



Relationship between perceived social support and stoma self-efficacy in permanent colostomy patients: A correlational study

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Abstract

Aim: In the context of adjusting to life with a permanent colostomy, this study explored how perceived social support from family, friends and others influences patients' self-efficacy in managing their stoma and engaging with their social lives.

Methods: The study employed a descriptive, correlational design to investigate the relationship between social support and self-efficacy in 94 colostomy patients between April 2021 and August 2022. Participants completed the Descriptive Characteristics Form, Multidimensional Scale of Perceived Social Support (MSPSS), and stoma self-efficacy scale (SSES). Descriptive statistics were used to summarise the data, and one-way ANOVA with Tukey HSD post-hoc test examined group differences. Pearson correlation assessed the relationship between age, social support and self-efficacy, while multiple linear regression identified factors independently associated with self-efficacy level.

Results: The participants had a mean age of 56.9 ± 14.34 years, and 37.2% had been suffering from stoma complications for a duration ranging from 13 months to 5 years. The mean total score on the MSPSS was 64.3 ± 13.5 , whereas the mean total score on the SSES stood at 71.22 ± 20.21 . A moderate positive correlation ($r = 0.419$, $p < 0.001$) was observed between the total scores from the MSPSS and SSES. The increase in the total score on the MSPSS was a significant predictor ($\beta = 0.293$, $p = 0.001$) of the level of stoma self-efficacy, explaining 48.9% of the variance.

Conclusion: Stronger perceived social support was linked to higher stoma self-efficacy in permanent colostomy patients.

KEYWORDS

colostomy, perceived social support, stoma self-efficacy, surgical nursing

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1 | INTRODUCTION

Living with a permanent colostomy presents significant challenges for individuals, requiring extensive adaptation and potentially impacting their daily lives profoundly.¹ This process often follows a three-stage trajectory: acceptance, adaptation and ultimately, achieving autonomy in managing their stoma.² However, difficulties associated with colostomy care and the emotional burden of the condition can hinder acceptance, leading to detachment and avoidance behaviours.³ This, in turn, impedes effective self-management and hinders patients' return to a full and active lifestyle. Despite increasing efforts by stomatherapy nurses to improve care techniques and quality, the prevalence of stoma-related complications, poor quality of life and significant psychological distress among this population remains concerning.¹ One of the most challenging but indispensable roles of nursing care is the successful rehabilitation of patients after their hospitalisation and return home.^{4,5} For patients with permanent stoma to adapt to their new life and psychosocial adjustment, they will need to accept changes in body image after surgery, understand the new defecation method, and self-perform effective stoma management, including the use of ostomy bags and colostomy irrigation.^{1,6} To learn stoma management and cope with emerging problems, the self-efficacy of individuals with stoma needs to be increased and patients may need social support for this. Individuals' adaptation to their new situations is related to their self-efficacy levels.⁷ Self-efficacy encompasses the personal belief in one's agency and capacity to effectively initiate and complete actions relevant to their life goals and challenges. In other words, it reflects the confidence that an individual possesses the necessary skills, knowledge and resilience to overcome obstacles and achieve desired outcomes.⁷ Individuals with high levels of self-efficacy can successfully adapt to new behaviours such as self-care skills. Thus, individuals can successfully perform self-care and maintain the necessary activities to improve their health.⁸ The concept of self-efficacy has been shown to be an important core concept in self-management of chronic diseases and a strong predictor of competence in stoma care management.¹

Stoma patients rely heavily on their families, social networks and caregivers for information and power to cope with their condition.⁹ Perceived social support is the perception/feeling of the presence of family members, friends and other important people.¹⁰ People need social support when it is not possible to get rid of the negative situations they face with their own efforts.¹¹ Although social support is observed to be high immediately after the surgery period, social support factors may change during major crises that occur as the disease progresses.⁶ In times of emotional distress and crisis, individuals need support from family members and friends who are seen as natural helpers. The support network formed by these informal groups has a significant impact on the individual's health and adaptation process.¹² It has been reported that social support is a source of support that facilitates psychological adaptation, especially in diseases such as cancer.¹³ Social support appears to be an important determinant of low or

high self-efficacy level and helps individuals develop the mechanism of coping with the stressors they face in their daily living experiences and the belief in self-efficacy.¹⁴ It is important to identify the levels of self-efficacy and social support to use systematic approaches to help maintain the social and psychological well-being of individuals, cope with problems, develop positive health behaviours, strengthen the social support network and provide counselling and training.¹⁵

Research Questions

1. To what extent do patients receiving permanent colostomy perceive different types of social support in their lives?
2. How does the level of stoma self-efficacy vary among patients receiving permanent colostomy since surgery?
3. Is there a significant association between perceived social support from specific sources and stoma self-efficacy levels in patients receiving permanent colostomy?

2 | METHODS

2.1 | Type of research

This descriptive and correlational study was conducted to determine the relationship between perceived social support and self-efficacy in patients with permanent colostomy.

2.2 | Study population and sample

The study was conducted between April 2021 and August 2022 with patients who underwent permanent colostomy and completed the third month at state hospitals in Antalya city centre, taking into account the rate of stoma surgery.

The sample size was calculated via G*Power 3.1.9 software. Ayalon and Bachner¹⁶ explored the correlation between self-efficacy and social support in patients with stoma¹⁶ and using this finding, the effect size was determined as $p = 0.497$. For a statistical power of 95% and a margin of error of 0.05%, the minimum sample size was calculated as 46. The study was conducted with 94 patients who underwent colostomy.

2.2.1 | Inclusion criteria

- Underwent permanent colostomy surgery at least 3 months before study initiation.
- At least 18 years of age.
- Mentally competent and able to provide informed consent.
- Fluent in Turkish (able to understand and respond to research questions comfortably).
- Willing and able to participate in all study procedures, including completing questionnaires and interviews.



2.2.2 | Exclusion criteria

- Current psychiatric diagnosis: Patients with a current diagnosis of a mental disorder such as major depressive episode or active psychosis were excluded to ensure participant capacity to provide informed consent and participate meaningfully in the study.
- Significant hearing or speech impairment: Participants who were unable to: Understand conversational Turkish through headphones at a typical volume.
- Verbally answer interview questions or provide written responses due to severe speech limitations. Complete the study questionnaire independently due to reading or comprehension difficulties.
- Inability to understand and answer the questionnaire: Participants with potential cognitive limitations that could hinder their ability to understand the questionnaire and provide reliable data were excluded from the study.

2.3 | Data collection tools

2.3.1 | Descriptive characteristics form

The form was designed by the researcher in line with the literature.^{1,6,16,17} It consists of 10 questions covering age, gender, educational status, presence of social security, duration of stoma, receiving stoma care training, the person who received the training, the occurrence of stoma-related complications, the person who cares for the stoma, and whether chemotherapy was received.

2.3.2 | Multidimensional scale of perceived social support

Developed by Zimet et al. (1988) and adapted into the Turkish language by Eker,¹⁸ the Multidimensional Scale of Perceived Social Support (MSPSS) measures an individual's perception of social support from three sources: family, friends and a significant other. The original scale demonstrates good internal consistency with a Cronbach's alpha value at 0.88.¹⁹ The Turkish language version exhibits similar reliability, with an overall alpha of 0.89 and subscale alphas ranging from 0.85 (family) and 0.88 (friends) to 0.92 (significant other).¹⁸

The MSPSS is divided into three subscales:

Family: Assessed by items 3, 4, 8 and 11.

Friends: Measured by items 6, 7, 9 and 12.

Significant other: Captured by items 1, 2, 5 and 10.

Each subscale score is the sum of its four items, ranging between 4 and 28. The total scale score is calculated by summing all subscale scores, ranging from 12 to 84. Higher scores (closer to 84) indicate stronger perceived social support, while lower scores (closer to 12) suggest weaker or absent perceived support.^{18,19} This study found a

Cronbach's alpha of 0.89 for the overall MSPSS, indicating good internal consistency.

2.3.3 | Stoma self-efficacy scale (SSES)

The SSES, developed by Bekkers et al.,²⁰ measures confidence in managing a stoma and interacting socially with it.²⁰ It was adapted into Turkish by Karaçay et al.⁷ The 22-item scale employs a five-point Likert scale, ranging from "extremely unsure" to "not at all confident." Two subdimensions assess different aspects of self-efficacy: stoma care self-efficacy (13 items) measures confidence in managing stoma care tasks, while social self-efficacy (nine items) measures confidence in social situations with a stoma. Each subdimension and the total score range from 22 to 110, with higher scores indicating greater self-efficacy. The original SSES demonstrates strong internal consistency (Cronbach's alpha: 0.94 for stoma care, 0.95 for social). The Turkish adaptation also exhibits high reliability (Cronbach's alpha: 0.95 total, 0.97 for stoma care, 0.95 for social). In this study, the total Cronbach's alpha for the adapted SSES was 0.94, confirming its reliability for measuring stoma self-efficacy.⁷

2.4 | Research procedure

The research received the necessary approval from the ethics committee and relevant institutions before data collection commenced. Individuals meeting the inclusion criteria were comprehensively informed about the research objectives and procedures. Written informed consent was obtained from those who voluntarily agreed to participate. To accommodate participant convenience and reach individuals post-surgery, data was collected using two methods:

Telephone Interviews: Conducted with participants who completed 3 months since surgery and were more easily accessible via phone.

Face-to-Face Interviews: Used for participants requiring in-person interaction or unable to participate in phone interviews.

2.5 | Data analysis

Descriptive statistics were presented as frequency (*n*), percentage (%), mean standard deviation (SD) and median (min-max) values. Normality assumption was checked with the Shapiro-Wilk test. In the analysis of the difference between the scale scores of two independent groups, Mann-Whitney U test was used when the scores did not conform to the normal distribution and the independent t-test was used when they did. Kruskal Wallis test was used for nonparametric comparisons of scale scores of three or more groups, and Bonferroni correction was used in post-hoc tests for significant results. When the assumption of normal distribution was met, a one-way ANOVA test was used to determine the

difference between the groups and the Tukey HSD test was used as a post-hoc test. The relationship between age, perceived social support and self-efficacy levels of the patients was analysed by the Pearson correlation test. Factors independently associated with the level of stoma self-efficacy in patients were determined by multiple linear regression analysis. Statistical analyses were performed on IBM SPSS 23.0 software package (IBM Corp). *p*-values less than 0.05 were considered statistically significant.

2.6 | Ethics

Before data collection, the study received ethical approval from the Non-Interventional Clinical Research Ethics Committee on 10 February 2021 (No: 134). Institutional permission was obtained from all participating institutions. Face-to-face participants provided written informed consent after a thorough explanation of the study. Participants reachable by phone granted online consent through a Google Forms questionnaire. Throughout the study, the principles of the Declaration of Helsinki were strictly adhered to, ensuring the protection of participants' medical and personal data. The study upheld the principle of "respect for human dignity," acknowledging the unique value and integrity of each individual.

3 | RESULTS

The study included 94 patients with permanent colostomy, ranging in age from 21 to 92 years (mean: 56.9 ± 14.34 years). Over half (61.7%) were male, and most (61.8%) had completed primary school education. The majority (78.7%) were affiliated with the social security institution.

Regarding stoma duration, 35.1% had a stoma for 3–12 months, 37.2% for 13 months–5 years and 27.7% for over 5 years. Almost all patients (94.7%) reported receiving stoma care training, with most (83.2%) receiving it from a medical company official. Over half of the participants (51.1%) experienced stoma-related complications. A large majority (69.1%) managed their stoma care independently. Additionally, 39.8% of the participants had undergone chemotherapy treatment (Table 1).

The mean score for the total MSPSS was 64.3 ± 13.5 (Min:12–Max:84), the mean score for the family subscale was 26.09 ± 4.53 , for the friend subscale was 19.61 ± 6.6 and for the significant other subscale was 18.61 ± 6.29 (Min:4–Max:28). The total mean score for stoma self-efficacy was 71.22 ± 20.21 (Min:33–Max:105), with a mean score of 44.39 ± 12.21 (Min:20–Max:65) for the care self-efficacy subdimension and 26.83 ± 9.51 (Min:11–Max:45) for the social self-efficacy subdimension.

Table 2 presents the results of the correlation analysis between perceived social support and stoma self-efficacy levels of the patients. The analysis revealed a moderate positive correlation between MSPSS family subscale and MSPSS total score ($r = 0.542$; $p < 0.001$) and a weak positive correlation with the friends subscale ($r = 0.234$; $p = 0.023$).

TABLE 1 Descriptive characteristics of the patients.

Variables	<i>n</i>	%
Age (years) $\bar{X} \pm SS$ /Median (min–max)	56.9 ± 14.34	57(21–92)
Gender		
Female	36	38.3
Male	58	61.7
Educational background		
Basic literacy skills	3	3.2
Primary school	46	48.9
Middle school	9	9.6
High school	18	19.1
Associate degree	8	8.5
Bachelor's degree or higher	10	10.6
Social security		
Green card	7	7.5
Social Security Institution (SSI)	74	78.7
BAGKUR (Social Security for Self-employed)	13	13.8
Stoma duration		
3–12 months	33	35.1
13 months–5 years	35	37.2
Over 5 years	26	27.7
Received stoma care training		
Yes	89	94.7
No	5	5.3
Person giving training (<i>n</i> = 89)		
Doctor	5	5.6
Nurse	5	5.6
Medical company official	74	83.2
Other	5	5.6
Stoma-related complications		
Yes	48	51.1
No	46	48.9
Person providing stoma care		
Self	65	69.1
Family member	29	30.9
Chemotherapy		
Yes	37	39.8
No	56	60.2

The MSPSS total score showed a very strong positive correlation with the friends subscale ($r = 0.866$; $p < 0.001$), a moderate correlation with the significant other subscale ($r = 0.641$; $p < 0.001$), and a very strong positive correlation with the stoma self-efficacy total

**TABLE 2** Association between perceived social support and stoma self-efficacy.

Scales		1	2	3	4	5	6	7
1. Family	<i>r</i>	1						
	<i>p</i>	–						
2. Friends	<i>r</i>	0.234	1					
	<i>p</i>	0.023	–					
3. Significant other	<i>r</i>	0.196	0.641	1				
	<i>p</i>	0.058	<0.001	–				
4. Total MSPSS	<i>r</i>	0.542	0.866	0.845	1			
	<i>p</i>	<0.001	<0.001	<0.001	–			
5. Care self-efficacy	<i>r</i>	–0.065	0.421	0.444	0.391	1		
	<i>p</i>	0.531	<0.001	<0.001	<0.001	–		
6. Social self-efficacy	<i>r</i>	–0.004	0.438	0.377	0.389	0.726	1	
	<i>p</i>	0.970	<0.001	<0.001	<0.001	<0.001	–	
7. Total stoma self-efficacy (SSES)	<i>r</i>	–0.041	0.461	0.446	0.419	0.946	0.910	1
	<i>p</i>	0.692	<0.001	<0.001	<0.001	<0.001	<0.001	–

Note: Pearson correlation test.

TABLE 3 Relationship between age and perceived social support and stoma self-efficacy levels.

Scales	<i>R</i>	<i>p</i>
Family	0.073	0.484
Friends	–0.209	0.043
Significant other	–0.283	0.006
Total MSPSS	–0.209	0.043
Care self-efficacy	–0.255	0.013
Social self-efficacy	–0.145	0.164
Total stoma self-efficacy (SSES)	–0.222	0.031

Note: Pearson correlation test.

Abbreviation: MSPSS, Multidimensional Scale of Perceived Social Support.

score ($r = 0.461$; $p < 0.001$), care self-efficacy ($r = 0.421$; $p < 0.001$), and social self-efficacy subscale score ($r = 0.438$; $p < 0.001$) (Table 2).

There was a very strong positive correlation between the MSPSS significant other subscale and the MSPSS total score ($r = 0.845$; $p < 0.001$). A moderate correlation was observed with stoma self-efficacy total score ($r = 0.446$; $p < 0.001$) and care self-efficacy subscale ($r = 0.444$; $p < 0.001$) and a weak correlation was observed with social self-efficacy subscale ($r = 0.377$; $p < 0.001$). There was a moderate positive correlation between MSPSS total score and stoma self-efficacy total score ($r = 0.419$; $p < 0.001$). There was a weak correlation with care self-efficacy ($r = 0.391$; $p < 0.001$) and social self-efficacy subdimension ($r = 0.389$; $p < 0.001$) (Table 2).

Both the care self-efficacy subdimension and the stoma self-efficacy total score displayed highly significant positive correlations ($r = 0.946$ and $r = 0.726$, respectively; $p < 0.001$), indicating a robust association. A very strong positive correlation ($r = 0.910$; $p < 0.001$) was

found between the social self-efficacy subdimension and the Self-Efficacy total score, as shown in Table 2. This suggests that individuals with high confidence in their ability to navigate social situations also tend to have high overall self-efficacy.

An analysis of correlations between age, social support and self-efficacy (Table 3) revealed weak, but statistically significant, negative correlations between age and perceived social support. Specifically, older adults reported lower total MSPSS scores ($r = -0.209$, $p = 0.043$) and lower perceived support from friends ($r = -0.209$, $p = 0.043$) and family ($r = -0.283$, $p = 0.006$). While the relationships were weak, there was a statistically significant trend for older patients to score lower on both the stoma self-efficacy total score ($r = -0.222$; $p = 0.031$) and the care self-efficacy subdimension ($r = -0.255$; $p = 0.013$).

Examining factors influencing stoma self-efficacy (Table 4), regression analysis revealed several significant predictors. Patients receiving social security (SSI) benefits and those with longer time since stoma surgery had higher self-efficacy ($\beta = 0.220$, $p = 0.008$ and $\beta = 0.229$, $p = 0.032$, respectively). Additionally, engaging in self-care activities and having higher perceived social support (MSPSS score) were significantly associated with increased self-efficacy ($\beta = 0.214$, $p = 0.032$ and $\beta = 0.293$, $p = 0.001$). These factors combined explained 48.9% of the variation in stoma self-efficacy.

4 | DISCUSSION

Living with a stoma can bring challenges to social interactions, daily routines and even physical activities.²¹ Common difficulties include exercising, sleeping, participating in community activities, intimacy and dressing.²² Self-efficacy, which is essentially one's belief in their

TABLE 4 Factors associated with patients' stoma self-efficacy levels.

Model 1	Self-efficacy						95% Confidence interval	
	B	SE	β	t	p	VIF	Lower limit	Upper limit
Fixed	21.419	14.698	–	1.457	0.149	–	–7.814	50.652
Age	–0.118	0.131	–0.085	–0.903	0.369	1.423	–0.378	0.142
Education	1.928	1.204	0.153	1.602	0.113	1.489	–0.466	4.323
Social Security (SSI)	10.723	3.943	0.220	2.720	0.008	1.067	2.881	18.565
Employment status (currently working)	–2.650	5.227	–0.047	–0.507	0.614	1.420	–13.045	7.746
Monthly income	0.472	2.950	0.015	0.160	0.873	1.362	–5.395	6.339
Stoma duration	5.780	2.652	0.229	2.180	0.032	1.797	0.506	11.054
Person providing stoma care (self)	9.232	4.236	0.214	2.179	0.032	1.565	0.806	17.658
Chemotherapy	–3.369	4.186	–0.083	–0.805	0.423	1.706	–11.694	4.956
Total MSPSS	0.434	0.124	0.293	3.510	0.001	1.130	0.188	0.680

Note: $R = 0.699$; $R^2 = 0.489$; $p < 0.001$.

Abbreviation: MSPSS, Multidimensional Scale of Perceived Social Support.

ability to manage these challenges, plays a crucial role in coping and adapting to life with a stoma.²³ Assessing self-efficacy is therefore crucial in supporting patients with stomas. Research shows that social support is another key factor in successful stoma adjustment. It can help individuals feel less alone, reduce the burden of living with a stoma, and improve their overall quality of life, sense of self-worth and ability to manage their ostomy.^{6,10}

In this study, the multidimensional perceived social support levels of the patients were above average. Among the subscales, the highest mean score was found in the family subscale and the lowest mean score was found in the significant other subscale. Similar to our finding, in a study conducted with patients with stoma, it was stated that the mean scores of patients with a stoma duration of 1 year or less and patients who provided their own stoma care were lower than the mean scores of family and friends subdimension.²⁴ This finding reveals that individuals with stoma opening cannot get enough support from significant others in their lives. However, unlike significant others, family members continue to support the stoma-opened individual.

This study revealed a nuanced relationship between social support and stoma self-efficacy. While a moderate positive correlation existed between the overall MSPSS score and family support, both friend and significant other support exhibited significantly stronger positive correlations with stoma self-efficacy.

This finding aligns with previous research by Ceylan and Vural²⁵ who highlighted the importance of family support in stoma adaptation.²⁵ Similarly, studies by both Ceylan and Vural²⁵ and Cengiz and Bahar²⁶ emphasise the critical role of family in facilitating social support and adaptation.^{25,26} However, our findings suggest that the impact of friend and significant other support may be even stronger, warranting further investigation into these specific dynamics. It has been emphasised that variables related to social support are

highly crucial for self-efficacy, that is, the belief in one's ability to organise and implement the actions needed to manage future situations.²⁷ Our findings reveal a moderately positive association between stronger perceived social support and improved self-efficacy in managing a stoma, as reflected by the positive correlation between MSPSS total score and stoma self-efficacy total score. This aligns with previous research by Gautam et al.,²⁸ who identified that social support enhances stoma compliance, further underlining the interconnectedness of these factors.²⁸ Another study reported that patients' self-efficacy levels were an influential factor in stoma compliance, and social support also had an effect on stoma compliance.²⁹ These findings emphasise the profound impact that social support has on the journey of adapting to life with a stoma. A strong support network can instill confidence and foster essential skills needed for effective stoma management. This, in turn, boosts self-efficacy, a key factor in achieving autonomy and a fulfilling life despite the challenges associated with a stoma.

In this study, a weak negative correlation was observed between age and both perceived social support and stoma self-efficacy. This finding aligns with Avcu and Yıldız,³⁰ who reported a decline in Ostomy Self-Care Index scores with increasing age in individuals with a stoma. While Wang et al.³¹ found that self-efficacy initially increased with stoma duration, it subsequently decreased in patients who had a stoma for over 5 years. Given the association between increased stoma duration and older age, their findings may indirectly support our observation of a negative correlation between age and stoma self-efficacy.

In our study, the total mean stoma self-efficacy score of the patients was above the average, and the mean score of the care self-efficacy subdimension was higher than the mean score of social self-efficacy. In the study conducted by Su et al.²² in patients with colostomy, the mean total self-efficacy score was similar to our study.²²



In accordance with our study findings, there are other studies that reported self-efficacy levels above the average.^{23,31,32} Our study further solidifies this connection. It reveals a very strong association between the subdimensions of the stoma self-efficacy scale and the overall score, demonstrating their strong internal consistency. Additionally, a strong positive relationship exists between these subdimensions themselves, suggesting a holistic sense of self-efficacy impacting stoma care.

Achieving high compliance in colostomy patients remains a central concern in surgical care.³³ This demands a multifaceted approach, encompassing effective self-management, adaptation to physical changes and a sense of competency in stoma care.^{6,20} Among these factors, stoma self-efficacy emerges as a key determinant of self-care behaviours. Previous studies^{6,28} highlighted how a patient's belief in their ability to manage their stoma independently fosters confidence and compliance. In our study, the factors that were found to increase the level of stoma self-efficacy were that the patients were affiliated to a social security institution, the time elapsed since the opening of the stoma increased, the patient performed the stoma care himself/herself, and the perceived social support was high. Social support is a key component of psychosocial adjustment for patients with ostomy and greatly influences quality of life.¹⁰ The level of psychosocial adjustment is positively associated with self-care ability.¹⁷ Therefore, social support elements should not be ignored in the adaptation process until the stoma self-efficacy of patients is achieved, and the individual with stoma and his/her family should be supported.

4.1 | Limitations

While this study provides valuable insights, the current design limits our ability to definitively establish causal relationships between the variables. Further research with larger sample sizes or randomised controlled trials is crucial to confirm these findings and draw stronger conclusions about causality.

5 | CONCLUSION

This study revealed a positive association between stronger multi-dimensional social support and increased self-efficacy in managing a stoma, particularly during the critical initial post-surgery period. Investing in personalised support is crucial, especially for patients with recent stomas (less than 1 year) who exhibit lower self-efficacy. Implementing individualised training sessions delivered by nurses, with practical demonstrations tailored to each patient's needs and concerns, can significantly empower these individuals. Nurses reclaiming their responsibilities in patient education is essential. By taking a proactive approach and delivering comprehensive and up-to-date stoma care education directly, nurses can foster a more personalized and effective learning experience, potentially reducing reliance on external materials. Besides, expanding the specialised stoma and wound care nursing workforce is also paramount to ensure

improved patient outcomes and self-efficacy, allowing individuals to navigate life with a stoma with greater confidence and autonomy.

AUTHOR CONTRIBUTIONS

All authors have agreed on the final version and meet at least one of the following criteria: **Fatma Zehra Aker**: study design, data curation, writing review; methodology; investigation. **Ebru Karazeybek**: study design; data curation; writing review; methodology; investigation; project administration; writing review and editing.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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