ISSN 0973-2063 (online) 0973-8894 (print)

Bioinformation 22(10): 6429-6434 (2026)

©Biomedical Informatics (2026)

BIOINFORMATION
Discovery at the interface of physical and biological sciences

BIOMEDICAL INFORMATICS

www.bioinformation.net

Volume 22(10)

Research Article

Received October 1, 2026; Revised October 31, 2026; Accepted October 31, 2026, Published October 31, 2026

DOI: 10.6026/973206300226429

SJIF 2026 (Scientific Journal Impact Factor for 2026) = 8.478
2022 Impact Factor (2023 Clarivate Inc. release) is 1.9

Declaration on Publication Ethics:
The author's state that they adhere with COPE guidelines on publishing ethics as described elsewhere at https://publicationethics.org/. The authors also undertake that they are not associated with any other third party (governmental or non-governmental agencies) linking with any form of unethical issues connecting to this publication. The authors also declare that they are not withholding any information that is misleading to the publisher in regard to this article.

Declaration on official E-mail:
The corresponding author declares that lifetime official e-mail from their institution is not available for all authors

License statement:
This is an Open Access article which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly credited. This is distributed under the terms of the Creative Commons Attribution License

Comments from readers:
Articles published in BIOINFORMATION are open for relevant post publication comments and criticisms, which will be published immediately linking to the original article without open access charges. Comments should be concise, coherent and critical in less than 1000 words.

Disclaimer:
Bioinformation provides a platform for scholarly communication of data and information to create knowledge in the Biological/ Biomedical domain after adequate peer/editorial reviews and editing entertaining revisions where required. The views and opinions expressed are those of the author(s) and do not reflect the views or opinions of Bioinformation and (or) its publisher Biomedical Informatics. Biomedical Informatics remains neutral and allows authors to specify their address and affiliation details including territory where required.

Edited by Ritik Kashwani
E-mail: docritikkashwani@yahoo.com
Citation: Andisamy *et al*. Bioinformation 22(10): 6429-6434 (2026)

A study to assess the supportive care needs and self-esteem among ostomy survivors in a tertiary care hospital, Chennai

Parvathi Andisamy[1], Shankar Shanmugam Rajendran[2,*], Anbalagan Maruthan[3], Keerthiga Vinoth[4], Mohan Prabu Udaya Suriyan[4], Vasanthi Annamalai[4] & Saravanan Settu[5]

[1]Department of Medical Surgical Nursing, College of Nursing, Madras Medical College, Chennai, Tamil Nadu, India; [2]Department of Nursing Research, College of Nursing, Madras Medical College, Chennai, Tamil Nadu, India; [3]Department of Child Health Nursing, College of Nursing, Madras Medical College, Chennai, Tamil Nadu, India; [4]Department of Medical Surgical Nursing, College of Nursing, Madras Medical College, Chennai, Tamil Nadu, India; [5]Department of Emergency and Critical Care, Tamil Nadu, India; *Corresponding author

Affiliation URL:

ISSN 0973-2063 (online) 0973-8894 (print)
Bioinformation 22(10): 6429-6434 (2026)
©Biomedical Informatics (2026)

https://mmc.tn.gov.in/en/

Author contact:
Parvathi Andisamy - E-mail: parvathiandisamy@gmail.com
Shankar Shanmugam Rajendran - E-mail: shankarshaki@yahoo.com
Anbalagan Maruthan - E-mail: anbalagan.avi@yahoo.com
Keerthiga Vinoth - E-mail: keerthiga4996@gmail.com
Mohan Prabu Udaya Suriyan - E-mail: kvasanprabu@gmail.com
Vasanthi Annamalai - E-mail: vasanthia77@gmail.com
Saravanan Settu - E-mail: sarabu1982@gmail.com

Abstract:
Ostomy surgery can affect physical appearance, daily functioning, self-perception and psychological well-being. Therefore, it is of interest to assess the supportive care needs and self-esteem among 60 ostomy survivors aged ≥30 years in an Indian tertiary care hospital. Moderate and high supportive care needs were reported by 73.33% and 26.67% of participants, respectively, while 50% had low self-esteem. Supportive care needs were negatively correlated with self-esteem ($r = -0.46$, $p < 0.01$), with significant associations observed with selected socio-demographic and clinical factors ($p \leq 0.05$). Thus, data support individualized psychosocial interventions and nursing strategies to improve coping, self-esteem and quality of life among ostomy survivors.

Keywords: Ostomy survivors, supportive care needs, self-esteem, psychosocial adaptation, tertiary care, body image, nursing care

Background:
Surgical creation of an ostomy, whether temporary or permanent, is a life-saving but life-altering procedure. Ostomy formation, commonly resulting from colorectal cancer, inflammatory bowel disease, trauma, or congenital anomalies, requires individuals to adjust to new bodily functions and altered self-image **[1]**. While the surgery addresses critical physiological concerns, it often introduces complex psychosocial challenges. Survivors frequently experience changes in lifestyle, dependence on ostomy appliances and altered personal identity, all of which can significantly impact their mental well-being and self-esteem **[2]**. Globally, more than 1.5 million people live with a stoma and estimates continue to rise due to the increased prevalence of colorectal cancer and other gastrointestinal conditions. In India, over 100,000 individuals are estimated to be living with ostomies, with limited structured support systems available to them. Despite technological advancements in ostomy care, the emotional and supportive needs of survivors remain inadequately addressed in many healthcare systems. The supportive care needs of ostomy patients encompass a wide range of domains including physical symptoms (*e.g.,* skin irritation, leakage), psychological distress (*e.g.,* embarrassment, anxiety), informational needs, social support, sexual functioning and financial challenges **[3]**. These unmet needs, if unrecognized, can lead to diminished quality of life and impaired coping. Self-esteem, a person's overall sense of self-worth, is a significant psychosocial variable among ostomy survivors. The presence of a stoma often causes profound body image issues, leading to reduced self-confidence, social withdrawal and depression **[4]**. Survivors may perceive themselves as unattractive, different or dependent, which may further hinder interpersonal relationships and recovery. Several studies have shown a strong interrelationship between supportive care and self-esteem; when appropriate emotional, informational and physical support is provided, individuals are better able to cope with their altered body image and adapt positively **[5]**. However, in many Indian hospitals, emphasis is often placed on physical recovery, while psychosocial rehabilitation remains neglected. Demographic factors such as age, gender, marital status, education, income, type of ostomy and time since surgery influence both the level of unmet needs and self-esteem; younger individuals and those with permanent ostomies have been found to have higher psychosocial needs **[6]**. Therefore, it is of interest to evaluate the supportive care needs and psychological well-being comprehensively.

Materials and Methods:
A descriptive quantitative design was used. The study was conducted in the Department of Surgical Oncology, Rajiv Gandhi Government General Hospital and Chennai. The accessible population comprised ostomy survivors attending the oncology department who fulfilled the selection criteria and were available during the one-week data collection period. A non-probability convenience sampling technique was adopted and 60 participants were enrolled. Ostomy survivors aged 30 years and above, willing to participate and provide informed consent and able to understand Tamil or English were included. Survivors with critical illness or cognitive impairment and recently diagnosed (within one week) ostomy patients were excluded. Data collection tools included a sociodemographic and clinical profile (age, gender, marital status, education, employment status, income, type of ostomy, duration of ostomy, reason for ostomy, stoma care training, comorbidities and type of support system), the Supportive Care Needs Survey–Short Form (SCNS-SF34) and the Rosenberg Self-Esteem Scale (RSES). Ethical approval was obtained from the Institutional Ethics Committee of Madras Medical College before initiating the study; permission was obtained from the Head of Surgical Oncology and written informed consent was obtained from each participant. Quantitative data were analysed using both

descriptive and inferential statistical methods. Descriptive statistics (mean, median, standard deviation, frequency and percentage) summarized the central tendencies and variability of the data. The Pearson correlation coefficient and chi-square test were used to assess the association between selected sociodemographic factors and the levels of supportive care needs and self-esteem. All analyses were performed in SPSS and findings were interpreted in accordance with the study objectives, with statistical significance set at $p \leq 0.05$.

Results:

Socio-demographically, 11.67% of participants were 31–40 years, 18.33% were 41–50 years, 38.33% were 51–60 years and 31.67% were above 60 years. Most participants were male (71.67%), 91.66% were married and 46.67% had completed primary education. Half of the participants (50%) reported a monthly income above ₹4,000, 51.67% resided in rural areas and 81.67% identified as Hindu. Nuclear families accounted for 56.66% of the sample. Lifestyle habits included tea-totaller (45%), smoker (23.34%), drinker (3.33%) and combined smoker and drinker (28.33%). Clinically, 40% had a colostomy, 23.33% and ileostomy, 5% an ostomy and 31.67% a jejunostomy. Colon cancer was the leading reason for ostomy (43.33%). Most survivors were within 6 months of surgery (50%), 33.33% had diabetes mellitus as comorbidity and the spouse was the primary caregiver in 53.33% of cases **(Table 1).** On the SCNS-SF34, 73.33% of survivors reported moderate supportive care needs and 26.67% reported high needs; no participant fell in the low-need band. On the RSES, 50% had low self-esteem, 41.67% had normal self-esteem and 8.33% had high self-esteem. Chi-square testing identified statistically significant associations between supportive care needs and gender ($\chi^2 = 12.54$, $p = 0.001$), employment status ($\chi^2 = 9.82$, $p = 0.05$) and primary caregiver ($\chi^2 = 6.30$, $p = 0.05$) **(Table 2).** For self-esteem, age ($\chi^2 = 8.44$, $p = 0.05$), gender ($\chi^2 = 6.64$, $p = 0.01$) and duration since ostomy surgery ($\chi^2 = 9.87$, $p = 0.01$) were significantly associated **(Table 3).** Pearson correlation analysis confirmed a significant negative association between supportive care needs and self-esteem ($r = -0.46$, $p < 0.01$), indicating that higher unmet supportive needs were linked to lower self-esteem.

Table 1: Distribution of supportive care needs and self-esteem levels among ostomy survivors (N = 60).

Variable	Category	n	%
Supportive care needs	Low	0	0
	Moderate	44	73.33
	High	16	26.67
Self-esteem	Low	30	50
	Normal	25	41.67
	High	5	8.33

Table 2: Association between level of supportive care needs and sociodemographic and clinical variables (N = 60)

Variable	Category	Moderate n (%)	High n (%)	χ^2 (p-value)
Age	31–40 years	7 (100.00)	0 (0.00)	3.31 (0.35) NS
	41–50 years	7 (63.64)	4 (36.36)	
	51–60 years	17 (73.91)	6 (26.09)	
	> 60 years	13 (68.42)	6 (31.58)	
Gender	Male	37 (86.05)	6 (13.95)	**12.54 (0.001)***
	Female	7 (41.18)	10 (58.82)	
Marital status	Single	3 (100.00)	0 (0.00)	6.65 (0.08) NS
	Married	41 (74.55)	14 (25.45)	
	Widowed	0 (0.00)	1 (100.00)	
	Divorced	0 (0.00)	1 (100.00)	
Education	No formal education	1 (33.33)	2 (66.67)	6.36 (0.10) NS
	Primary	17 (60.71)	11 (39.29)	
	Higher secondary	20 (86.96)	3 (13.04)	
	Graduate/PG	6 (100.00)	0 (0.00)	
Employment status	Govt. employee	2 (100.00)	0 (0.00)	**9.82 (0.05)***
	Private employee	22 (88.00)	3 (12.00)	
	Unemployed	16 (55.17)	13 (44.83)	
	Retired	4 (100.00)	0 (0.00)	
Monthly income	< ₹2,500	10 (55.56)	8 (44.44)	5.14 (0.08) NS
	₹2,500–4,000	11 (91.67)	1 (8.33)	
	> ₹4,000	23 (76.67)	7 (23.33)	
Residence	Rural	22 (70.97)	9 (29.03)	2.80 (0.24) NS
	Urban	11 (91.67)	1 (8.33)	
	Semi-urban	11 (64.71)	6 (35.29)	
Religion	Hindu	34 (69.39)	15 (30.61)	3.65 (0.46) NS
	Muslim	7 (87.50)	1 (12.50)	
	Christian	3 (100.00)	0 (0.00)	
Family structure	Nuclear	26 (76.47)	8 (23.53)	2.30 (0.31) NS
	Joint	15 (68.18)	7 (31.82)	
	Extended	3 (75.00)	1 (25.00)	
Lifestyle habits	Tea-totaller	17 (62.96)	10 (37.04)	3.11 (0.37) NS
	Smoker	11 (78.57)	3 (21.43)	
	Drinker	2 (100.00)	0 (0.00)	

	Smoker & drinker	14 (82.35)	3 (17.65)	
Type of ostomy	Colostomy	19 (79.17)	5 (20.83)	0.62 (0.89) NS
	Ileostomy	12 (85.71)	2 (14.29)	
	Urostomy	2 (66.67)	1 (33.33)	
	Jejunostomy	15 (78.94)	4 (21.06)	
Reason for ostomy	Colon cancer	22 (84.62)	4 (15.38)	3.23 (0.35) NS
	Bladder cancer	1 (50.00)	1 (50.00)	
	Stomach cancer	13 (65.00)	7 (35.00)	
	Rectal cancer	8 (66.67)	4 (33.33)	
Comorbid illness	Hypertension	12 (75.00)	4 (25.00)	2.85 (0.23) NS
	Diabetes mellitus	17 (85.00)	3 (15.00)	
	None	15 (62.50)	9 (37.50)	
Duration since surgery	< 1 month	21 (80.77)	5 (19.23)	3.72 (0.16) NS
	1–6 months	19 (63.33)	11 (36.67)	
	> 6 months	4 (100.00)	0 (0.00)	
Primary caregiver	Spouse	26 (81.25)	6 (18.75)	**6.30 (0.05)***
	Children	14 (58.33)	10 (41.67)	
	Self	4 (100.00)	0 (0.00)	

Table 3: Association between level of self-esteem and sociodemographic and clinical variables (N = 60).

Variable	Category	Low n (%)	Normal/High n (%)	χ^2 (p-value)
Age	31–40 years	1 (14.29)	6 (85.71)	**8.44 (0.05)***
	41–50 years	3 (27.27)	8 (72.73)	
	51–60 years	16 (69.57)	7 (30.43)	
	> 60 years	10 (52.63)	9 (47.37)	
Gender	Male	17 (39.53)	26 (60.47)	**6.64 (0.01)***
	Female	13 (76.47)	4 (23.53)	
Marital status	Single	2 (66.67)	1 (33.33)	2.35 (0.50) NS
	Married	27 (49.09)	28 (50.91)	
	Widowed	1 (100.00)	0 (0.00)	
	Divorced	0 (0.00)	1 (100.00)	
Education	No formal education	1 (33.33)	2 (66.67)	2.68 (0.44) NS
	Primary	17 (60.71)	11 (39.29)	
	Higher secondary	10 (43.48)	13 (56.52)	
	Graduate/PG	2 (33.33)	4 (66.67)	
Employment status	Govt. employee	1 (50.00)	1 (50.00)	3.69 (0.30) NS
	Private employee	10 (40.00)	15 (60.00)	
	Unemployed	18 (62.07)	11 (37.93)	
	Retired	1 (25.00)	3 (75.00)	
Monthly income	< ₹2,500	12 (66.67)	6 (33.33)	3.20 (0.20) NS
	₹2,500–4,000	6 (50.00)	6 (50.00)	
	> ₹4,000	12 (40.00)	18 (60.00)	
Residence	Rural	16 (51.61)	15 (48.39)	0.42 (0.80) NS
	Urban	5 (41.67)	7 (58.33)	
	Semi-urban	9 (52.94)	8 (47.06)	
Religion	Hindu	24 (48.98)	25 (51.02)	0.35 (0.84) NS
	Muslim	4 (50.00)	4 (50.00)	
	Christian	2 (66.67)	1 (33.33)	
Family structure	Nuclear	17 (50.00)	17 (50.00)	0.00 (1.00) NS
	Joint	11 (50.00)	11 (50.00)	
	Extended	2 (50.00)	2 (50.00)	
Lifestyle habits	Tea-totaller	16 (59.26)	11 (40.74)	2.12 (0.13) NS
	Smoker	5 (35.71)	9 (64.29)	
	Drinker	1 (50.00)	1 (50.00)	
	Smoker & drinker	8 (47.06)	9 (52.94)	
Type of ostomy	Colostomy	8 (33.33)	16 (66.67)	5.57 (0.13) NS
	Ileostomy	7 (50.00)	7 (50.00)	
	Urostomy	2 (66.67)	1 (33.33)	
	Jejunostomy	13 (68.42)	6 (31.58)	
Reason for ostomy	Colon cancer	12 (46.15)	14 (53.85)	3.28 (0.35) NS
	Bladder cancer	1 (50.00)	1 (50.00)	
	Stomach cancer	13 (65.00)	7 (35.00)	
	Rectal cancer	4 (33.33)	8 (66.67)	
Comorbid illness	Hypertension	8 (50.00)	8 (50.00)	0.36 (0.82) NS
	Diabetes mellitus	11 (55.00)	9 (45.00)	
	None	11 (45.83)	13 (54.17)	
Duration since surgery	< 1 month	19 (73.07)	7 (26.93)	**9.87 (0.01)***
	1–6 months	10 (33.33)	20 (66.67)	
	> 6 months	1 (25.00)	3 (75.00)	

Primary caregiver	Spouse	15 (46.88)	17 (53.13)	1.12 (0.57) NS
	Children	12 (50.00)	12 (50.00)	
	Self	3 (75.00)	1 (25.00)	

*Statistically significant at $p \leq 0.05$; NS, not significant.

Discussion:

This study found that the majority of ostomy survivors experienced moderate to high levels of supportive care needs, with no participant falling in the low-need band. Psychological support emerged as a prominent concern; participants frequently reported feelings of anxiety, depression and body image disturbance. Physical needs centred on stoma care management, pain, fatigue and periosteal skin irritation, while informational needs included guidance on self-care, diet, hygiene and recognition of complication warning signs. A considerable number of participants also expressed discomfort in social interaction, avoidance of public places and strained intimate relationships. These findings echo evidence that ostomy survivors continue to experience long-term psychosocial, physical and educational support needs well after hospital discharge **[3]** and that on-going professional support improves adaptation and quality of life **[7].** On the RSES, 50% of survivors had low self-esteem, 41.67% had normal self-esteem and 8.33% had high self-esteem. Low self-esteem was more common in individuals with shorter ostomy duration in this cohort particularly within the first month of surgery reflecting the acute adjustment period when body-image disturbance, loss of independence and social withdrawal are most intense. These observations align with classical work showing that ostomy patients often struggle with lowered self-image and self-esteem due to perceived changes in bodily function and appearance **[8]** and with more recent evidence that psychological adaptation to ostomy strongly influences long-term emotional well-being and self-concept **[9]**. Three socio-demographic variables were significantly associated with supportive care needs: gender, employment status and primary caregiver. Women reported markedly higher unmet needs than men (58.82% high need versus 13.95%), consistent with literature documenting gendered patterns of body-image concern and sexual functioning after stoma surgery **[10]**. Survivors whose primary caregivers were their children, rather than spouses or themselves, reported higher unmet need, suggesting that intergenerational caregiving may not fully substitute for spousal involvement in everyday stoma management. For self-esteem, age, gender and duration since surgery were significant. Older age groups and women had disproportionately lower self-esteem, while survivors at 1–6 months post-operatively reported better self-esteem than those within the first month, in keeping with the adaptation trajectory described in planned-education interventions **[11]**. Critically, Pearson correlation revealed a significant negative association between supportive care needs and self-esteem ($r = -0.46$, $p < 0.01$), confirming that unmet needs and impaired self-worth co-vary in clinically meaningful ways. Structured stoma-care nursing interventions, periosteal complication management and psychosocial counselling have all been shown to improve outcomes **[12, 13]** and self-management programs delivered systematically can improve patient autonomy and quality of life **[14, 15 and 16]**. The limitations of the present study single center setting, convenience sampling, modest sample size and cross-sectional design constrain generalizability. Multi center longitudinal studies with culturally tailored psychosocial interventions are warranted to test causal pathways between supportive care provision and self-esteem trajectories among Indian ostomy survivors.

Funding: Nil

Conflict of Interest: Nil

Conclusion:

Ostomy survivors experienced substantial supportive care needs and reduced self-esteem, with a significant negative association between them. Socio-demographic and clinical factors influenced supportive care needs and self-esteem. Person-centred education, psychosocial counselling, family involvement and continuous nursing support are essential to improve adaptation and quality of life.

Acknowledgment:

The authors thank all the ostomy survivors who participated in this study and the staff of the Department of Surgical Oncology, Rajiv Gandhi Government General Hospital, Chennai, for their support.

References:

[1] Yeniğűn Akbulut SC & Ilgaz A. *BMC Psychol*. 2026 **14**:315. [PMID: 41578363]
[2] McGrogan M & Proctor C. *Br J Nurs*. 2024 **33**:S14. [PMID: 39250440]
[3] Zhang X *et al.* J *Clin Nurs*. 2025 **34**:4810. [PMID: 40130677]
[4] Kovoor JG *et al. BMC Psychiatry*. 2023 **23**:352. [PMID: 37217917]
[5] Skibsted CV *et al. Colorectal Dis*. 2022 **24**:1128. [PMID: 35639396]
[6] Hanlon E *et al. Psychooncology*. 2026 **35**:e70538. [PMID: 42400471]
[7] Zhang X *et al. J Clin Nurs*. 2025 **34**:4810. [PMID: 40130677]
[8] Sayar S & Vural F. *J Wound Ostomy Continence Nurs*. 2025 **52**:485. [PMID: 41235849]
[9] Sarah L *et al. J Health Psychol*. 2025 **30**:3668. [PMID: 39849880]
[10] Fischer M *et al. Int J Colorectal Dis*. 2026 **41**:39. [PMID: 41559477]
[11] Aydogan S *et al. Appl Nurs Res*. 2026 **89**:152091. [PMID: 42225347]
[12] Albulescu E *et al. Curr Health Sci J*. 2024 **50**:5. [PMID: 38846478]
[13] Goodman W *et al. J Adv Nurs*. 2022 **78**:722. [PMID: 34708416]
[14] Hu J *et al. J Nurs Res.* 2024 **32**:e329. [PMID: 38727228]

[15] Juvik LA *et al. J Patient Rep Outcomes.* 2025 **9**:61. [PMID: 40448794]

[16] Sham F *et al. Environment-Behaviour Proceedings Journal.* 2025 **10**:209. [DOI: 10.21834/e-bpj.v10i33.7247]

Caveat Emptor is applicable among the literate community where required and possible. The publisher, its journal, editors and the internal/external reviewers take adequate steps to check, evaluate, correct, edit, revise and improve content where possible and required.