Factors Affecting Psychosocial Adjustment of Individuals Following Ostomy Surgery

Margot Knapp
This research is a product of the graduate program in Psychology at Eastern Illinois University. Find out more about the program.

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Date

Author
FACTORS AFFECTING PSYCHOSOCIAL ADJUSTMENT
OF INDIVIDUALS FOLLOWING OSTOMY SURGERY

BY
Margot Knapp

THESIS
SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
MASTER OF ARTS IN PSYCHOLOGY
IN THE GRADUATE SCHOOL OF EASTERN ILLINOIS UNIVERSITY
CHARLESTON, ILLINOIS
1992

I HEREBY RECOMMEND THIS THESIS BE ACCEPTED AS FULFILLING
THIS PART OF THE GRADUATE DEGREE CITED ABOVE

12/17/92
DATE

3/17/92
DATE
ABSTRACT

The literature has documented the traumatic effect of ostomy surgery. Individuals who need to integrate a new body image must go through a period of psychosocial adjustment. Several studies have been done to analyze components of adjustment and to ascertain variables which might affect adjustment. Psychosocial adjustment to ostomy surgery is a new field of study and previous research has been limited in scope.

The current study sought primarily to identify both demographic and categorical variables predictive of a broad range of adjustment factors, and by using a comprehensive sample. Independent variables included age, level of education, precipitating illness, type of ostomy, length of time since surgery, gender, and marital status. A second objective of this study was to replicate factor analyses performed on the Ostomy Adjustment Scale.

The Ostomy Adjustment Scale and a personal data form were administered to 99 members of the United Ostomy Association; 98 were analyzed. Participants had colostomies, ileostomies, or urostomies. The sample was about equally divided with regard to gender,
marital status, and precipitating illness. Length of time since surgery ranged from 6 months to 33 years.

As expected, age and level of education were not significantly related to adjustment. Length of time since surgery, precipitating illness, and marital status were statistically significant. Type of ostomy and gender were marginally significant. Results of the factor analysis were ambiguous. Only one of five factors was consistent with earlier findings. Limitations of this study and suggestions for future research were discussed.
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ACKNOWLEDGEMENTS

I would like to thank all the members of the United Ostomy Association who participated as subjects in this study, and especially the local chapter presidents who arranged for me to present this research project at their meetings.

I extend my appreciation to my committee: the chairman, Dr. Bill Kirk, for his guidance and support, and Dr. John Rearden for his very generous time in assistance with statistical analysis.

Finally, I would like to express my gratitude to my parents and friends for their support and encouragement throughout.
INTRODUCTION

It is estimated that over 1.5 million people in North America have undergone some type of ostomy surgery with over 100,000 new procedures performed annually (Broadwell & Jackson, 1982; Hurnery & Holland, 1985; Woods, 1975). These individuals have lost their normal bowel or bladder function due to cancer, inflammatory bowel disease (ulcerative colitis or Crohn's disease), birth defect, or injury (Kelman & Minkler, 1989). After partial or total removal of the colon or removal of the bladder, bodily wastes are excreted through an intestinal stoma, a passageway constructed through the abdominal wall. About 65-75% of ostomies are colostomies, a rerouting of the large intestine. This surgery is most often performed on people over the age of 50 with a diagnosis of cancer. Ileostomies, created from the end of the small intestine, involve 15-25% of ostomies and are usually performed on young adults for inflammatory bowel disease. About 10% of ostomies are urostomies, a rerouting of the ureters through an isolated segment of the small intestine. This surgery is performed on individuals in a wide range of ages for a variety of reasons, including cancer and birth defect (Olbrisch, 1983).
The emotional trauma of ostomy surgery is well documented. For some, the surgery is elective, offering a cure for a chronic and disabling disease. But for the majority, it is a matter of life and death, often performed in emergency circumstances (Dlin, 1978). Normally, body structure changes occur slowly and subtly with the aging process. But when an abdominal stoma is created, the physical and functional changes are dramatic and instantaneous (Gawron, 1989). The resultant shock potentiates a crisis in an individual's body image. Most obviously, the process of elimination, often uncontrollable, is now accomplished through the front of the body requiring that special equipment be worn for drainage (Brogna, 1985).

Klopp (1990) researched the relationship between body image and self-concept and the implications for people with ostomies. One hundred fifty-two ostomates completed the Body Cathexis Scale and the Self-Cathexis Scale which measure satisfaction with specific parts of the body and aspects of the self, respectively. The subjects also took the Body Phenomenon Index which was developed to investigate specific sensory perceptions among persons with stomas and their concerns with how others perceive these phenomena. A correlation matrix revealed several significant correlations. Concern over
stoma-related sensory phenomena was associated with decreased body satisfaction; satisfaction with the body was related to self-concept; and concern over stoma-related sensory phenomena was indicative of lower self-concept.

The negative effects of ostomy surgery on self-concept have been further defined to include the possibilities of depression, anger, fear of rejection, helplessness, loss of control, horror, shame, and loss of sexual attractiveness (Brogna, 1985; Busch, 1985).

In addition to negative effects on self-esteem due to altered body image, ostomates may also experience a grieving process over the loss of a major body part (Dlin, 1978; Rolstad, Wilson, & Tebbitt, 1982; Kelman & Minkler, 1989).

It is not surprising, therefore, that an extended period of time is necessary for an ostomate to reach a stable level of adjustment. In a 1971 study, Dlin and Perlman classified the first year after surgery as one of disability due to the number of factors involved in adaptation. In a 1978 article, Dlin further specified that patients, family, and therapists agree that one year is necessary for ostomy patients to recover from surgery, adjust to an altered lifestyle, and work through the grieving process. Gloeckner (1984) agrees
with this adjustment time frame, concluding that body image disturbance was at its worst during the first postoperative year.

Although ostomy surgery has been performed since the late 1800s (Busch, 1985), it is only recently that psychosocial implications have been addressed (Brogna, 1985). Kelman & Minkler (1989) agree that concern for quality of life for ostomates has recently gained priority among health care professionals. Rolstad (1987) further specified that as late as the 1960s and early 1970s, many ostomates experienced significant maladjustment to life with a stoma. She offers as explanation that "early intervention, proper equipment, information of adaptation, education, and supportive counseling were not available to the extent that they are today (p. 29)."
REVIEW OF LITERATURE

Only recently have the psychosocial implications of ostomy surgery and post-operative quality of life become issues of concern to health care professionals (Brogna, 1985; Rolstad, 1987; Kelman & Minkler, 1989). Concurrent with this heightened awareness of adaptation needs has been research to determine factors which affect psychosocial adjustment to ostomy surgery. Only a handful of studies in the last 11 years have analyzed such variables as underlying illness, type of stoma, gender, age, educational level, occupation, and financial status. In 1981, Kuchenhoff, Wirsching, Druner, Herrmann, & Kohler conducted a multifactoral analysis of 409 patient responses to determine in part if cancer patients differed from inflammatory bowel disease patients in their reactions to ostomy surgery. The most significant factor was depression, as determined by a factorial analysis of the questionnaire administered. Patients who had surgery for inflammatory bowel disease suffered from deeper and longer episodes of depression than cancer patients.

Gloeckner (1984) interviewed 40 ostomates at least one year after surgery to determine variables affecting perception of sexual attractiveness, which is related
to body image. Participants answered a questionnaire responding to a 5-point Likert scale, with 1 indicating very low perception of sexual attractiveness, and 5 very high. The variables analyzed included gender, age, type of ostomy, and underlying illness. Gloeckner found that although men rated their self-perception of sexual attractiveness as higher than women before surgery, women rated themselves higher after surgery. She surmised that this difference was due to the impotency problems that many men experience after colostomy surgery. Gloeckner reported that type of ostomy produced an apparent but not significant effect on perceived attractiveness. Subjects with an ileostomy had the highest mean scores, followed by those with colostomies and urostomies. Underlying illness was significantly related to feelings of sexual attractiveness; patients who had surgery for inflammatory bowel disease scored higher than those who had surgery for cancer. No significant relationship was found between perceived attractiveness and age.

Klopp (1990) included ostomates whose time since surgery ranged from 1 month to more than 10 years, finding a significant positive correlation of .63 between body image and self-concept. She noted that persons with urostomies had the best self-concept,
followed by individuals with ileostomies, and those with colostomies. Klopp found women to be significantly more depressed than men.

Thomas, Madden, & Jehu (1987) assessed 68 ostomates for anxiety and depression one year after surgery. Their investigation focused on those correlations as they related to precipitating illness, gender, and age. It was found that while subjects with inflammatory bowel disease are more likely to report psychiatric symptoms than those with cancer, the difference was not statistically significant. There were no significant differences in psychiatric outcome related to age or gender. Smith & Babaian (1989) interviewed 128 patients with urostomies at six-week, three-month, and six-month post-operative intervals. A questionnaire was administered assessing daily life experiences. Adjustment was evaluated in terms of return to normal activities and patient responses to questions regarding self-image. Two levels of adjustment were determined by the scores using the extreme group method. Adjustment was then compared to gender, age, educational level, financial status, occupation, self-image, and perceived response of sexual partner. Significant differences in adjustment were found for treatment by a sexual partner and perceived self-image. Factors which did not affect
adjustment significantly were educational level, occupation, financial status, and age.

Sexuality appears to be a critical post-operative issue. Dlin (1978) believes that sexuality is the single most important factor in satisfactory adjustment. Men may fear impotency as a result of surgery, while women fear loss of acceptance and desirability. Furthermore, any fear relating to the stoma and its function will be aggravated by prospective sexual intimacy. These fears may include pain, injury to the stoma, leakage of the appliance, odor, non-acceptance, and social rejection.

Gloeckner (1983) believes that feelings of shame from disfigurement, embarrassment about the stoma and appliance, and fear of rejection often complicate post-surgical sexual adjustment. In 1982, Rolstad, Wilson, and Tebbitt studied long-term sexual concerns of persons with ileostomies. They found that half of their subjects reported that sexual intimacy was psychologically more difficult after surgery, and that they felt their ostomies made them unattractive. Gloeckner (1984) emphasized the importance of feeling sexually attractive, "particularly in this 'cosmetic society' where emphasis is on youth, beauty, and wholeness (p. 87)." Rolstad (1987) believes an individual's sexuality must be
reassessed after ostomy surgery because significant dissonance in self-image and body image occur when methods of elimination are altered.

Most studies investigating sexual adaptation have dealt exclusively with married couples. Brooke (1980) analyzed questionnaires returned by 376 married ileostomy patients to assess post-surgical sexual adaptation. She found that in 88% of these cases, both patient and spouse adapted well.

Coe and Kluka (1988; 1990) interviewed 20 cancer patients and spouses in order to identify their concerns regarding ostomy surgery. They emphasized the value of spousal support to patient adjustment, including sexual adaptation. Dyk and Sutherland (1956) believe the spouse is the key to a patient's successful adjustment to ostomy surgery.

Gloeckner (1983) studied partner reaction to ostomy surgery. She stated that ostomy patients "invariably see the ostomy in relation to the response of key figures in their lives (p. 182)."

Only one study of sexual adaptation has included unmarried ostomy patients. Gloeckner (1983) interviewed 35 married and 5 single ostomates. Although marital status was not included in her results, anecdotal comments are enlightening. Most of the married
participants thought they were more fortunate than single persons having ostomy surgery. They were appreciative of spousal support and speculated that dating would be a serious problem. Two married subjects who were single when they had surgery stated that it was very difficult for them to tell their future wives about their ostomies. One single male reported that the girl he was dating before his surgery left him afterwards to find someone "normal."

The unmarried ostomate would then seem to be at a disadvantage, particularly since most health professionals are reluctant to discuss sexual issues with clients (Gloeckner, 1984; Dlin, 1978). Issues unique to single ostomates have been addressed. Dlin (1978) states, "In appreciating the complexities of sexual adjustment, one should clearly recognize that the problem of the younger single person will be quite different from that of the mature individual well established in marriage (p. 217)." Landmann (1989) agrees that adolescents and young adults have special needs in adjusting to ostomy surgery since many developmental tasks must be accomplished including, "the development of a comfortable body image and positive self-esteem, creating identity through socialization, forming a sexual identity, establishing emotional
and economic independence, and establishing future goals and initiating a career (p. 87)."

The preceding studies have analyzed five variables which have been hypothesized to predict psychosocial adjustment to ostomy surgery. Smith & Babaian (1989), Glockner (1984), and Thomas et al. (1987) found that age was not a significant predictor of adjustment. Only Smith & Babaian (1989) analyzed level of education, which was not significant. Results regarding gender were contradictory. Smith & Babaian (1989) found female urostomates to be better adjusted to daily life than males, and Glockner (1984) found that females perceived themselves as more sexually attractive after surgery. However Klopp (1990) found females to be significantly more depressed than males, and Thomas et al. (1987) found gender not significantly related to post-surgical depression. Three of these reported studies included precipitating illness as a variable. Kuchenhoff et al. (1981) and Thomas et al. (1987) found that inflammatory bowel disease patients suffered from more post-surgical depression than cancer patients, but Glockner (1984) found that patients who had surgery for inflammatory bowel disease perceived themselves as more sexually attractive than cancer patients. Type of stoma was a variable analyzed in two studies with
inconsistent results. Although Gloeckner's 1984 results were only marginally significant, she reports that urostomates perceived themselves to be the most sexually attractive, followed by individuals with colostomies and ileostomies; Klopp's 1990 study found that people with urostomies had the highest self-concept, followed by those with ileostomies and colostomies. No research, however, has analyzed length of time since surgery as a predictor of adjustment; nor has any research focused on the adjustment differences between single and married ostomates.

The quality of life after successful ostomy surgery is only of recent concern to researchers. These studies, while impressive, are limited in number, scope, and sample size, and the findings reflect critical differences. Since there is reportedly a large number of individuals undergoing ostomy surgery annually (Broadwell & Jackson, 1982; Hurnery & Holland, 1985; Woods, 1975;), the need to expand the body of knowledge in this area is imperative. The purpose of this study is to identify variables which predict adjustment to ostomy surgery. The following research questions have been generated:

Do gender, age precipitating illness, and type of stoma predict positive or negative post-surgical ostomy adjustment?
Does length of time since surgery predict positive or negative post-surgical ostomy adjustment?

Does marital status affect positive or negative post-surgical ostomy adjustment?
METHOD

Subjects

Ninety-eight post-operative ostomy patients were solicited representing a cross section of the United States. The age ranged from 26 to 84 with a mean age of 55. A majority of the participants (66%) had at least two years of college education. Fifty-three of the subjects (54%) were married, and 45 (46%) were single. Of the 98 participants, 42 (43%) had ileostomies, 34 (35%) had colostomies, 19 (19%) had urostomies, and 3 (3%) had both a colostomy and a urostomy. Length of time since surgery ranged from 6 months to 33 years. A large majority of subjects (86%) had their ostomies for more than one year; the median time since surgery was 5 years. Forty-five of the individuals (46%) had ostomy surgery following a diagnosis of cancer, and 53 (54%) were diagnosed with another condition such as inflammatory bowel disease or birth defect.

Instrumentation

Purpose. The Ostomy Adjustment Scale (Olbrisch, 1983) is a 34-item self-report measure consisting of 16 positive statements and 18 negative statements devised
to elicit overall psychosocial adjustment to ostomy surgery. Responses are measured with a 6-point Likert scale. The scale descriptors used were always, usually, often, sometimes, seldom, and never. Positive statements were scored with always being 6 points, and never being 1 point. Negative items were reverse scored. The scale takes approximately 15 minutes to administer. The scale was primarily designed to measure a broad range of factors affecting ostomy adjustment. The goal was to develop a measure that would go beyond single-variable gross indicators (such as health status, return to work, continuation of marriage, etc.) to include effects on interpersonal relationships, self-concept, and everyday functioning (Olbrisch, 1983). Additionally, Olbrisch reported responding to a need expressed by mutual aid groups for an instrument which could measure their effectiveness.

Development. Olbrisch developed the initial scale from a pool of items generated by ostomy patients and professionals. Of these, 39 were selected as representative. Data was collected from 53 ostomates ranging in age from 19 to 83. Of the 53 participants, 41% had ileostomies, 38% had colostomies, and 21% had urostomies. The mean time since surgery was 2½ years (range = 2 months to 20 years) with 45% responding within the
first year after surgery. Gender was about equally
divided. More than half of the respondents (64%) were
members of the United Ostomy Association (UOA) and the
remainder were referred by enterostomal therapists. A
retest was given to 30 of the subjects; the interval
was 2 to 6 weeks, depending upon when the questionnaires
were returned.

In order to establish validity, two other question-
naires were obtained: the Texas Social Behavior Inven-
tory (Helmreich & Stapp, 1974) which measures self-
estee and social competence, and the Marlowe-Crowne
Social Desirability Scale (Crowne & Marlowe, 1960). To
establish discriminant validity, a group of college
students completed the Ostomy Adjustment Scale as they
thought they would if they had ostomies.

Reliability. Five of the test items were elimin-
ated due to low item-total correlations or low variance.
The revised 34-item scale showed high internal consist-
tency (alpha = .87). The mean item score was 4.58.
Test-retest stability was determined to be satisfactory
with a correlation coefficient of .72.

Validity. Discriminant validity was established
via correlation analysis. There was no significant
correlation between the Ostomy Adjustment Scale and the
Marlowe-Crowne Social Desirability Scale (r = -.14) or
the Texas Social Behavior Inventory ($r = .02$). These results suggest that the obtained scores on the Ostomy Adjustment Scale were not a product of general self-esteem. The scale also significantly discriminated between actual ostomy patients and students simulating ostomy patients. The mean score for the college students was nearly 1.25 standard deviations below the mean for ostomates.

**Factor Analysis.** A factor analysis was performed to determine content structure. An oblique rotation analysis yielded 12 factors, with five accounting for 69% of the variance. Factor 1 (items 1-6, and 29) was designated as normal functioning. Factor 2 (items 10, 11, 16, and 19) suggested negative affect, and Factor 3 (items 21 and 22) related to knowledge about ostomy care. Factor 4 (items 13, 14, 26, and 31) reflected feelings of shame, and Factor 5 (items 33 and 34) expressed the positive contribution of surgery toward outlook on life.

A replication by Burckhardt (1990) further assessed reliability, validity and factor analysis on a larger sample. Participants in this study numbered 164 ostomy patients, all of whom were members of UOA. The mean age was 58 and length of time since surgery ranged from 1 to 25 years (median = 5 years). Seventy-
six percent (76%) of the subjects were married and 52% had some college education. The sample was about equally divided between males and females and between diagnoses of cancer and inflammatory bowel disease. The participants completed the Ostomy Adjustment Scale, the Quality of Life Scale (Flanagan, 1978) and a depression index taken from a Rand Corporation Study (Brook, et al., 1979). Retests were given to 30 subjects at three-week and 6-week intervals. Test-retest correlations were .82 between Time 1 and Time 2 and .72 between Time 2 and Time 3. A correlation of .66 was obtained between Time 1 and Time 3. Burckhardt also performed a factor analysis using principal component analysis. The analysis generated 11 factors with eigenvalues of at least 1.0. Factors 6 through 11 were eliminated due to insufficient definition or unreliability. The resulting five factors accounted for 48% of the variance. Factor 1 (items 1, 2, 4, and 5) concerned normal functioning. Factor 2 was designated functional limitations (items 3, 6, 9, 27, 29, 30, and 32). Factor 3 expressed negative affect (items 10, 11, 16, 17, and 26). Factor 4 consisted of two items (7 and 8) labeled positive role function and one item (13) relating to negative body image. Factor 5 was positive affect (items 15, 24, 33, and 34). Burckhardt's
reliability and validity findings supported those of Olbrisch. Internal consistency remained high (alpha = .90). The mean item score was higher at 4.94, but the standard deviation remained the same. Test-retest correlations were .82 between the first and second testing, and .72 between the second and third. In contrast to Olbrisch's method of discriminant validity, Burckhardt focused on convergent validity. The Ostomy Adjustment Scale correlated positively with the Quality of Life Scale ($r = .40, p < .002$) and negatively with the depression index ($r = .53, p < .001$). This study concluded that the Ostomy Adjustment Scale has positive psychometric properties that make it a useful instrument for clinical study. Burckhardt's factor analysis yielded a partial replication due, it was thought, to the much larger sample size. She confirmed three factors: functional ability, negative affect, and positive affect. There was a 92% agreement of items that loaded on these three factors.

**Procedure**

Participants in this study were recruited through the United Ostomy Association. Local chapter presidents in Indianapolis, Indiana, St. Louis, Missouri, Orlando, Florida, and Inverness, Florida, and the Chairman of the
National Conference Planning Committee in Pittsburgh, Pennsylvania were contacted for permission to attend meetings and solicit volunteers. A written explanation of this research study was submitted to these persons for approval, and permission to attend all meetings was granted. At these meetings, the investigator explained the study to all attendees and asked for volunteers to complete the questionnaires. The questionnaires, consisting of the Ostomy Adjustment Scale, a personal data form, and a consent form were then handed out to the volunteers, and directions for completion were read to them. Most subjects attending these meetings returned completed questionnaires. Of 99 questionnaires returned, 98 were scored; one was rejected due to incompletion of the second page of the Scale.
RESULTS

The mean score on the Ostomy Adjustment Scale for all subjects was 4.80 with a standard deviation of .49. A stepwise multiple regression analysis used the mean adjustment score as the criterion measure and the independent variables as predictors of adjustment (see Table 1). Length of time since surgery was significant \((t = 3.11, p < .003)\) with a correlation of .32. Precipitating illness was also significant \((t = 2.01, p < .05)\), bringing the multiple R to .38. Although no additional independent variables related to adjustment scores at the traditional level of significance \((\alpha = .05)\), type of ostomy was marginally significant \((t = 1.54, p < .07)\). Age and level of education were not significant.

The results of the univariate analysis of mean adjustment are presented in Table 2. Marital status was significantly related to adjustment \((F = 8.64, p = .005)\), and gender was marginally significant \((F = 3.78, p = .056)\). There was no significant interaction of marital status and gender.

An exploratory factor analysis was performed to determine the content structure of this data set. Factors were generated by principal component analysis.
(see Table 3) and limited to five factors (eigenvalues $> 1.70$). These five factors accounted for 53% of the variance. Using factor loading coefficient of $\geq .40$ as criterion for selecting items for specific factors, three items (11, 12, and 19) were eliminated because they did not substantially load on any factors. Eight items (1, 3, 9, 14, 26, 28, 32, and 34) were dropped because they loaded significantly on more than one factor.

Factor 1 included items 4, 13, 16, 17, and 21-25. Factor 2 contained items 7, 8, 15, 27, 30, and 31. Factor 3 consisted of two items (10 and 20), and Factor 4 included items 2, 5, 6, and 29. Factor 5 consisted of items 18 and 33.
Table 1
Multiple Regression of Adjustment Scores
for Independent Variables where $F = 7$

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<th>Significant Indicators</th>
<th>Beta</th>
<th>$t$</th>
<th>Significance</th>
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<tr>
<td>Time since surgery</td>
<td>-.3289</td>
<td>-3.255</td>
<td>.0016</td>
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<tr>
<td>Precipitating illness</td>
<td>-.2012</td>
<td>-2.012</td>
<td>.0475</td>
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<th>Non-Significant Indicators</th>
<th>Partial $r$</th>
<th>$t$</th>
<th>Significance</th>
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<tr>
<td>Type of ostomy</td>
<td>.1987</td>
<td>1.847</td>
<td>.0683</td>
</tr>
<tr>
<td>Age</td>
<td>.1343</td>
<td>1.235</td>
<td>.2203</td>
</tr>
<tr>
<td>Education</td>
<td>.1002</td>
<td>.917</td>
<td>.3616</td>
</tr>
<tr>
<td>Gender</td>
<td>-.0882</td>
<td>-.807</td>
<td>.4222</td>
</tr>
<tr>
<td>Marital status</td>
<td>.0050</td>
<td>.046</td>
<td>.9636</td>
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Table 2
Univariate Analysis of Adjustment Scores
for Marital Status and Gender

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<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>Sig.</th>
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<td>Marital Status</td>
<td>1.583</td>
<td>1</td>
<td>1.583</td>
<td>8.637</td>
<td>.005</td>
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<tr>
<td>Gender</td>
<td>0.693</td>
<td>1</td>
<td>0.693</td>
<td>3.779</td>
<td>.056</td>
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<tr>
<td>Interaction</td>
<td>0.148</td>
<td>1</td>
<td>0.148</td>
<td>0.807</td>
<td>.372</td>
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Table 3  
Means, Standard Deviations, and Factor Loadings  
of all Items in the Ostomy Adjustment Scale  

<table>
<thead>
<tr>
<th>Item</th>
<th>( \bar{x} )</th>
<th>SD</th>
<th>FL(^a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I can lead a productive and fulfilling life despite my ostomy.</td>
<td>1.44</td>
<td>.72</td>
<td>---</td>
</tr>
<tr>
<td>2. I think I am leading quite a normal life despite my ostomy.</td>
<td>1.46</td>
<td>.78</td>
<td>.50(4)</td>
</tr>
<tr>
<td>3. There are many things I would do if I did not have an ostomy.(^b)</td>
<td>4.59</td>
<td>1.54</td>
<td>---</td>
</tr>
<tr>
<td>4. I feel free to travel where I want despite my ostomy.</td>
<td>1.37</td>
<td>.79</td>
<td>.52(1)</td>
</tr>
<tr>
<td>5. I have felt comfortable participating in sports and physical</td>
<td>2.03</td>
<td>1.43</td>
<td>.63(4)</td>
</tr>
<tr>
<td>exercise since my ostomy surgery.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. I find that I unnecessarily restrict the range of my activities</td>
<td>4.53</td>
<td>1.47</td>
<td>.61(4)</td>
</tr>
<tr>
<td>because of my ostomy.(^b)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. I have been better able to work since I had my ostomy surgery.</td>
<td>3.40</td>
<td>1.97</td>
<td>.65(2)</td>
</tr>
<tr>
<td>8. I am more able to enjoy sexual activities because of improved</td>
<td>4.82</td>
<td>1.22</td>
<td>.69(2)</td>
</tr>
<tr>
<td>health since having ostomy surgery.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 3 (continued)

Means, Standard Deviations, and Factor Loadings
of all Items in the Ostomy Adjustment Scale

<table>
<thead>
<tr>
<th>Item</th>
<th>$\bar{X}$</th>
<th>SD</th>
<th>FLa</th>
</tr>
</thead>
<tbody>
<tr>
<td>9. At times I lack self-confidence because of my ostomy.</td>
<td>4.82</td>
<td>1.22</td>
<td>---</td>
</tr>
<tr>
<td>10. I feel ashamed of my ostomy, as if it were a sign of my own physical or emotional weakness.</td>
<td>5.32</td>
<td>1.09</td>
<td>.69(3)</td>
</tr>
<tr>
<td>11. At times I resent my friends who do not have ostomies or the health problems that lead to ostomy surgery.</td>
<td>5.75</td>
<td>.56</td>
<td>---</td>
</tr>
<tr>
<td>12. My self-respect has not suffered because of my ostomy.</td>
<td>4.28</td>
<td>1.98</td>
<td>---</td>
</tr>
<tr>
<td>13. I feel somehow &quot;dirty&quot; or &quot;unclean&quot; because of my ostomy.</td>
<td>5.62</td>
<td>.77</td>
<td>.64(1)</td>
</tr>
<tr>
<td>14. I leave places early to avoid producing embarrassing odors in the bathroom.</td>
<td>5.44</td>
<td>1.03</td>
<td>---</td>
</tr>
<tr>
<td>15. I feel comfortable with my body, including my stoma.</td>
<td>2.15</td>
<td>1.46</td>
<td>.57(2)</td>
</tr>
<tr>
<td>16. I feel that I am somehow being punished for something by having this ostomy.</td>
<td>5.71</td>
<td>.79</td>
<td>.74(1)</td>
</tr>
</tbody>
</table>
Table 3 (continued)
Means, Standard Deviations, and Factor Loadings
of all Items in the Ostomy Adjustment Scale

<table>
<thead>
<tr>
<th>Item</th>
<th>( \bar{X} )</th>
<th>SD</th>
<th>FL(^a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>17. I get depressed when I realize that I will have this ostomy for the rest of my life.(^b)</td>
<td>5.26</td>
<td>.99</td>
<td>.75(1)</td>
</tr>
<tr>
<td>18. I can discuss even the most embarrassing aspects of my ostomy with my doctor.</td>
<td>1.62</td>
<td>1.20</td>
<td>.69(5)</td>
</tr>
<tr>
<td>19. I feel like a complainer when I have to contact my doctor or ET about my ostomy.(^b)</td>
<td>5.51</td>
<td>.95</td>
<td>___</td>
</tr>
<tr>
<td>20. I avoid telling my doctor about changes in my stoma and its functioning.(^b)</td>
<td>5.71</td>
<td>.83</td>
<td>.77(3)</td>
</tr>
<tr>
<td>21. I feel that I am well educated about my stoma and caring for it.</td>
<td>1.59</td>
<td>1.04</td>
<td>.69(1)</td>
</tr>
<tr>
<td>22. I am confident that I know the proper methods for managing my ostomy.</td>
<td>1.60</td>
<td>.92</td>
<td>.59(1)</td>
</tr>
<tr>
<td>23. Since I've had my surgery, I feel I'm more likely to get sick than other people.(^b)</td>
<td>5.38</td>
<td>.95</td>
<td>.64(1)</td>
</tr>
<tr>
<td>24. I find myself worrying that my surgery did not really cure my health problems.(^b)</td>
<td>5.47</td>
<td>1.06</td>
<td>.50(1)</td>
</tr>
</tbody>
</table>
Table 3 (continued)
Means, Standard Deviations, and Factor Loadings
of all Items in the Ostomy Adjustment Scale

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<tr>
<th>Item</th>
<th>( \bar{X} )</th>
<th>SD</th>
<th>FLa</th>
</tr>
</thead>
<tbody>
<tr>
<td>25. I worry more than I used to about being left alone.(^b)</td>
<td>5.54</td>
<td>.94</td>
<td>.60(1)</td>
</tr>
<tr>
<td>26. I feel embarrassed about my ostomy, as though it were something to hide.(^b)</td>
<td>5.34</td>
<td>1.02</td>
<td>---</td>
</tr>
<tr>
<td>27. I feel that I am not as sexually attractive as I used to be because of my stoma.(^b)</td>
<td>4.38</td>
<td>1.40</td>
<td>.50(2)</td>
</tr>
<tr>
<td>28. I can laugh afterwards about awkward situations that happen because of my ostomy.</td>
<td>2.19</td>
<td>1.28</td>
<td>---</td>
</tr>
<tr>
<td>29. Most of the time I forget about my ostomy and am not aware of it.</td>
<td>2.46</td>
<td>1.42</td>
<td>.60(4)</td>
</tr>
<tr>
<td>30. I worry about embarrassing accidents happening in the course of normal sexual activity.(^b)</td>
<td>4.59</td>
<td>1.43</td>
<td>.43(2)</td>
</tr>
<tr>
<td>31. I think other people would be uncomfortable around me if they knew about my stoma.(^b)</td>
<td>5.12</td>
<td>1.09</td>
<td>.57(2)</td>
</tr>
</tbody>
</table>
Table 3 (continued)
Means, Standard Deviations, and Factor Loadings
of all Items in the Ostomy Adjustment Scale

<table>
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<tr>
<th>Item</th>
<th>( \bar{X} )</th>
<th>SD</th>
<th>FL&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>32. I feel confident that I can trust my appliance when I am in public places.</td>
<td>1.82</td>
<td>.96</td>
<td>---</td>
</tr>
<tr>
<td>33. My ostomy surgery helped me decide what things are most important in my life.</td>
<td>2.51</td>
<td>1.61</td>
<td>.59(5)</td>
</tr>
<tr>
<td>34. My ostomy reminds me how fortunate I am to have received good medical care.</td>
<td>1.53</td>
<td>1.07</td>
<td>---</td>
</tr>
</tbody>
</table>

<sup>a</sup>Factor loadings - factor numbers in parentheses

<sup>b</sup>Item is reverse scored
DISCUSSION

The purpose of this study was to investigate adjustment variables as measured by the Ostomy Adjustment Scale which could predict psychosocial adjustment to ostomy surgery. Demographic variables analyzed included age, level of education, gender, and marital status. Categorical variables included length of time since surgery, precipitating illness, and type of ostomy.

As in previous research (Smith & Babaian, 1989; Gloeckner, 1984; Thomas, et al., 1987), current results failed to detect a relation between post-surgical adjustment and the factors of age and level of education. Previous research regarding gender, precipitating illness, and type of ostomy (Smith & Babaian, 1989; Gloeckner, 1984; Klopp, 1990; Thomas et al., 1987; Kuchenhoff et al., 1981) are inconsistent. This might be explained by the fact that earlier studies were limited to single dependent variables such as perceived sexual attractiveness (Gloeckner, 1984), self-concept (Klopp, 1990), or psychiatric symptomology (Klopp, 1990; Thomas et al., 1987; Kuchenhoff et al., 1981), or restricted by sample size such as type of ostomy.
(Smith & Babaian, 1989) or length of time since surgery (Thomas et al., 1987; Smith & Babaian, 1989).

Current results confirm the literature in determining precipitating illness to be significant, but with differing implications. Kuchenhoff et al. (1981) and Thomas et al. (1987) found that patients who had suffered from inflammatory bowel disease reported more symptoms of anxiety and depression than did those who had surgery to cure cancer. But Gloeckner (1984) stated that cancer patients perceived themselves as less sexually attractive than did those with inflammatory bowel disease. This study found a significantly higher adjustment score for inflammatory bowel disease patients ($\bar{M} = 4.83$) than for those with cancer as a precipitating illness ($\bar{M} = 4.76$).

Type of ostomy was found to be marginally significant in predicting adjustment. That is, individuals with urostomies score slightly higher than those with ileostomies ($\bar{M}$ of 4.88 compared to 4.86), all of whom score higher than individuals with colostomies ($\bar{M} = 4.68$). Gloeckner (1984) and Klopp (1990) report differences in respective adjustment with regard to urostomies, but all studies agree that individuals with ileostomies are significantly better adjusted than those with colostomies.
The relationship between gender and adjustment to ostomy surgery was frequently reported in the literature. Gloeckner (1984) and Smith & Babaian (1989) found gender to be significant with females scoring higher than males with regard to perceived sexual attractiveness and adjustment to urostomy, respectively. However, Klopp (1990) reported females to be significantly more depressed than males, and Thomas et al. (1987) found gender not significantly related to post-surgical depression. This study found gender to be marginally significant. Females had higher adjustment scores ($\bar{M} = 4.97$) than did males ($\bar{M} = 4.75$).

Current results found length of time since surgery to be the best predictor of adjustment to ostomy surgery, accounting for the greatest variance in scores. This confirms suppositions by Dlin & Perlman (1971) and Gloeckner (1983) that the early post-surgical period is a critical time for adjustment. It would seem logical that adjustment to a crisis is at least partially a function of time. That is, ostomy patients appear to make a more positive adjustment as time since surgery increases. However, this study did not investigate recovery dynamics. Those issues are likely complex and may be related to personality variables, premorbid state, etc. (Weinryb & Rossel, 1986).
A major focus of this study was to determine the relationship of marital status and adjustment to ostomy surgery, since no previous research has analyzed this variable. Marital status was found to be significant, confirming hypotheses by Dlin (1978) and Gloeckner (1984) that single ostomates would have a more difficult adjustment. Married individuals had significantly higher scores ($\bar{M} = 4.92$) than unmarried subjects ($\bar{M} = 4.54$). Marriage, therefore, seems to be a stabilizing phenomenon, at least with regard to ostomy patients. It may also be that being single, with all its body image implications, may inhibit adjustment and increase the difficulty of maintaining a stable level of adjustment. The single lifestyle is more likely to include multiple sexual relationships. Also, this lifestyle, with its emphasis on leisure activities, generates many new opportunities for social interaction. Any ostomy-related concerns of the single individual may be confronted again with each new relationship. These concerns often center around when and how to tell another person about the ostomy. These issues were presented frequently at singles discussion groups attended by the researcher at the UOA national convention where much of this data was collected.
The factor analytic findings are less straightforward. Only Factor 4 seems entirely consistent with previous factor studies (Olbrisch, 1983; Burckhardt, 1990). All four of the items with high loadings on Factor 4 relate to the ability to function normally, both positively and negatively. All four items are consistent with Olbrisch's Factor 1 (normal functioning) and with Burckhardt's findings if positive and negative aspects are combined (Factors 1 and 2). Factor 1 is somewhat ambiguous, containing items related to negative affect (partial replication of Olbrisch's Factor 2 and Burckhardt's Factor 3), knowledge about ostomy care (identical to Olbrisch's Factor 3), fears (not significantly loaded in either previous study), and one item related to normal functioning (Factor 1 in both previous studies). Factor 2 is also inconsistent, containing three items that relate to sexual confidence (partial replication of Burckhardt's Factor 2), two items that define body image, and one item relating to normal functioning, neither of which correspond to findings by Olbrisch or Burckhardt. Factors 3 and 5 consist of two items each which seem unrelated. These inconsistencies with previous research may result from low inter-item reliability coefficient (alpha = .38), or from differing factor rotation methods.
In summary, the results of this study find no significant relationship between adjustment to ostomy surgery and age or level of education. Type of ostomy and gender seem important, but are not statistically significant. Individuals with urostomies appear to have the highest levels of adjustment, followed by those with ileostomies and colostomies. Females seem to be better adjusted to ostomy surgery than males. Length of time since surgery and precipitating illness were significantly related to post-surgical adjustment. Inflammatory bowel disease patients had higher scores than those who had surgery for cancer. Most importantly, marital status was analyzed for the first time in a research study. These results show a significant effect of marital status on adjustment to ostomy surgery. Married subjects had higher scores than single individuals.

One possible limitation of this study is that all participants were active members of the United Ostomy Association and could be expected to be better adjusted than individuals who do not participate in a support group. Since length of time after surgery is the best predictor of adjustment, a longevity study would be valuable. Further studies incorporating personality variables and premorbid state would also help to provide a more comprehensive picture of a complicated phenomenon.
REFERENCES


APPENDIX A

Instructions Read to Participants

You have been given the Ostomy Adjustment Scale, a personal information form, and a consent form. The Scale consists of 34 statements that represent feelings that people with ostomies sometimes have. Based upon the feelings you have, rate how often each statement applies to you. Mark one circle on each line to indicate whether the statement applies Always, Usually, Often, Sometimes, Seldom, or Never. There are no right or wrong answers. After you have completed the Ostomy Adjustment Scale, please complete the personal information form and turn these in with your signed consent form. Thank you very much for your participation.
APPENDIX B

Consent Form

I, ____________________________, agree to take part in a research study conducted by Margot Knapp.

I realize that the data which results from the testing will be used in a Master's thesis and that no names will be used in the presentation of the data.

I further understand that this information is strictly confidential.

_________________________  ________________________
Signature                   Date
APPENDIX C

Personal Information

1. What is your sex?
   ____ Female  ____ Male

2. What is your age?
   ______

3. What is the highest level of education you have completed?
   ____ High school  ____ College
   ____ Junior college  ____ Graduate school

4. What is your occupation?
   __________________________

5. What is your current relationship status?
   ____ Never married  ____ Widowed
   ____ Married  ____ Cohabitation
   ____ Separated  ____ Committed relationship
   ____ Divorced

6. What was your relationship status at the time of your surgery?
   ____ Never married  ____ Widowed
   ____ Married  ____ Cohabitation
   ____ Separated  ____ Committed relationship
   ____ Divorced
7. What was the date of your ostomy surgery?

______________________________

8. What type of ostomy do you have?

___ Colostomy  ___ Continent ileostomy
___ Conventional ileostomy  ___ Urostomy

9. Under what circumstances was your ostomy surgery performed?

___ Life threatening  ___ Elective

10. Why was your ostomy surgery necessary?

___ Ulcerative colitis  ___ Diverticulitis
___ Crohn's disease  ___ Familial poliposis
___ Cancer  ___ Birth defect

Please add any comments you would like to make about the effect your ostomy has had on any interpersonal relationships.