






Telephone-based Support in Preventing Stoma and Peristomal Complications: A Review of Literature

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Abstract

A stoma is classified as either permanent or temporary depending on the time of anastomosis and is referred to as a colostomy, ileostomy, or urostomy based on the organ to which it is anastomosed. The creation of a stoma poses many challenges to patients as they adapt to this profound life-changing event that affects fundamental aspects of quality of life. To reduce the risk of stoma and peristomal complications after discharge, telephone-based support (TBS) program includes patient follow-up, counseling, and the benefits of group support activities including information sharing, health education and counseling, symptom management, early detection of problems, reassurance, and high-quality aftercare. This article narrates common stoma and peristomal complications as well as TBS program to support in reducing these complications. Method: This literature review was conducted to summarize empirical evidence relating telephone-based support in preventing stoma and peristomal complications. The terms "telephone-based support" OR "technology-based support" OR "TBS effectiveness" OR "peristomal complications" OR "colostomy" OR "peristomal skin" were used to find all the information. Excel was used to examine data synthesis. Both qualitative and quantitative studies were searched from 2013 to 2022 using PubMed, Ebrary, Elsevier, Science Direct, and Scopus. Out of the 322 publications found after scanning the databases, 32 articles were included that focused on the psychosocial issues and feelings of the patients, their adjustment to the stoma, their quality of life, stoma complications, and the evidence for telephone-based support. The inclusion criteria were (1) types of intervention that focused on telephone follow-up, (2) full text, English, and (3) published in the past 10 years. The information extraction included authors, year, method, objective, participants, intervention, outcome, and result.

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Introduction

A stoma is classified as either permanent or temporary depending on the anastomosis time and is usually referred to as a colostomy, ileostomy, or urostomy depending on the organ to which it is anastomosed [1]. When a stoma is established, patients must overcome several challenges as they learn to adapt to this drastically altering event in their lives in terms of physiological, social, and psychological aspects [2]. Thus, technology-based interventions such as telephone-based support (TBS) can be one of the preferred methods for symptom management, identifying problematic issues that require urgent attention, and delivering medical-quality care to patients living with stoma [3]. Supports provided through TBS can be utilized for patient follow-up, caregiver and patient counseling, and in group support.

The use of telecommunications technology in nursing is commonly labeled as telenursing and interchangeably using the term TBS, according to the International Association of Nurses [4]. In general, TBS refers to the use of phone conversation and information

technology as a provision for care at a distance in which health-care professionals including nurses has the ability to prevent delays in stoma care, shorten the process of resuming a normal life, maintain communications with patients on discharge and thereby achieving the best possible clinical outcome from uninterrupted remote monitoring [5]. This is essential for patients with stoma residing in remote areas having accessibility and logistic issues. The advancement of information technology, including smartphones and mobile applications, has increased people's access to health-care services [6].

There are conflicting results in determining whether stoma has more impact on the QoL or the patients themselves. However, the mere presence of stoma itself imparts a sizable impact on one's lifestyle [7]. Research and works directed to studying QoL have become increasingly important since the late 60's [8] and several studies have documented low level of QoL in the presence of a stoma [6], [9], [10]. The creation of stoma has significant impact on QoL through physical, psychological, and social disability [10]. Ergo, living with a stoma can be challenging as it not only lead to a change in the body image but heavily influences the physical, mental, emotional, and social aspects of the

patients [11]. Not to mention, stoma often rendered the affected individuals perceiving abnormally with their own selves, making it harder for self-care on their physical, psychological, social, and spiritual qualities, leading to a decrease in their QoL [3]. As a result, when complications occur and accumulate with time, the degree of social restrictions may lead to severe detrimental effect on the QoL and worse, social isolation, and withdrawal [7].

Stoma Complications

Patients with newly formed stoma commonly experience issues including post-operative complications. More recent studies have shown that the prevalence rate of stoma complications remain widely distributed, ranging from 10% to 82% [7]. Stoma complications can be categorized into early and late, depending on the time duration. Early complications present immediately after surgery or within 30 days of surgery and late complications appear after this period or occur after 30 days [7], [12].

Frequently occurring early complications include edema, bleeding, ischemia of the stoma, and mucocutaneous separation [13]. On the other hand, the common late complications are skin irritation, stoma prolapse, stenosis, and parastomal hernia [14]. Less common but threatening complications might also occur such as infection and fistula formations [15]. Approximately 20–40% of individuals encounter difficulties after formation of an intestinal stoma and 70% of those with these complications do experience them within a year of colostomy surgery, with some of complications are at risk to last a lifetime [3]. Regular follow-up should also be considered as a strategy to prevent and manage peristomal complications [3], [16]. The management typically starts with systemic steroids as the first-line therapy to control any present inflammatory process. Another treatment option is combining local and other factors, such as appropriate ostomy devices and proper wound dressings to minimize irritation, leakage, and pressure-induced ischemia can improve healing [17].

Peristomal Skin Complications

Peristomal skin issues are frequently described as portraying skin swelling, abrasion, or damage develop between third and fourth layers of the skin's surface surrounding the abdominal stoma or skin incision [1]. This can be caused by various factors including mechanical, chemical, infectious, and systemic health conditions [1]. Peristomal skin complications can be both short- and long-term problems and the most

common early complications include irritant dermatitis, mechanical injury, and candidiasis [13]. According to Semi et al., (2022), majority of patients (63%) had peristomal skin complications from day 21 to 40 after colostomy was performed while the incidence rate of peristomal skin complications may be nearly as high as 45% [13]. Due to the difficulties of fitting stoma appliances around body folds, obese people are particularly at risk for cutaneous issues, and complications are more frequently encountered in poorly designed and poorly positioned stomas [7]. Moreover, peristomal skin issues may result in pouch leakage, pain, problem on adjustment of stoma, greater needs for equipment expenditures, and more expensive post-operative care leading to a lower quality of life (QoL) [13].

Preventive Measures of Stoma and Peristomal Complications

Having a stoma can thus be difficult for some people and this can be worsened when stoma and peristomal complications occurred. The presence of such complications might be due to the lack of knowledge on appropriate stoma care and patients' educational program; hence, stoma education is highly advocated [18]. One of the preventative measures of stoma and peristomal complications is through in-depth explanations and counseling by experts to patients and their caregivers before the operation of stomata, such as explaining on the part of the intestine that had to be removed and the consequences of organ removal. Illustrations of stoma further help patients on the function of stoma care equipment [19].

There are several risk factors that predispose patients for developing stomal and peristomal complications and these must be emphasized to the patients and should incorporate disease-specific issues such as immunocompromised state, poor nutritional levels and metabolic diseases that hinders early recovery from the procedure [7]. In general, nurses are the designated health-care professionals responsible to provide patient education on self-care of the stoma and they are competent and proficient in managing stoma and reducing stoma complications at pre- and post-operative periods [18]. In addition, it is common for both physicians and nurses to be involved in delivering self-care management program before discharge for both patients and caregivers. This program incorporates advises on diet and lifestyle, stoma care, replacement of the ostomy bag, and signs to watch out for as precautions for monitoring presence of stoma and peristomal complications. The majority of stoma patients do receive training in the hospital on how to take care of their stoma and develop independence with the self-care. However, for a variety of reasons, some people cannot take care of their stomas on their own.

Therefore, to ensure uninterrupted patients' education, one of the best approaches is to continue providing support and education to patients beyond hospital discharge through TBS by nurses with expertise in stoma care. This method is proven to ensure that patients receive adequate understanding on the care of their stoma at home setting leading to a positive effect on their QoL [20]. Furthermore, TBS has the benefits of detecting early signs and symptoms of stoma and peristomal complications, which affirmed that adequate education on stoma care as well as proper nursing education would lead to a positive impact on minimizing presence of stoma and peristomal complications [18].

Delivering Telephone-based Support

Exponential growth is seen in the use of mobile technologies and IoT (Internet of Things) applications toward advancing the delivery of health-care modality [21]. In contrast to in-person consultations or remote intervention techniques in the absence of experts such as searching for information through website, telephone is viewed as an appealing medium for delivering health-related interventions due to its extensive use, reliability for connectivity and compulsory needs for ensuring operational aspect by the experts themselves [22]. These are evident through the advances in mobile telecommunication, much improved internet coverage and affordability leading to a significant increase in the use of smartphone for medicine and healthcare [23].

TBS applications have been demonstrated to play a significant role in delivering much needed patient management, from assessment to treatment and follow-up care [24]. The previous studies have demonstrated that nurse-led telephone follow-up (TFU) is becoming a common approach in providing support to patients beyond hospital discharge [5]. For peristomal case, a stoma specialist nurse may facilitate through several ways, including telephone, at outpatient setting, or during home visits.

There are various methods available for health-care professionals to assist patients in overcoming stoma-related problems [20]. Studies have shown potential benefits of using mobile applications for self-care management in adjunct with other beneficial interventions. A study by Mohamed and Fashafsheh [23] has shown that educational intervention and telephone follow-up program improved the mean scores of knowledge, self-care performance, and quality of life (QOL). A follow-up care at home through mobile applications can effectively improve the psychosocial adjustment level, self-efficacy scale, and other related outcomes of stoma patients [6]. Furthermore, mobile applications are proven to be cost-effective and convenient [25]. Another study has

portrayed the feasibility of following up patients using mobile application instead of in-person visits within the first 30 days following ambulatory care [6].

Another perspective to be considered as added values through TBS consultations is the ability for patients to recall and fully utilize received instruction on stoma care and reinforcing healthy behaviors toward improved clinical outcomes [10]. As a result, TBS is becoming a common approach to provide support to patients after hospital discharge, used as follow-up care, and the potential approach to help patients in adjusting and adapting to their new life [5].

Telephone-based Support for Preventing Stoma and Peristomal Complications

TBS is increasingly preferred by nurses to support patients after they have been discharged from stoma surgery. Due to the lacking in number of expert nurses and subsequent inadequacy to deliver nursing care services physically in community, the majority of hospitals in mainland China could only offer minimal nursing follow-ups after patients are discharged with remote monitoring using TBS [5]. For instance, there would be a weekly-basis TBS consultation sessions in the 1st month following discharge and these are concentrated on addressing stoma issues, promoting open communication, and imparting direct instructions on stoma care [6]. Sessions in subsequent month are held to share successful stoma care techniques, encourage stoma acceptance, and boost patients' self-efficacy in managing their stoma [6].

Therefore, this regular TBS sessions are likely to lessen uncomfortable perceptions from stoma procedure and facilitate patients in getting back to their regular lives. Further usefulness with TBS support is that patients could receive much specialized urgent care and guidance from expert stoma especially if TBS is implemented through mobile application [20]. A cross-sectional study has shown that around 90% of cancer patients in the mainland of China preferred using the telephone for nursing follow-up because it enables them to speak with the experts directly and receiving prompt responds as ways to access nursing care in matter of minutes [26]. Other than that, the TFU intervention reduces consultation time in the hospital and saves costs [3].

Future Work

A total of 32 articles were included in this study, mainly on the effect of telephone-based

support, telephone follow-up, quality of life, stoma complications, and the effect of stoma care education, consisting of quantitative and qualitative articles; however, randomized controlled studies with larger sample sizes than this are more likely to be able to objectively demonstrate the best method for providing care to patients with a stoma. Furthermore, particular emphasis on nursing research in ostomy care should be the way forward. Until recently, there has been little research on telephone consultations for patients with stoma. Scarcity on existing literature on the quality of TBS program for reducing stoma and peristomal complications as well as the impact on improving the QoL with this specific preventive measure should highlight the needs to do exploratory studies in these areas. It is necessary to conduct research in evaluating potential nursing approaches for reducing these complications and whether these approaches are feasible to be delivered through TBS program. Course of stoma care programs, therefore, will enhance nurses' knowledge stoma assessment and raise their awareness of the importance of telephone follow-up.

Conclusion

Even though the optimal method for TBS program is yet to be determined, regular telephone follow-up consultations and home visits by expert nurses in stoma care are beneficial to address various stoma and peristomal complications while improving patients' confidence and ability participate in daily activities and QoL [5]. Telephone call by nurses is recommended in fulfilling patients' follow-ups as it delivers fast and reliable communication method to encourage discussion on patients' problems as well as permitting nurses to offer necessary solutions or treatments [5]. Coupling nursing services through TBS program are a useful approach for offering nurse-led verbal consultations and treatments, and demonstrated to be acceptable, proper, and more efficient [6]. Thus, using conventional calls to provide information, emotional support, and an assessment of unmet requirements, the use of smartphones for TBS has boosted the chances for persons living in rural areas to receive high-quality nursing care [3].

References

1. Salvadalena G, Colwell JC, Skountrianos G, Pittman J. lessons learned about peristomal skin complications: Secondary analysis of the ADVOCATE trial. *J Wound Ostomy Cont Nurs*. 2020;47(4):357-63. <https://doi.org/10.1097/WON.0000000000000666>
PMid:32618958
2. Ayaz-Alkaya S. Overview of psychosocial problems in individuals with stoma: A review of literature. *Int Wound J*. 2019;16(1):243-9. <https://doi.org/10.1111/iwj.13018>
PMid:30392194
3. Semi H, Sambari SS, Syam Y, Irwan AM. Effect of follow-up telephone by enterostomal nurses on patients with permanent colostomy: A systematic review. *Bangladesh J Med Sci*. 2022;21(1):54-66. <https://doi.org/10.3329/bjms.v21i1.56327>
4. Dehkordi SM, Noorian K. Effect of multimedia education based on the family-centered approach and telephone follow-up (telenursing) on the quality of life of patients with myocardial infarction after discharge. *J Clin Nurs Midwifery*. 2020;8(4):500-10. <https://doi.org/78.39.35.47/article-1-1145-en.html>
5. Zheng MC, Zhang JE, Qin HY, Fang YJ, Wu XJ. Telephone follow-up for patients returning home with colostomies: Views and experiences of patients and enterostomal nurses. *Eur J Oncol Nurs*. 2013;17(2):184-9. <https://doi.org/10.1016/j.ejon.2012.05.006>
PMid:22748946
6. Wang QQ, Zhao J, Huo XR, Wu L, Yang LF, Li JY, et al. Effects of a home care mobile app on the outcomes of discharged patients with a stoma: A randomised controlled trial. *J Clin Nurs*. 2018;27(19-20):3592-602. <https://doi.org/10.1111/jocn.14515>
PMid:29775491
7. Kwiatt M, Kawata M. Avoidance and management of stomal complications. *Clin Colon Rectal Surg*. 2013;26(2):112-21. <https://doi.org/10.1055/s-0033-1348050>
PMid:24436659
8. Renzaho AM, Kamara JK, Kamanga G. The Ugandan youth quality of life index: Assessing the relevance of incorporating perceived importance into the quality of life measure and factors associated with the quality of life among youth in slum areas of Kampala, Uganda. *Glob Health Action*. 2016;9:31362. <https://doi.org/10.3402/gha.v9.31362>
PMid:27427302
9. Ssewanyana Y, Ssekitooleko B, Suuna B, Bua E, Wadeya J, Makumbi TK, et al. Quality of life of adult individuals with intestinal stomas in Uganda: A cross sectional study. *Afr Health Sci*. 2021;21(1):427-36. <https://doi.org/10.4314/ahs.v21i1.53>
PMid:34394325
10. Javanmardifard S, Ghodsbin F, Kaviani MJ, Jahanbin I. The effect of telenursing on self-efficacy in patients with non-alcoholic fatty liver disease: A randomized controlled clinical trial. *Gastroenterol Hepatol Bed Bench*. 2017;10(4):263-71.
PMid:29379590
11. Zewude WC, Derese T, Suga Y, Teklewold B. Quality of life in patients living with stoma. *Ethiop J Health Sci*. 2021;31(5):993-1000. <https://doi.org/10.4314/ejhs.v31i5.11>
PMid:35221616
12. De Miguel Velasco M, Escovar FJ, Calvo AP. Current status of the prevention and treatment of stoma complications. A narrative review. *Cir Esp*. 2014;92(3):149-56. <https://doi.org/10.1016/j.ciresp.2013.09.011>
PMid:24411562
13. Stelton S. CE: Stoma and peristomal skin care: A clinical review. *Am J Nurs*. 2019;119(6):38-45. <https://doi.org/10.1097/01.NAJ.0000559781.86311.64>
PMid:31135430
14. Escalante R, Siso L, Mendoza S. Complication of ostomies. *Lith Surg*. 2016;15(1):11-3. <http://dx.doi.org/10.15388/LietChirur.2015.4.9201>
15. Kabir SA, Kabir SI, Smo EA. Indications and Complications of Intestinal Stomas. *Core Surg J*. 2014;4(1):12
16. Lindholm E, Persson E, Carlsson E, Hallén AM, Fingren J, Berndtsson I. Ostomy-related complications after emergent

- abdominal surgery: A 2-year follow-up study. *J Wound Ostomy Continence Nurs.* 2013;40(6):603-10. <https://doi.org/10.1097/WON.0b013e3182a9a7d9>
PMid:24108321
17. Almarzooq BA, Al Humaidi YA, Alshufut AA, Al-Amyateem AA, Neazy SA, Al Alhadlaq, *et al.* An overview in the management of stoma and care of patients. *Arch Pharm Pract.* 2020;11(4):55-9.
18. Alenezi AN, Mansour EA. Impact of stoma care education in minimizing the incidence of stoma skin complications. *Bahrain Med Bull.* 2016;38(3):151-3. <https://doi.org/10.12816/0047489>
19. Forsmo HM, Pfeffer F, Rasdala A, Sintonen H, Korner H, Erichsen C. Pre- and postoperative stoma education and guidance within an enhanced recovery after surgery (ERAS) programme reduces length of hospital stay in colorectal surgery. *Int J Surg.* 2016;36(Pt A):121-6. <https://doi.org/10.1016/j.ijssu.2016.10.031>
PMid:27780772
20. Burch J. Optimal support systems for patients with stomas-an opinion piece. *Nurs Res Rev.* 2014;2014:55-64. <https://doi.org/10.2147/NRR.S36676>
21. Sousa CS, Turrini RNT. Development of an educational mobile application for patients submitted to orthognathic surgery. *Rev Lat Am Enfermagem.* 2019;27:e3143. <https://doi.org/10.1590/1518-8345.2904.3143>
PMid:31340340
22. Wang Y, Xiao LD, Yu Y, Huang R, You H, Liu M. An individualized telephone-based care support program for rural family caregivers of people with dementia: Study protocol for a cluster randomized controlled trial. *BMC Geriatr.* 2021;21(1):629. <https://doi.org/10.1186/s12877-021-02575-2>
PMid:34736394
23. Patel NG, Rozen WM, Marsh D, Chow WT, Vickers T, Khan L, *et al.* Modern use of smartphone applications in the perioperative management in microsurgical breast reconstruction. *Gland Surg.* 2016;5(2):150-7. <https://doi.org/10.3978/j.issn.2227-684X.2016.02.02>
PMid:27047783
24. Panda N, Solsky I, Huang EJ, Lipsitz S, Pradarelli JC, Delisle M, *et al.* Using smartphones to capture novel recovery metrics after cancer surgery. *JAMA Surg.* 2020;155(2):123-9. <https://doi.org/10.1001/jamasurg.2019.4702>
PMid:31657854
25. Fukuoka Y, Gay CL, Joiner KL, Vittinghoff E. A novel diabetes prevention intervention using a mobile app: A randomized controlled trial with overweight adults at risk. *Am J Prev Med.* 2015;49(2):223-37. <https://doi.org/10.1016/j.amepre.2015.01.003>
PMid:26033349
26. Young JM, Butow PN, Walsh J, Durcinoska I, Dobbins TA, Rodwell L, *et al.* Multicenter randomized trial of centralized nurse-led telephone-based care coordination to improve outcomes after surgical resection for colorectal cancer: The CONNECT intervention. *J Clin Oncol.* 2013;31(28):3585-91.