

Comparative Study of Health-Related Quality of Life between Colorectal Cancer Patients with Temporary and Permanent Stoma

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ABSTRACT

Objective: To compare the health-related quality of life (HRQOL) between colorectal cancer (CRC) patients with temporary and permanent stoma.

Methods: This survey was a cross-sectional study that was conducted on 110 CRC patients living with stoma. A validated Thai version of Padilla and Grant's HRQOL (as a cancer nursing outcome variable) was used. Enrolled patients must have age between 40-60 years and live with stoma over a period of 3 months.

Results: There were 83 patients with temporary stoma and 27 patients with permanent stoma. The majority was male and got married. The common indication for temporary and permanent stoma was low anterior resection and abdominoperineal resection, respectively. Overall mean HRQOL index was not significantly different between groups. There was also no difference in the mean QOL of each domain - namely physical well-being, psychological well-being, body image concerns about stoma, social support concern, and diagnosis/treatment response between those with temporary and permanent stoma. Notably, the domain of body image concern had the lowest QOL index in both groups.

Conclusion: Postoperative health-related quality of life was not different between Thai colorectal cancer patients with temporary or permanent stoma. However, the patients with permanent stoma appeared to have non-significant higher score in every domain of health-related quality of life than those with temporary stoma.

Keywords: Health-related quality of life; colon cancer; rectal cancer; colostomy; ileostomy; stoma; temporary; permanent; surgery (Siriraj Med J 2019;71: 196-200)

INTRODUCTION

Colorectal cancer (CRC) is one of major health problems across the globe. A significant increase in its incidence has been observed worldwide in the recent years.¹ In Thailand CRC is now the third most commonly diagnosed cancer in males and the fourth in females.² Currently, CRC-related death has reduced due to an improvement in early detection and advances in cancer treatment. However, some curative operations would

have stoma formation either temporary or permanent purpose. Not surprisingly, the number of CRC survivors with stoma is growing significantly.³ Presence of stoma (colostomy/ileostomy) has been shown to adversely affect patient's wellbeing in several phases such as physical and psychological aspects, social function, work and productive life, relationships with partners and friends, social activities and personal interests.⁵

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Since temporary and permanent stoma is one of viable treatment options for CRC³, it creates many challenges for CRC patients especially in terms of health-related quality of life (HRQOL). The patients with stoma formation face the loss of sphincter control and inability to control gas⁴ and may have several other problems including anxiety or fear of future living with relationships and family⁵, difficulty in social and sexual activities, sleep disturbance⁵, the restriction of food intake and physical activities⁶ and changes in lifestyle.⁷ All of these sequelae impacted their HRQOL.⁸ In CRC patients, non-sphincter preserving operation (i.e. colostomy formation) was also shown to negatively impact patients' HRQOL.⁹

HRQOL for patients with stoma is one of important patient-reported outcome measures and could be regarded as one of the long-term comprehensive outcomes in CRC patients. The World Health Organization defines HRQOL as individuals' perception of their life's position in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns.¹⁰ HRQOL in CRC patients with stoma is a multidimensional construct measuring patients' perception in several domains including physical well-being, psychological well-being, body image concerns about colostomy, social support concern, and diagnosis/treatment (surgical) response.¹¹

Most published literatures about HRQOL of CRC patients with stoma were conducted in Western or developing countries - with some conflicting results. For example, Grumann et al¹² compared HRQOL in German patients undergoing anterior resection (AR), low anterior resection (LAR) and abdominoperineal resection (APR) for rectal cancer. They found that patients undergoing APR did not have a poorer HRQOL than those undergoing AR but patients undergoing LAR had a lower HRQOL than those undergoing APR. In the Netherlands, Gooszen et al¹³ studied HRQOL in those with a temporary stoma (37 loop ileostomy and 39 loop colostomy) and found that stoma leakage, peristomal dermatitis, and stoma retraction or prolapse had significant impact on patients' HRQOL. In Brazil, Fortes et al¹⁴ and de Gouveia Santos et al¹⁵ evaluated HRQOL in CRC patients with temporary and permanent colostomy and found that patients with temporary stoma suffered the same affection and poor HRQOL as those with permanent colostomy.

In Thailand, there have been some studies examining HRQOL or factors related to HRQOL in patients with stoma¹⁶⁻¹⁸, but there is no comparative study of HRQOL in CRC patients with temporary or permanent stoma. We believe that the information of HRQOL in those with temporary or permanent stoma will help surgeons and

other related healthcare personals more understanding and could improve patient's care in such individuals in the future. Therefore, this study aimed to examine and compare HRQOL in CRC patients with temporary or permanent stoma in Thai population.

MATERIALS AND METHODS

This study was a cross-sectional study examining HRQOL in 110 CRC adult patients with either temporary or permanent stoma.¹⁸ Data were collected from July 2016 to October 2016 at 3 tertiary referral centers in Bangkok, Thailand - namely 1) Faculty of Medicine Siriraj Hospital, Mahidol University, 2) King Chulalongkorn Memorial Hospital and 3) National Cancer Institute. The patients were systematically and randomly enrolled with inclusion criteria of patient age between 40-60 years and having stoma over a period of 3 months. The correspondents must have no symptoms and signs of critical illness during interviewing, and understand and response properly to the questionnaires. The eligible cases were randomly enrolled. All subjects granted a signed informed consent before an enrollment.

The interview questionnaires had 2 parts: general details and HRQOL. The general details included patients' demographics, level of education, income, tumor characteristics and operative details, their general knowledge of CRC, self-care behaviors and social support. For HRQOL, a validated Thai version of Padilla and Grant's HRQOL (as a cancer nursing outcome variable) was used¹⁸, including the domains related to physical, mental, emotional and social functioning. The HRQOL index ranges from 0 to 100 as the higher score the better HRQOL. This index of HRQOL was divided into 3 levels: low (HRQOL 0-33.33), moderate (33.34-66.67) and high (66.68-100) level of HRQOL. Data were analyzed using computer-based statistical program (SPSS/Window version 17). Demographic data and HRQOL index were analyzed using descriptive statistics and independence student t-test to compare between HRQOL index of adult CRC patients with temporary and permanent stomas. A P-value < 0.05 was considered a statistical significance.

RESULTS

Demographic data of patients with temporary and permanent stoma

There were 27 patients with permanent stoma with mean age of 54.4 years. Seventeen (63%) were males and 25 patients (92.6%) were married. Stage III and IV rectal cancer were the most common indication for stoma formation as two-third had abdominoperineal resection. At the time of HRQOL evaluation, the two-third of

patients had permanent stoma was more than 1 year. In the other group, there were 83 patients with temporary stoma with mean age of 54.9 years. Fifty-five (66.3%) were males and 78 patients (94%) were married. Stage III colorectal cancer was the most common indication for temporary stoma formation (mostly in case of low anterior resection). At the time of HRQOL evaluation, the two-third of patients had temporary stoma less than 1 year. Demographic data of patients with temporary and permanent stoma are summarized in Table 1.

Health-related quality of life between colorectal cancer patients with temporary and permanent stoma

Overall mean HRQOL index was not significantly different between groups. There was also no difference in the mean QOL of each domain between those with temporary and permanent stoma. Notably, the domain of body image concern had the lowest QOL index in both

groups. Table 2 shows and compare the HRQOL index between CRC patients with temporary and permanent stoma.

DISCUSSION

This cross-sectional study of CRC patients with stoma in Thailand found that the overall HRQOL index and its detailed domains were not significantly different between those with temporary and permanent stoma. However, it is worth noting that Thai CRC adult patients with permanent stoma had non-significantly higher overall HRQOL index and HRQOL indexes of each domain - namely physical well-being, psychological well-being, body image concerns about stoma, social support concern, and diagnosis/treatment response than those with temporary stoma. These results are similar to those reported from Western countries. For example, Smith et al¹⁹ conducted a small cross-sectional study of patients

TABLE 1. Patients' demographic data (n=110). The data are shown as mean \pm standard deviation, or number (percentage).

Variables	Permanent (n=27)	Temporary (n=83)
Age (years)	54.4 \pm 6.1	54.9 \pm 5.5
Male	17 (63.0%)	55 (66.3%)
Marital status: Married	25 (92.6%)	78 (94.0%)
Education		
No education	1 (3.7%)	1 (1.2%)
Primary school	11 (40.7%)	41 (49.3%)
High school	3 (11.1%)	13 (16.8%)
Bachelor degree or higher	12 (44.4%)	27 (32.5%)
Income (Bahts)		
Less than 10,000	7 (25.9%)	21 (25.3%)
10,001-30,000	18 (66.7%)	54 (65.1%)
30,001-50,000	2 (7.4%)	8 (9.6%)
Cancer staging		
Stage II	5 (18.5%)	10 (8.2%)
Stage III	11 (37.0%)	47 (42.7%)
Stage IV	11 (37.0%)	26 (23.6%)
Presence of stoma more than 1 year	18 (66.7%)	28 (33.7%)
Operative details		
Low anterior resection	4 (14.8%)	53 (63.9%)
Abdominoperineal resection	18 (66.7%)	2 (2.4%)
Hartmann's procedure	3 (11.1%)	11 (13.3%)
Colectomy	2 (7.4%)	17 (20.5%)

TABLE 2. Index score and level of health-related quality of life among patients with temporary and permanent stoma.

	Type of stoma	N	Mean	SD	Level*	P-value
Overall HRQOL	Temporary stoma	83	66.41	14.32	Moderate	0.372
	Permanent stoma	27	69.31	15.37	High	
Physical well-being	Temporary stoma	83	69.08	16.68	High	0.474
	Permanent stoma	27	71.74	16.65	High	
Psychological well-being	Temporary stoma	83	64.68	16.43	Moderate	0.525
	Permanent stoma	27	67.06	18.22	High	
Body image concern	Temporary stoma	83	54.56	21.98	Moderate	0.596
	Permanent stoma	27	57.22	24.32	Moderate	
Social concern	Temporary stoma	83	76.83	13.52	High	0.427
	Permanent stoma	27	79.26	14.50	High	
Surgical response	Temporary stoma	83	69.28	17.80	High	0.369
	Permanent stoma	27	72.72	15.30	High	
Nutrition response	Temporary stoma	83	68.73	18.14	High	0.176
	Permanent stoma	27	74.07	16.30	High	

*Note: Level of HRQOL: low (0-33.33), moderate (33.34-66.67) and high (66.68-100)

with stoma in the United States and found that patients with permanent stoma had high HQOL scores than patients with temporary stoma. These finding suggested that patients with irreversible colostomies would adapt more fully than would those with colostomies that were potentially reversible. Our previous study indicated that patient's self-esteem, self-care and knowledge were also significant factors for determining HRQOL.¹⁸

Regarding the physical well-being dimension of HRQOL in Thai CRC adult patients with stoma, both groups had a comparable and high level of HRQOL. This result was partly explained by the fact that almost of patients with stoma already had good recovery from surgery and/or adjuvant therapy although some patients with a temporary stoma were in the middle of chemotherapy or radiation session. Fortes et al¹⁴ reported that chemotherapy or radiotherapy might have numerous influences on HRQOL in patients with stomas and the adverse symptoms may last up to 1 year after treatment.

Although there was no significant difference in the score of psychological well-being dimension between groups, patients with permanent stoma was regarded to have a high level of QOL while those with temporary stoma had a moderate level. These results were consistent with other studies in Thailand.^{17,20} The most frequent coping strategy employed by individuals with temporary stoma

was escape and avoidance which was not so effective because it did not permit the subject to approach the problem directly. In contrast, the most frequent coping strategy employed by patients with permanent stoma was problem-solving which provided a more proactive and mature behavior - allowing greater autonomy and responsibility when coping with their stoma.¹⁵

The body image concern dimension had the lowest score in Thai CRC adult patients with temporary and permanent stoma. It is well known that stoma surgery is a mutilating procedure and could affect their body image directly and negatively. We found that patients with stoma had some anxiety about stoma and fear of stoma leakage (especially during performing physical activities or sleep) which were consistent with other reports.^{15,21} In Thailand, Teerathongdee²⁰ reported that CRC patients with colostomy had a moderate level of QOL in component of body image concern. Meanwhile, Ransriwong²² reported a low level of QOL in component of self-image in those with stoma. However, the results were extracted from early postoperative period (within 3 months after surgery) - where the patients may not cope with the body change.

Regarding the social concern dimension, both groups had a high level of QOL. It could be explained by the fact that, in Thai culture, patients with stomas

were taken care of their stoma by their caregivers such as their family members or spouses. Patients often come to clinic with their relatives and did not feel lonely or abandoned.¹⁷ For the dimension of surgical response and nutrition, patients with either temporary or permanent stoma dimension had a high level of QOL which was not significant different between groups. It is possible that HRQOL in each dimension could gradually improve as the time goes by because the patients can learn, adapt and cope with stoma and their activities of daily living such as eating and moving.^{5,17}

The strength of this study included a relative larger sample size of enrolled patients than those previously reported from Thailand. The data were also collected from 3 tertiary care centers where colorectal surgeons, ostomy nurse specialists and psychologists are available. There are also a dedicated ostomy clinics and specialized medical supplies in these centers. However, it is unknown about the HRQOL in Thai CRC adult patients with stoma who were operated on by non-colorectal surgeons or taken care of by non-specialist nurses.

CONCLUSION

Postoperative health-related quality of life was different between Thai colorectal cancer patients with temporary or permanent stoma. However, the patients with permanent stoma appeared to have non-significant higher score in every domain of health-related quality of life than those with temporary stoma. We believed that, apart from focusing on oncological outcomes, healthcare personals should aim to improve patient's health-related quality of life overall and in each domain - partly by integrating knowledge, self-care as well as patient-centered program in patients with stoma.

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REFERENCES

1. Ferlay J, Soerjomataram I, Dikshit R, Eser S, Mathers C, Rebelo M, et al. Cancer incidence and mortality worldwide: Sources, methods and major patterns in GLOBOCAN 2012. *Int J Cancer* 2015;136:359-86.
2. Imsamran W, Chaiwattana A, Wiangnon S, Pongnikorn D, Suwanrungrung K, Sangrajrang S, et al. *Cancer in Thailand Vol.VIII, 2010-2012* [Cited 2015 December 8]. Available from: <http://www.nci.go.th/en/index1.html>.
3. American Cancer Society Colorectal cancer 2016 [Cited 2016 November 24]. Available from: <http://www.cancer.org/cancer/colonandrectumcancer/detailedguide/colorectal-cancer-what-is-colorectal-cancer>.
4. Burch J. *Stoma Care*. Singapore: Markono Print Media Ptd Ltd; 2008.
5. Arndt V, Merx H, Stegmaier C, Ziegler H, Brenner H. Quality of life in patients with colorectal cancer 1 year after diagnosis compared with the general population: a population-based study. *J Clin Oncol* 2004;22:4829-36.
6. Zajac O, Spychala A, Murawa D, Wasiewicz J, Foltyn P, Polom K. Quality of life assessment in patients with a stoma due to rectal cancer. *Rep Prac Oncol Radiother* 2008;13:130-4.
7. Ang SG, Chen HC, Siah RJ, He HG, Klainin-Yobas P. Stressors relating to patient psychological health following stoma surgery: An integrated literature review. *Oncol Nurs Forum* 2013;40: 587-94.
8. King CR. Health related quality of life issues for individual with colorectal cancer. In: Berg DT, editor. *Contemporary issues in colorectal cancer: A nursing perspective*. London: Jones and Bartlett Publishers; 2011.
9. Vonk-Klaassen SM, de Vocht HM, den Ouden ME, Eddes EH, Schuurmans MJ. Ostomy-related problems and their impact on quality of life of colorectal cancer ostomates: a systematic review. *Qual Life Res* 2016;25:125-33.
10. World Health Organization. *Quality of life 2016* [Cited 2016 December 1]. Available from: http://www.who.int/mental_health/media/68.pdf.
11. Padilla GV, Grant MM. Health related quality of life as a cancer nursing outcome variable. *ANS Adv Nurs Sci* 1985;8:45-60.
12. Grumann MM, Noack EM, Hoffmann IA, Schlag PM. Comparison of quality of life in patients undergoing abdominoperineal extirpation or anterior resection for rectal cancer. *Ann Surg* 2001;233:149-56.
13. Gooszen AW, Geelkerken RH, Hermans J, Lagaay MB, Gooszen HG. Quality of life with a temporary stoma: ileostomy vs. colostomy. *Dis Colon Rectum* 2000;43:650-5.
14. Fortes RC, Monteiro TMRC, Kimura CA. Quality of life from oncological patients with definitive and temporary colostomy. *J Coloproctol* 2012;32:253-9.
15. de Gouveia Santos VL, Chaves EC, Kimura M. Quality of life and coping of persons with temporary and permanent stomas. *J Wound Ostomy Continence Nurs* 2006;33:503-9.
16. Chitmon N. *Health-related quality of life patients with permanent colostomy*. Bangkok: Chulalongkorn University; 2006.
17. Decha W, Navicharern R. Predicting factors of quality of life among colorectal cancer patients with colostomy receiving chemotherapy. *Kuakarun J Nurs* 2016;23:113-47.
18. Chutikamo N, Navicharern R, Lohsiriwat V. Predicting factors of quality of life in colorectal cancer adult patients with colostomy. *Royal Thai Navy Med J* 2017;44:103-16.
19. Smith DM, Loewenstein G, Jankovic A, Ubel PA. Happily hopeless: Adaptation to a permanent, but not to a temporary, disability. *Health Psychol* 2009;28:787-91.
20. Teerathongdee K. Factors predicting quality of life in aged patients with colorectal cancer after stomal surgery. *Thai Cancer J* 2014;34:68-78.
21. Gracia Pereira M, Figueiredo AP, Fincham FD. Anxiety, depression, traumatic stress and quality of life in colorectal cancer after different treatments: A study with Portuguese patients and their partners. *Eur J Oncol Nurs* 2012;16:227-32.
22. Ransriwong P. Quality of life in colorectal cancer patient after stoma surgery. *Suan Dok J* 2549;15:22-6.