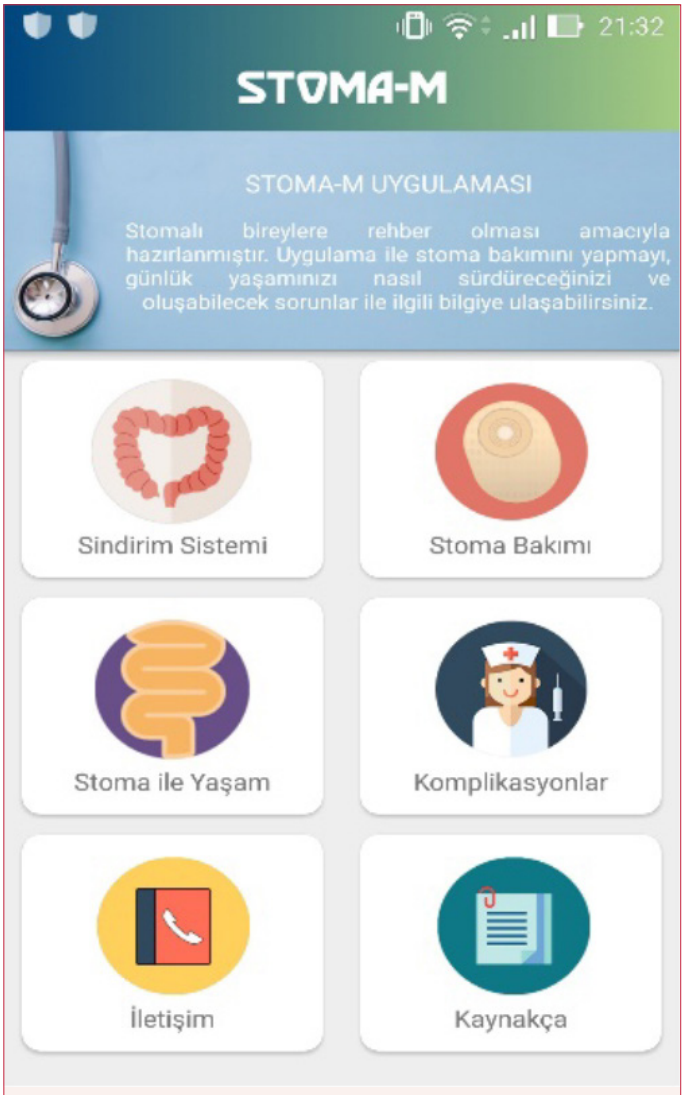


Figure 1. STOMA-M application content

the preoperative period about the definition of a stoma, the reasons for creating a stoma, stoma care, and how to maintain daily life with a stoma. Further goals include identifying stomal and peristomal complications, preventing their occurrence, and treating them when they occur.

Features of the STOMA-M Application

STOMA-M is a free-of-charge application prepared for smartphones with the Android operating system, and it is developed to work offline without the need for an internet connection once it is downloaded.

The STOMA-M application, developed by researchers in light of the literature[2,11,13,15,20,21] includes the following (Figure 1):

1. Animation video explaining the anatomy and physiology of the digestive system (Figure 2),
2. An animation video describing the definition and characteristics of a stoma (ileostomy and colostomy), its type, the location of the anastomosis on the abdominal wall, stool consistency, and peristomal skin (Figure 3),

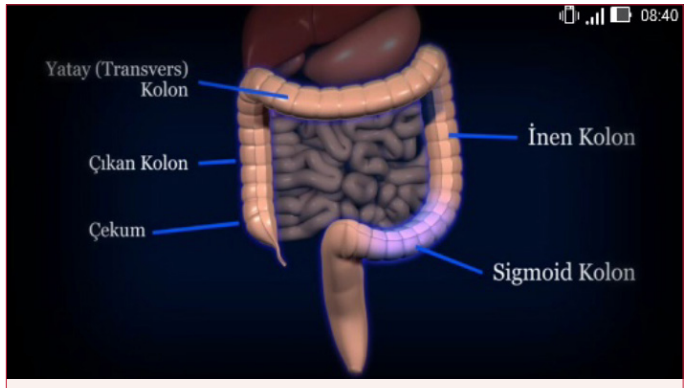


Figure 2. Digestive system anatomy and physiology

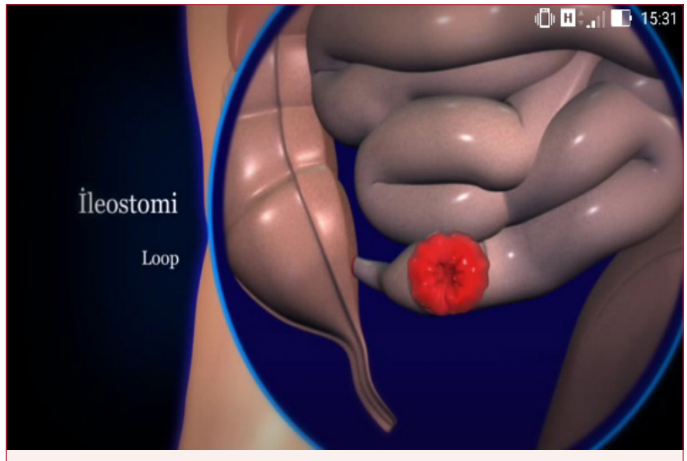


Figure 3. Features of the stoma

3. An animation video explaining stoma care (emptying the bag, removing the adapter, skin care, cutting the adapter, applying the paste, changing the bag, and stoma care time) (Figure 4),
4. Subjects regarding daily life activities of patients with a stoma (diet, problems related to dieting, bathing, sexuality, worship, travel, sports, pregnancy, etc.) (Figure 5), and
5. Descriptions and visuals of stomal and peristomal complications and information about methods to prevent complications and how to take care of them when they occur (Figure 6).

In addition, telephone numbers of stoma care units and telephone numbers of associations that patients with a stoma can benefit from are provided.

Development Process of STOMA-M

The development of the STOMA-M application is supported by Koç Foundation Nursing Support Fund and the stages of the development process are as follows:

1. The animated content of the application was developed by researchers in light of the literature[2,10,11,13,15,18,20,21] and presented to expert opinion. The experts were stoma and wound care nurses, academicians of nursing, and general surgeons and nurses working in the field of colorectal surgery. Opinions of the patients and their relatives were obtained to test the comprehensibility of the application. Animations were revised in line with these views.

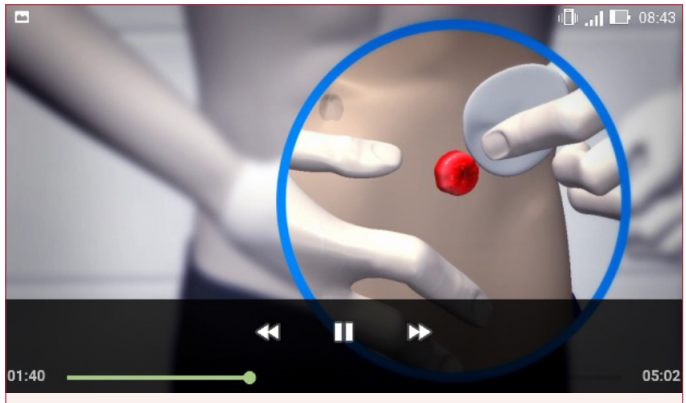


Figure 4. Stoma care

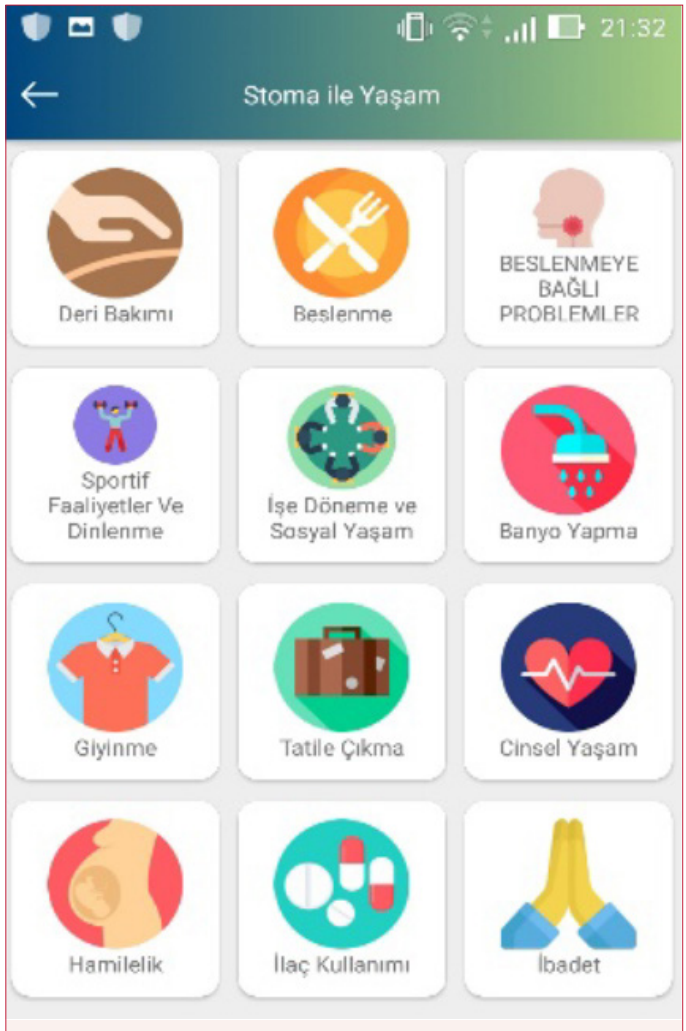


Figure 5. Living with a stoma

2. The sections about living with a stoma and about stomal and peristomal complications were prepared by the researchers in light of the literature[2,10,11,13,15,20] and presented to obtain the opinion of the aforementioned experts. Revisions were performed in line with the expert recommendations.



Figure 6. Stoma and peristomal complications

3. The addresses of the stomatherapy units, where patients with a stoma can receive consultancy in our country, were obtained from the Wound, Ostomy, and Continence Nursing Association.
4. The STOMA-M logo was designed (Figure 7).
5. The application was finalized after obtaining the opinions of experts in the field of information technologies and software.
6. The STOMA-M application was downloaded to a smartphone and tested. Necessary revisions were performed. The finalized STOMA-M application was downloaded to smartphones of patients with a stoma.

Conclusion

It is clear that the STOMA-M application will fill an important gap in training patients and their relatives. It is thought that the application will lead to positive outcomes, such as helping patients with a stoma cope with potential difficulties they may encounter during stoma care, contributing to their independence in self-care, increasing the adjustment of patients to live with a stoma, and reducing the occurrence of



Figure 7. STOMA-M logo

stomal and peristomal skin complications, thus resulting in increased quality of life for patients with a stoma. With the decrease in peristomal skin complications, it is predicted that the health expenditures of patients with a stoma, and consequently the health expenditures of the country, will be reduced. It is thought that this mobile health application will not only support patients with a stoma but also guide healthcare professionals and contribute to closing the shortage of stoma and wound care nurses in some hospitals.

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