

# Stressors Relating to Patient Psychological Health Following Stoma Surgery: An Integrated Literature Review

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Despite advancement in surgical techniques and medical treatments, for some patients, stoma surgery is unavoidable for colorectal-related conditions, including colorectal cancer. Manderson (2005) estimated that at least 1 of every 1,000 people in developed countries requires a stoma following surgery for colorectal-related conditions. Stoma, also known as ostomy, is an artificial opening created on the abdomen to provide an alternative route for elimination (Manderson, 2005). A colostomy is formed when the colon is brought out of the body and sited at the lower left abdomen, while an ileostomy is sited at the lower right abdomen (Dorman, 2009; Williams, 2008). Common reasons for colostomy or ileostomy surgery include colorectal cancer, diverticular disease, intestinal obstruction, Crohn's disease, ulcerative colitis, and familial adenomatous polyposis (Fulham, 2008; Williams, 2008). Colorectal cancer is the third most common cancer in the world, with an estimated 1.23 million people diagnosed per year worldwide (Ferlay et al., 2010). The American Cancer Society (2012) estimated that, per year, 143,460 individuals in the United States are diagnosed with colorectal cancer and 51,690 die from the disease. Risk factors for colorectal cancer include older age, family history, history of inflammatory bowel disease, and polyps (Smeltzer, Bare, Hinkle, & Cheever, 2008).

Stress is a multidimensional concept that consists of physiologic, psychological, and social aspects (Solowiej, Mason, & Upton, 2009). Stress occurs when an individual appraises a certain situation as a threat that exceeds his or her ability to cope (Lazarus & Folkman, 1984). Stoma surgery often induces a series of physical and psychological stresses, leading to maladjustment and poorer health outcomes (Broadbent, Petrie, Alley, & Booth, 2003; Upton & Solowiej, 2010; Von Ah, Kang, & Carpenter, 2007). Common stoma-related

**Purpose/Objectives:** To summarize empirical evidence relating to stressors that may affect patients' psychosocial health following colostomy or ileostomy surgery during hospitalization and after discharge.

**Data Sources:** An extensive search was performed on the CINAHL®, Cochrane Library, PubMed, PsycINFO, Scopus, Science Direct, and Web of Science electronic databases.

**Data Synthesis:** Eight articles were included with three qualitative and five quantitative research designs. Most studies were conducted in Western nations with one other in Taiwan. Following colostomy or ileostomy surgery, common stressors reported by patients during hospitalization included stoma formation, diagnosis of cancer, and preparation for self-care. After discharge, stressors that patients experienced encompassed adapting to body changes, altered sexuality, and impact on social life and activities.

**Conclusions:** This review suggests that patients with stomas experience various stressors during hospitalization and after discharge. Additional research is needed for better understanding of patient postoperative experiences to facilitate the provision of appropriate nursing interventions to the stressors.

**Implications for Nursing:** To help patients deal with stressors following stoma surgery, nurses may provide pre- and postoperative education regarding the treatment and recovery process and encourage patient self-care. Following discharge, nurses may provide long-term ongoing counseling and support, build social networks among patients with stomas, and implement home visit programs.

**Knowledge Translation:** Stoma surgery negatively affects patients' physical, psychological, social, and sexual health. Postoperative education programs in clinical settings mostly focus on physical health and underemphasize psychological issues. More pre- and postoperative education programs are needed to help patients cope with stoma stressors.

stressors include altered body image, the loss of body function, and perceived self-care difficulties (Persson & Hellström, 2002). In addition, stress associated with the diagnosis of cancer also is linked to causing

psychological disturbance in these patients (Anderson, Engström, & Söderberg, 2010; Chao, Tsai, Livneh, Lee, & Hsieh, 2010). These physical and psychological stressors often continue to affect patients after their discharge, impairing their daily functioning and quality of life (Cotrim & Pereira, 2008; Kilic, Taycan, Belli, & Ozmen, 2007; Manderson, 2005; Sharpe, Patel, & Clarke, 2011).

Limited integrated knowledge exists concerning stressors in patients with stomas. This review aimed to summarize and synthesize empirical evidence concerning physical and psychosocial stressors that may affect patients' psychosocial health following colostomy or ileostomy surgery during hospitalization and after discharge. Findings may raise nurses' awareness of the importance of patients' psychological health during postsurgical recovery. This may help promote the provision of psychological interventions, leading to more holistic nursing care.

## Methods

A comprehensive systematic search was conducted in CINAHL®, Cochrane Library, PubMed, PsycINFO, Scopus, Science Direct, and Web of Science for published literature. Search terms included *stoma*, *ostomy*, *colostomy*, *ileostomy*, *psychosocial factors*, *psychological distress*, *stress*, and *colorectal cancer*. The search terms were combined in different arrangements to ensure a more comprehensive search. Inclusion criteria for this review were primary research articles published in English from January 2000 to January 2012 that examined stressors among patients following stoma surgery and applied qualitative, quantitative, or mixed methodology. As psychological distress may vary among patients with stoma related to different age groups, the authors excluded articles whose participants were younger than age 18 years undergoing colostomy or ileostomy surgery. Articles involving participants with stoma, but whose data could not be separated from other sample populations, also were excluded.

Studies were assessed using instruments devised by the Joanna Briggs Institute (JBI, 2011). The JBI Qualitative Assessment and Review Instrument (QARI) is a 10-item checklist that comprises four response alternatives ("yes," "no," "unclear," and "not applicable") used for the review of qualitative studies. The QARI helps to determine the nature and appropriateness of studies in its methodologic approach, methods, and representations of study participants. The JBI Meta-Analysis of Statistics Assessment and Review Instrument (MAStARI) for comparable cohort or case control studies is used to review the methodologic quality and potential for bias in quantitative studies, specifically their study design, conduct, and analysis. The MAStARI contains

nine items with four response alternatives ("yes," "no," "unclear," and "not applicable") for each statement.

## Results

The online literature searches generated a total of 1,333 titles, but 1,269 were excluded as they were either biomedical research (using only physically related outcomes) ( $n = 937$ ) or clinical reviews ( $n = 215$ ) for professional development that did not explore patients experiences. In addition, 117 duplicate articles were omitted. The authors then reviewed the remaining 64 abstracts and excluded 40 studies that did not meet eligibility criteria. Subsequently, 24 full-text articles were retrieved and reviewed. Articles exploring patients with colorectal cancer without stoma creation ( $n = 10$ ), comparing levels of psychological distress ( $n = 3$ ), or exploring coping strategies of stoma self-care ( $n = 3$ ) were excluded. Eight articles were included that illustrated the stressors affecting patient's psychological health following colostomy or ileostomy surgery. Findings from the included articles were grouped and illustrated in different themes.

Among the eight included studies, three adopted qualitative research methods and five used quantitative designs. Most studies were conducted in Western countries except for one from Asia (Taiwan). Sample sizes of qualitative designs ranged from 5–32, whereas those of quantitative designs ranged from 60–153. Among qualitative studies, participant postoperative recovery experiences were elicited via one-on-one interviews, whereas quantitative research used self-reported questionnaires to collect data. Information relating to qualitative and quantitative studies is summarized in Tables 1 and 2, respectively.

## Methodologic Quality

Regarding qualitative studies, all three studies presented their findings together with participant raw data, adequately addressed cultural contexts, and properly interpreted study findings. However, two studies did not clearly provide the philosophical foundation and methodology used to guide their studies. Quality assessment of quantitative studies is reported in Table 3. All five studies clearly described inclusion and exclusion criteria of study participants, sufficiently reported sample demographic data, used appropriate statistics to analyze data, and selected standardized measurements for study variables. Although measurements were self-reported questionnaires (i.e., not objective criteria or measures), they were deemed appropriate for psychological variables (such as depression, anxiety, and quality of life). However, findings from the literature review should be interpreted with caution given that some methodologic limitations exist. All studies used convenience sampling,

**Table 1. Summary of Qualitative Studies**

Study	Study Aim	Participants	Data Collection	Design and Data Analyses	Themes
Andersson et al., 2010	To describe women's experiences of living with a colostomy after rectal cancer surgery	A purposive sample of working women aged 60–65 years following colostomy surgery for rectal cancer (N = 5)	1–6 years after surgery	Underpinning methodology not stated Unstructured, one-on-one interviews Thematic data analysis	Insecurity about life (cancer is frightening; feeling restricted by the colostomy) A bridge to life (a chance to survive, being able to work again, receiving good information)
Manderson, 2005	To explore how people with permanent continence problems negotiate their sexuality around their bodily unreliability	English-speaking, Australian-born, or immigrants aged 24–82 years. Their primary diagnosis was not stated (N = 32).	Six months to 42 years after stoma surgery	Methodology unclear Unstructured, one-on-one interviews (n = 18), and open-ended questionnaires (n = 14) Thematic analysis	Three themes: adapting to change, disguise and discomfort, and sex and sexiness
Persson & Hellström, 2002	To explore patient experiences in the early weeks after recovery from stoma surgery	Patients aged 44–67 years ( $\bar{X}$ = 53) with colostomy, ileostomy, or urostomy. Diagnoses include ulcerative colitis, bladder cancer, rectal cancer, rectovaginal fistula, and diverticulitis (N = 9).	6–12 weeks after surgery	Phenomenology Semistructured, one-on-one, open-ended interviews Thematic analysis	Seven themes: alienation from the body, altered body image, influences on sexual life, uncertainty, influences on social life, influences on sports and leisure activities, and physical problems related to stoma

which increased the risk for selection bias and might limit generalizability of results. In addition, none of the studies explicitly discussed confounding variables and methods to manage them. As such, internal validity of included studies could be compromised. Only one study (Sharpe et al., 2011) adopted a longitudinal research design, whereas others used a cross-sectional design that did not provide strong evidence to support causal relationships among study variables.

## Stressors Among Patients

Patients often had stressful experiences following colostomy or ileostomy surgery (Borwell, 2009b). Common reported stressors can be classified as stoma formation, diagnosis of cancer, and preparation for self-care.

### Stoma Formation

Patients experienced altered body image related to the loss of body parts and functions following stoma surgery. Body image refers to the patient perceptions of his or her own body and normal functions (Persson & Hellström, 2002). Patients often see stoma surgery as a physical threat to their body integrity (Black, 2004). A phenomenologic study conducted to explore the experiences of nine Swedish men and women identified several issues related to the stoma 6–12 weeks after their surgery (Persson & Hellström, 2002). Participants were

asked to reflect on the immediate experiences after the surgery. Seven themes were drawn from the open-ended interviews, which include alienation from the body, altered body image, influences on sexual life, uncertainty, influences on social life, influences on sports and leisure activities, and physical problems (Persson & Hellström, 2002). All the participants described feelings of disgust and shock after seeing their stoma for the first time (Persson & Hellström, 2002). Some participants had decreased self-esteem when describing the feelings of alienation from their bodies (Persson & Hellström, 2002).

### Diagnosis of Cancer

Patients with a colorectal cancer diagnosis commonly need a colostomy (Simmons, Smith, Bobb, & Liles, 2007). In addition to adjusting to a colostomy, the patient also needs to accept the diagnosis of cancer, which may lead to psychological distress (Fulham, 2008). A qualitative study of five Swedish women aged 60–65 years, living with colostomy following rectal cancer surgery (Andersson et al., 2010), revealed two common themes: insecurity about life and a bridge to life. Regarding the former theme, women described their sadness and fear when the cancer diagnosis was revealed, concerns that cancer would recur after surgery, and feelings that their lives would be restricted by the colostomy (Andersson et al., 2010). The latter theme (bridge of life) delineated how women accepted life with the colostomy as a chance to

**Table 2. Summary of Quantitative Studies**

Study	Study Aims	Study Design	Sample	Data Collection	Measurements	Findings
Chao et al., 2010	To examine acceptance of disability among patients with colorectal cancer and a relationship to other disease-related factors	Cross-sectional, correlational study	Purposive sampling of 110 patients with a mean age of 60.64 years. The mean AOD score was 186.74, indicating a moderate level of acceptance of disability.	Not stated	Linkowski's AOD scale	Regression analyses showed that patients with shorter disease duration, stoma, lower educational level, and classified as Duke C1 stage or greater reported lower levels of acceptance. These variables accounted for 25% of the total variance.
Cotrim & Pereira, 2008	To identify and assess the impact of colorectal cancer on patients and their families	Multicenter, cross-sectional, correlational study	Convenience sample of patients aged 27–88 years (N = 153). Sixty-seven percent had colon cancer, 33% rectal cancer, and 30% underwent ostomy surgery. A total of 96 caregivers were sampled, too.	6–8 months after surgery	HADS	Patients with a stoma had significantly higher depression and anxiety levels than patients without a stoma. Patients who had a stoma reported lower overall quality of life, lower body image, poorer health-related quality of life, and poor social activity compared to patients without a stoma.
Kilic et al., 2007	To investigate the effects of permanent ostomy on body image, sexual functioning, self-esteem, and marital adjustment	Cross-sectional, correlational study. Control group consisted of 20 age- and gender-matched healthy volunteers	Patients (N = 60) underwent permanent ileostomy or colostomy surgery at least one month prior. The mean age in the healthy control group (n = 20) was 44.15 years (SD = 11.54). The mean age in the ostomy group (n = 40) was 46.3 years (SD = 11.74).	Mean elapsed time of 33 months (SD = 59.95) since ostomy surgery	GRISS, BIS, RSES, and DAS	BIS, RSES, and DAS scores were higher in patients with a permanent ostomy compared to controls, indicating more ostomy-related disturbance.
McKenzie et al., 2006	To evaluate the relationship between colostomy pouch change and disposal practices and patient psychological well-being	Multicenter, cross-sectional, correlational study	Convenience sampling of participants aged 18–84 years with colostomies (n = 86). Diagnoses included colorectal cancer, diverticular disease, inflammatory bowel disease, functional bowel disorders, and other conditions.	1–4 months after surgery	HADS and the Psychological Adjustment to Illness Scale	Only 25% of patients found disposal of used appliances the most difficult part of their pouch change and disposal routine. Half felt that their body was out of their control, and 33% reported avoiding social and leisure activities.
Sharpe et al., 2011	To investigate the effect of having a stoma on body image in patients with colorectal cancer and to determine whether disturbances in body image predicted distress	Multicenter, longitudinal, comparative study	Adult patients (N = 79) with a diagnosis of stage A–D colorectal cancer. At baseline, patients with stoma (n = 34) had a mean age of 65.52 years and those without stoma (n = 65) had a mean age of 66.17 years. At follow-up, patients with stoma (n = 25) had a mean age of 62.21 and without stoma (n = 54) had a mean age of 67.3.	For time 1, within nine weeks after surgery; for time 2, six months after surgery	HADS and the distress thermometer	Patients who received a stoma had poorer body image, which worsened over time. Body image was a significant predictor for anxiety, depression, and distress at baseline; and anxiety and distress at the six-month follow-up assessment.

AOD—Acceptance of Disability; BIS—Body Image Scale; DAS—Dyadic Adjustment Scale; GRISS—Golombok Rust Inventory of Sexual Satisfaction; HADS—Hospital Anxiety and Depression Scale; RSES—Rosenberg Self-Esteem Scale

survive and how good it felt to return to work (Anderson et al., 2010).

Links among the duration of cancer, stage of cancer, and psychological health have been noted. A cross-sectional correlational study was conducted on 110 patients with colorectal cancer in Taiwan to investigate the relationship between acceptance of disability (AOD) and other related disease factors (Chao, Tsai, Livneh, Lee, & Hsieh, 2010). The AOD scale was used to assess the patient's psychosocial adjustment to the disability, and higher scores represented greater AOD (Chao et al., 2010). The researchers found that lower AOD scores were correlated with shorter disease duration (Chao et al., 2010). This meant that the newly diagnosed patient had poorer adjustment and a higher risk of suffering from psychological dysfunction. Conversely, patients with longer disease duration may have adapted to the disease and its complications, resulting in higher levels of acceptance (Chao et al., 2010). The study also found that patients who had a cancer stage of Duke C1 or higher had poorer acceptance (Chao et al., 2010). Duke C1 also is known as stage IIIA for colon cancer, where the tumor is limited to the bowel wall with positive nodes (Smeltzer et al., 2008). Patients with advanced cancer may require more comprehensive treatments that affect their body image to a greater extent, leading to poorer acceptance (Chao et al., 2010). Therefore, nurses may need to pay more attention to patients who were recently diagnosed with advanced cancer.

### Preparation for Self-Care

Because most patients are first-time ostomates, many do not have prior experience of a stoma. Before discharge, the priority of postoperative education is to prepare patients for stoma self-care. The need to acquire all practical skills for stoma care within the short period of hospitalization may lead to psychological distress among patients (Persson & Hellström, 2002). Practical skills include learning that the pouch change requires intricate skills such as cutting the pouch to fit the stoma, aligning the pouch properly with the stoma, and applying the pouch to avoid creases and leakages. In addition to the pouch change, patients also were expected to learn to clean their stoma, identify stoma complications, and understand lifestyle changes such as adopting a low-residue diet and avoiding lifting heavy objects. The uncertainty of whether they could manage their stoma independently caused fear, insecurity, and anxiety among these patients (Readding, 2005). Therefore, preparation for discharge was considered a stressful event for many patients, and psychological support should be provided alongside postoperative education (Fulham, 2008).

### Stressors After Hospital Discharge

Given the amount of stress that patients encounter after their operation, stress likely persists or increases

after discharge. After reviewing relevant articles, the authors identified three major themes that may increase patient psychological burden after discharge. These themes are adapting to body changes, altered sexuality, and impact on social life and activities.

**Adapting to body changes:** Patients had difficulty adjusting to the change in body image even months after their discharge. An ethnographic study was conducted to explore the experiences of 32 ostomates adapting to their stoma in Australia (Manderson, 2005). Although the majority of the patients had stoma surgery more than five years prior, many participants were distressed by their stoma and had difficulty accepting it (Manderson, 2005). The participants also mentioned problems with managing regular bowel movements, passing gas, odor, peristoma excoriation, and leakage (Manderson, 2005). Similarly, a cross-sectional, correlational study was carried out in Portugal to investigate the impact of colorectal cancer on the quality of life of 153 patients 6–8 months after their surgery. The researchers found that patients with a stoma showed significantly decreased functionality and lower quality of life in terms of body image and sexual satisfaction compared to patients without a stoma (Cotrim & Pereira, 2008). Patients with a stoma also had significantly higher levels of depression than those without (Cotrim & Pereira, 2008).

A quantitative study was conducted to explore the psychological impact of a permanent ostomy on 40 Turkish patients an average of 33 months after their surgery (Kilic et al., 2007). The ostomy group had significantly lower body image and self-esteem compared to the control group (Kilic et al., 2007). A prospective study was carried out to investigate the impact of stoma on 79 patients with colorectal cancer within nine weeks after their surgery and following their adjuvant treatment almost six months later (Sharpe et al., 2011). In this study, the patients with stomas experienced significant body image disturbance and greater anxiety than those without a stoma at baseline (Sharpe et al., 2011). The patients with stoma also showed no improvement in body image disturbance over time, but rather increased body image disturbance at follow-up (Sharpe et al., 2011).

**Altered sexuality:** Changes in body image and loss of body control may affect ones' sexual relationships. The presence of a pouch and stoma producing noise, smell, or leakage may violate ones physical boundary and affect sexual feelings (Manderson, 2005). This was supported by Persson and Hellström (2002). In that study, all the interviewees expressed feelings of decreased attractiveness after the surgery. In addition, some partners no longer felt sexually attracted to their partners with stoma (Manderson, 2005). Therefore, those patients generally had poorer sexual experi-

ences compared to patients without a stoma (Cotrim & Pereira, 2008).

In addition to altered physical attractiveness, patient sexual relationships were affected by impaired sexual function relating to the surgery. More women suffered from sexual dysfunction following ostomy surgery compared to men (Kilic et al., 2007). For some patients, perceptions of the presence of anal scars and acute vaginal pain after surgery made sexual intercourse impossible (Andersson et al., 2010). Therefore, patients who undergo stoma surgery may experience altered sexuality, giving rise to the potential of developing psychological distress.

**Impact on social life and activities:** The presence of stoma may impede patient social life and activities. The fear of smell and noise produced by the stoma may discourage patients from engaging in social activities. Interviewees in a study by Andersson et al. (2010) felt their daily lives were restricted by the stoma because they were concerned about the smell from the bag. In addition, they also feared their bags might leak and, therefore, they always brought along materials for changing the bags (Andersson et al., 2010). During social gatherings, the interviewees preferred to sit where they could conveniently leave to change the bags (Andersson et al., 2010). A multicenter cross-sectional correlational study was conducted to examine the relationship between colostomy pouch change and disposal practices and the psychological well-being of 86 patients with colostomy at 1–4 months postoperation (McKenzie et al., 2006). The study found that 33% (n = 28) of the patients avoided social and leisure activities because of the need to change and dispose of their pouch. Therefore, the inconvenience of living with a stoma also affects patient psychological and psychosocial adaptation.

## Discussion

This integrative literature review aimed to summarize the current state of knowledge concerning the stressors affecting patient psychological health following colostomy or ileostomy surgery during hospitalization and after discharge. Eight studies were included in this review. Several stressors were identified that affect patient psychological health immediately after stoma surgery as well as long after their discharge.

During hospitalization, stressors affecting patients emotionally are largely from the difficulty in accepting the diagnosis of cancer, adapting to the presence of stoma, dealing with various associated emotions (e.g., shock, disgust, sadness, fear), learning practical skills for stoma self-care, and planning to resume their normal activities. Stressors occurring after discharge were slightly different, and they were centered on the

challenges faced in self-care and lifestyle adaptation. Having the stoma negatively affected participants' sexual relationships and limited their social activities. The issue of altered self-image and altered self-esteem began immediately after the stoma surgery and remained for many months after discharge. As a result, psychological problems (e.g., depression, anxiety, decreased quality of life) were found among participants after hospitalization.

In addition, the authors also realized that no literature explored the differences in nature of stoma surgery, which could affect patient psychological conditions. However, several clinical reviews have reported that patients who have emergency stoma surgery may have greater difficulties adjusting to the sudden body image change and functional loss (Borwell, 2009b; Fulham, 2008). The researchers reasoned that these patients often have little time to anticipate future living with a stoma and some may not even foresee having a stoma after the emergency operation (Borwell, 2009b). Conversely, patients admitted for elective stoma surgery may anticipate the loss and grief process after the surgery (Borwell, 2009b). They are better prepared and often regard the surgery as therapeutic (Persson & Hellström, 2002). Therefore, patients admitted for emergency surgery are at a higher risk of suffering from stress and psychological distress that can affect future coping and recovery (Borwell, 2009a).

A previous literature review by Thorpe, McArthur, and Richardson (2009) explored patient experiences of bodily change following stoma formation and identified three themes: loss of embodied wholeness, awareness of a disrupted lived body, and disrupted bodily confidence. In addition to exploring patient body experiences following stoma surgery, the authors of the current literature review provided a wider perspective on the patient experiences by incorporating other influencing factors, such as the diagnosis of cancer and preparation for self-care, which could affect patient psychological health. The authors also reported that patients with a stoma face increasing problems after discharge. The problems and challenges posed by the formation of stoma may continue to affect them physically and psychologically, leading to undesirable consequences. Consistent with a systematic review on the impact of stoma surgery (Brown & Randle, 2005), results of the current literature review suggested that most patients experience negative feelings following stoma formation, and nurses should be aware of the difference in patient experiences over time.

To date, postoperative education tends to focus on educating the patient on the physical care of their stoma, such as pouch changing or emptying, to increase personal control and promote better adjustment (Simmons et al., 2007). However, reports of patients suffering

from psychosocial dysfunction because of maladaptation after their stoma surgery still occur (Simmons et al., 2007). The focus of nursing care on psychological issues is currently underemphasized in clinical settings (Simmons et al., 2007); therefore, nurses should address these issues during the provision of postoperative care to patients.

### Limitations

Most available studies targeted the experiences of patients after discharge. Common variables under investigation include changes in body image and functionality, altered sexuality, and impact on social relationships (Cotrim & Pereira, 2008; Kilic et al., 2007; Manderson, 2005; McKenzie et al., 2006; Sharpe et al., 2011). Relatively little is known about the hospitalization experiences among inpatients immediately after their stoma surgery.

In addition, data collection was conducted from weeks to years after surgery. The time lapse between a patient's actual experience and data collection may result in potential inaccuracy in the participant accounts. Also, a limited amount of studies addressed the psychosocial aspect of inpatients undergoing stoma surgery, and no studies addressed the impact of psychological stress on patients with a stoma. Therefore, more research is needed to explore the impact of stoma surgery on patient health during the immediate post-surgical setting.

## Conclusion and Implications for Nursing

This review has illustrated the continuum of stressors affecting patient psychological health following stoma surgery during hospitalization and after discharge. Stressors associated with stoma formation, patient diagnosis of cancer, and preparation for self-care leads to significant psychological disturbance and altered adjustment to postoperative care and poor health outcomes. Often, these physical and psychological stressors continue to affect patients after their discharge, impairing their daily functioning and quality of life.

Through this literature review, the authors hoped to raise awareness among nurses about the importance of looking after the psychological well-being of the patients. Often, nurses tend to focus on the physical well-being of the patients, possibly neglecting psychosocial needs that also can potentially affect their recovery (Simmons et al., 2007). During the period of hospitalization, patients who experienced altered body image may require support from nurses to promote their acceptance of stoma formation and diagnosis. Support could vary from acknowledging patient psychological stressors and supporting them to verbalize their frustration and providing pre- and postoperative education to clarify any misconceptions and alleviate anxiety. Considering the significant stress faced by patients following emergency stoma surgery, preoperative

**Table 3. Quality Assessment of Included Quantitative Studies (Comparable Cohort or Case Control Studies)**

Criterion	Chao et al. (2010)	Cotrim & Pereira (2008)	Kilic et al. (2007)	McKenzie et al. (2006)	Sharpe et al. (2011)
Is the sample representative of patients in the population as a whole?	No	No	No	No	No
Are the patients at a similar point in the course of their condition or illness?	N/A <sup>a</sup>	Yes	Yes	N/A <sup>a</sup>	Yes
Has bias been minimized in relation to selection of cases and of controls?	N/A <sup>a</sup>	Yes	Yes	N/A <sup>a</sup>	Yes
Are confounding factors identified and strategies to deal with them stated?	No	No	No	No	No
Are outcomes assessed using objective criteria?	Yes	Yes	Yes	Yes	Yes
Was follow-up carried out over a sufficient period?	Yes	Yes	Yes	Yes	Yes
Were the outcomes of people who withdrew described and included in the analysis?	N/A <sup>b</sup>	Unclear	Unclear	Unclear	No
Were the outcomes measured in a reliable way?	Yes	Yes	Yes	Yes	Yes
Was appropriate statistical analysis used?	Yes	Yes	Yes	Yes	Yes

<sup>a</sup>No control

<sup>b</sup>No withdrawals

N/A—not available

education is crucial in facilitating patient postoperative coping and recovery. Nurses could educate patients on the progress of their recovery and expected treatments following stoma surgery and provide appropriate nursing interventions to alleviate possible postoperative stressors (such as relaxation interventions).

Several studies found that, after discharge, patients continue to experience stressors relating to stoma surgery, such as difficulty in accepting body image changes, sexuality issues, and restriction of social activities. The provision of long-term ongoing counseling and support, such as regular appointments with stoma nurses and a 24-hour helpline to help patients with stomas cope with any stoma-related challenges faced during daily living, could be helpful. Nurses also could help to create social platforms such as stoma support groups and organize outings for patients. In addition, a home visitation program for stoma care also could ensure the continuity of stoma care and enhance the patient's long-term adjustment in the community. Although these services are available in Western countries (Williams, 2007), they can be recommended to other countries, particularly Asian nations.

Findings from this review emphasize the importance of nurse assessment of patients' mental health and the

need to provide relevant psychosocial care for patients following stoma surgery. With the increase in number of patients undergoing stoma surgery, more patients will likely suffer from psychological problems related to stoma surgery in the future. The integration of psychosocial management into routine nursing care could help to minimize the negative impact of stressors affecting patient psychological health following stoma surgery. This also could possibly lead to an increase in patient satisfaction and positive health outcomes, such as shorter hospitalization, and increase coping with the attempt of providing more holistic care.

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