



The Effect of Motivational Interviewing on Motivation, Knowledge, And Self-Care in Colorectal Cancer Patients with a Stoma: A Case Study

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Abstract

Colorectal cancer with a stoma impacts the patient's physical, psychological, social, and spiritual well-being. It requires long-term adaptation in self-care, often leading to a decrease in motivation. This study aims to assess the effect of Motivational Interviewing (MI) interventions on enhancing motivation, knowledge, and self-care in colorectal cancer patients with a stoma. The case study involved 10 patients selected through purposive sampling in Dharmas Cancer Hospital. The participants received two structured MI sessions (15-60 minutes). Participants were provided with a health booklet and a daily activity plan book. Data analysis used descriptive univariate statistics and the Framework Method. The average motivation score increased from 49.3 to 56.7 after the first session and to 61.2 after the second session. The highest score was in the domain of value/usefulness, while the lowest was in the domain of interest/enjoyment. Self-care knowledge improved from "Sufficient" (55%) to "Good" (75%). Self-care practices also improved, with stoma care increasing (10% to 70%), nutrition (100%), and exercise (20% to 80%). Intimate relations are only the "rarely" category (20%). Motivational Interviewing (MI) enhances motivation, knowledge, and self-care scores in colorectal cancer patients with a stoma. However, intimate relations remain limited. The study recommends the routine application of MI in nursing practice. Future studies should include larger sample sizes and focus on patients with limited family support and more diverse characteristics.

Keywords: Colorectal Neoplasms, Motivational interviewing, Stoma, Self-care.

INTRODUCTION

Colorectal cancer is a malignancy arising in the large intestine (colon) or rectum (Knowlton et al., 2024). Menurut data GLOBOCAN (2020), According to GLOBOCAN 2020 estimates, it is the third most common cancer worldwide, with ~1.9 million new cases; incident cases are projected to reach 3.2 million by 2040 (World Health Organization (WHO), 2024). In Indonesia, a similar upward trend has been documented, with the number of new cases increasing annually (Kementerian Kesehatan Republik Indonesia, 2018). This rising incidence reflects multiple determinants, including lifestyle changes, unhealthy dietary patterns, physical inactivity, and genetic and environmental factors (Roshandel et al., 2024).



Among patients with colorectal cancer, stoma formation is a common therapeutic procedure. While undertaken to prevent complications, it introduces substantial adaptation challenges that extend beyond physical adjustments to encompass social and psychological domains (Alabbas et al., 2016; Caravati-Jouvenceaux et al., 2011; Faury et al., 2020). The demands of long-term cancer care can erode patients' motivation.

Motivation is pivotal because it substantially influences patients' knowledge, capacity to cope with illness, adherence to treatment schedules, and engagement in self-care behaviors that support recovery and well-being (Hosseini et al., 2021b; Puts et al., 2015; Romero-Elías, 2022). For example, Zahra et al. (2023) reported a significant association between motivation and self-care management in patients with leukemia ($p < 0.001$; $r = 0.531$). Qualitative work by Hosseini et al. (2021a) identified three overarching themes describing motivation for recovery and care engagement among patients with cancer: the desire to survive, an optimistic outlook, and a sense of ownership and responsibility.

Nurses play a critical role in delivering holistic support and education regarding disease understanding, treatment, and care. However, educational approaches that are not tailored to individual needs can diminish patients' motivation (Hardcastle & Hagger, 2011). Ineffective education may leave patients feeling insufficiently supported emotionally and psychologically, undermining their motivation to continue treatment and self-management.

Motivational Interviewing (MI) is a patient-centered counseling method designed to facilitate behavior change by exploring and resolving ambivalence (Droppa & Lee, 2014; Emery & Wimmer, 2023). Evidence specific to colorectal cancer with a stoma suggests clinically meaningful benefits. A narrative review by Chandler & Carpenter (2015) indicated that MI can improve willingness to undergo surgery and accept stoma siting, facilitate psychological adaptation, and prepare patients for independent stoma management. In a quasi-experimental study from Iran involving 70 patients with permanent ostomies, Rajabipour et al. (2014) found that MI significantly improved quality of life across mental, social, spiritual, and physical domains compared with controls. While these studies support MI as a promising approach for patients with colorectal cancer and stoma, they did not specifically quantify motivation during treatment or delineate its effects on knowledge and self-care behaviours. This highlights a research gap.

Accordingly, this study aims to evaluate the effectiveness of MI in enhancing motivation, knowledge, and self-care among colorectal cancer patients with a stoma receiving care at Dharmais National Cancer Centre (RS Kanker Dharmais).

METHODS

The stages involved in research, concept development, or case resolution are described in the methodology section. This study employed a single-group pretest-posttest case study design. The intervention was motivational interviewing (MI) delivered by oncology nursing residents who had been certified to provide MI. Two structured sessions were conducted one week apart, each lasting 15-60 minutes, with motivation assessed at three time points. The first session (MI session 1) was held face-to-face; the second session (MI session 2) was delivered by telephone or video call (e.g., WhatsApp). A relevant educational booklet was provided at the second contact to support motivation. Participants were also offered the option to complete a two-week daily activity plan in an agenda book to assess consistency.

The study population comprised patients with colorectal cancer and a stoma receiving care in Anyelir 1, the radiotherapy unit, and the Cempaka and Melati inpatient wards at Dharmais National Cancer Centre (RS Kanker Dharmais), from 18 September to 4 October 2024. Purposive sampling was used. Inclusion criteria were age ≥ 20 years; diagnosis of colorectal cancer with a stoma; and any one of the following clinical statuses (Ihn et al., 2015): post-operative; during chemotherapy or within two weeks after chemotherapy; during radiotherapy or within two weeks after radiotherapy. Participants

also needed to be able to communicate and to consent. Exclusion criteria were severe comorbidity or acute clinical instability, and cognitive or mental disorders that impeded comprehension (e.g., dementia, psychotic disorders).

The level of motivation was assessed using the Intrinsic Motivation Inventory (IMI) adapted from Jung and Jo (Ambarwati, 2024; Jung & Jo, 2014; Zettira, 2018). The instrument comprises 19 items rated on a four-point Likert scale. Total scores range from 0 to 76, with 0-38 indicating low motivation and 39-76 indicating high motivation. The instrument has demonstrated acceptable psychometric properties, with Cronbach's alpha reported at 0.851 (Ambarwati, 2024; Zettira, 2018).

Knowledge and self-care practice were measured using the Colorectal Cancer Stoma Knowledge and Self-Care Practice Questionnaire (CRC-SKSCPQ) developed from a literature review. For each knowledge category and for self-care practice, four items were constructed. Responses were captured on a three-point Likert scale with the options "often", "rarely", and "never". (Lee et al., 2016; Negrea et al., 2024; Russell et al., 2024; Smit et al., 2024).

Measurement procedures were conducted at three timepoints: baseline (pre-MI), 1 week after MI session 1, and 1 week after MI session 2. At baseline, a brief semi-structured interview explored motivation, emotions regarding treatment side effects, hopes, family involvement, and motivational drivers, followed by standardized questionnaires on motivation, knowledge, and self-care practices. The same instruments were re-administered at both follow-ups to evaluate post-intervention change. Semi-structured interview data were analysed using the Framework Method (Gale et al., 2013) with deductive coding based on predefined domains (primary reason, feelings about side effects, hopes, engagement in care, and motivation/drivers). The coded data were subsequently charted into a participant-by-domain matrix (Table 2). Quantitative data were analyzed using univariate descriptive statistics to summarize changes in motivation, knowledge, and self-care practice scores across measurement time points.

RESULTS

Characteristics of respondents

Ten respondents met the inclusion criteria (Table 1). The median age was 50 years (IQR 41-60; range 34-70), and 6/10 were women (60%). Most had rectal cancer (7/10, 70%); overall, 6/10 (60%) were stage IV with hepatic metastases. An end colostomy was the predominant stoma type (8/10, 80%), with stoma status split evenly between temporary and permanent (5/10 each). Time since stoma formation ranged from 1 month to 2 years 6 months (median 13 months; IQR 2-24 months). Most participants were receiving chemotherapy at the time of data collection (6/10, 60%), two were undergoing radiotherapy (20%), one was under post-emergency postoperative monitoring (10%), and one was receiving supportive care for general condition improvement (10%).

Table 1. Characteristics of respondents with colorectal cancer and a stoma (n = 10)

ID	Age (years)	Sex	Cancer type & stage	Stoma type	Stoma status	Duration since formation	Current treatment
1	41	Female	Rectal cancer, stage IV (hepatic metastases)	End colostomy	Temporary	2 years	Chemotherapy cycle 5: FOLFIRI
2	49	Male	Rectal cancer, stage III	End colostomy	Temporary	2 years	Optimisation of general condition
3	41	Female	Rectal cancer, stage IV (hepatic metastases)	Loop colostomy	Temporary	1 year	Chemotherapy cycle 5: modified FOLFOX

ID	Age (years)	Sex	Cancer type & stage	Stoma type	Stoma status	Duration since formation	Current treatment
4	60	Male	Rectal cancer, stage III	End colostomy	Permanent	1 year 2 months	Chemotherapy cycle 1: modified FOLFOX
5	34	Male	Colon cancer, stage II	End ileostomy	Temporary	1 month	Post-emergency postoperative monitoring
6	37	Female	Colon cancer, stage IV (hepatic metastases)	End colostomy	Permanent	1 month	Chemotherapy cycle 2: FOLFIRI
7	61	Female	Sigmoid colon cancer, stage III	End colostomy	Permanent	3 months	Adjuvant chemotherapy cycle 1: modified FOLFOX
8	59	Male	Rectal cancer, stage IV (hepatic metastases)	End colostomy	Temporary	2 months	Chemotherapy cycle 2: modified FOLFOX
9	70	Female	Rectal cancer, stage IV (hepatic metastases)	End colostomy	Permanent	2 years	Radiotherapy cycle 5: whole pelvis
10	51	Female	Rectal cancer, stage IV (hepatic metastases)	Loop colostomy; end colostomy	Permanent	2 years 6 months	Radiotherapy cycle 29: whole pelvis + capecitabine (Xeloda)

Noted:

ID = Participant Identification Code, FOLFIRI= leucovorin (folinic acid), fluorouracil (5-FU), irinotecan. FOLFOX = leucovorin (folinic acid), fluorouracil (5-FU), oxaliplatin. Modified FOLFOX = FOLFOX with dose and/or schedule adjustments. "Whole pelvis" refers to pelvic radiotherapy fields.

Overview of patient motivations during care in colorectal cancer with a stoma

All ten respondents emphasized recovery and returning to normal roles (Table 2). Motivation was sustained by family and community support, with hopes centered on clinical improvement and reduced hospital visits. Care engagement was mainly clinician-led with family consultation. Negative emotions were mitigated by personal goals and social-spiritual resources, despite occasional social strain.

Table 2. Overview of patient motivations during care in colorectal cancer with a stoma (n = 10)

ID	Primary reason	Feelings about side-effects	Hopes from treatment	Engagement in care	Motivation & drivers
1	"I want to recover, be healthy, and work again."	"Sometimes it disrupts me; it makes me sad."	"I hope I won't have to go to the hospital anymore."	"I follow the doctor's advice and ask my family before procedures."	"Recovery and support from my family, friends, and neighbors keeps me going."
2	"I want to return to work."	"It's disruptive; I feel fatigued."	"I want to recover and improve."	"I leave it to the doctors and health staff."	"I want to recover; my family supports me."



ID	Primary reason	Feelings about side-effects	Hopes from treatment	Engagement in care	Motivation & drivers
3	"The hospital has complete facilities, and I want to recover."	"Sometimes I have back pain and aches."	"I want to recover."	"I follow the doctor and decide with my family."	"I'm eager to recover; my family encourages me."
4	"I've had prolonged pain; I'm striving to recover."	"I feel sad, but it gets better after medication."	"I want a full recovery."	"I defer to the health staff and discuss with my family."	"I want to recover; my family gives me strong support."
5	"I want to recover quickly and return to work."	"I have insomnia and feel weak."	"I want a quick recovery."	"I choose my treatment myself."	"Comprehensive hospital care and my family's support motivate me."
6	"I want to recover quickly."	"I'm worried and sad."	"I want a quick recovery."	"The team leads my care; I decide with my family."	"I want to recover; my family supports me."
7	"I want to be healthy as before."	"I feel sad."	"I can see health improvements."	"I'm guided by clinicians; my husband is involved."	"I must finish treatment; my family supports me."
8	"I want to recover."	"I feel nausea and vomit."	"Recovery."	"Doctor-led care, with some decisions I make myself."	"My family gives me encouragement and support."
9	"I want to recover."	"I feel pain and sadness; some friends avoid me."	"To be healthy; for my wound to heal faster."	"I follow the health staff."	"I want to recover; my personal faith helps me."
10	"I want to be healthy and recover."	"I feel sad, I cry, and I have no appetite."	"Recovery."	"My doctor and child determine my care."	"I want to recover; prayer and support from family and neighbours keep me strong."

ID = Participant Identification Code

Comparison of mean motivation scores across motivational interviewing (MI) sessions among colorectal cancer patients with a stoma

Mean motivation increased across all three MI sessions: Pre MI, after MI session 1, after MI session 2 (Figure 1): from 49.5 at baseline to 56.7 after session 1 and 61.2 after session 2. This represents absolute gains of +7.2 (baseline to session 1) and +4.5 (session 1 to session 2), totaling +11.7 points, a relative increase of ~23.6% from baseline.

Domain-level comparisons showed consistent improvement (Figure 2). Before MI, the highest mean was Value/Usefulness (3.2) and the lowest Interest/Enjoyment (1.9). After session 1, Perceived Choice/Effort rose from 2.7 to 3.2 (shifting from "disagree" towards "agree"), and Interest/Enjoyment increased from 1.9 to 2.7. After session 2, Value/Usefulness reached 3.6 and Interest/Enjoyment 2.9. Pressure/Tension rose from 2.1 to 3.0 by session 2; given this subscale's reverse interpretation, higher scores indicate greater disagreement with feeling pressured during chemotherapy.

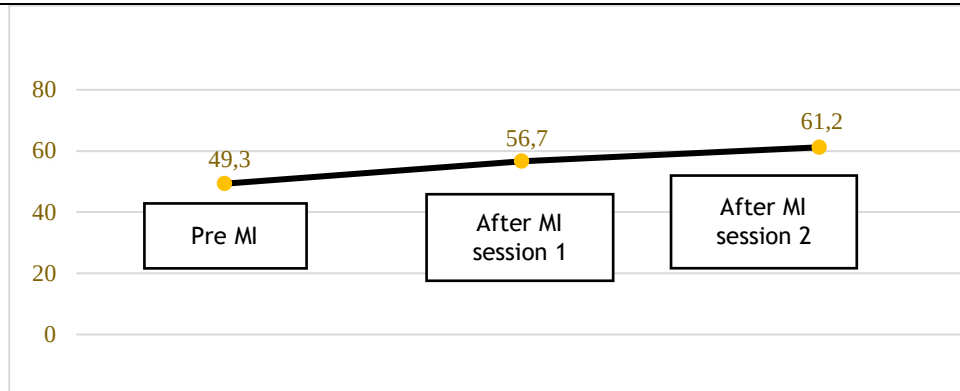


Figure 1. Comparison of mean motivation scores across motivational interviewing (MI) sessions

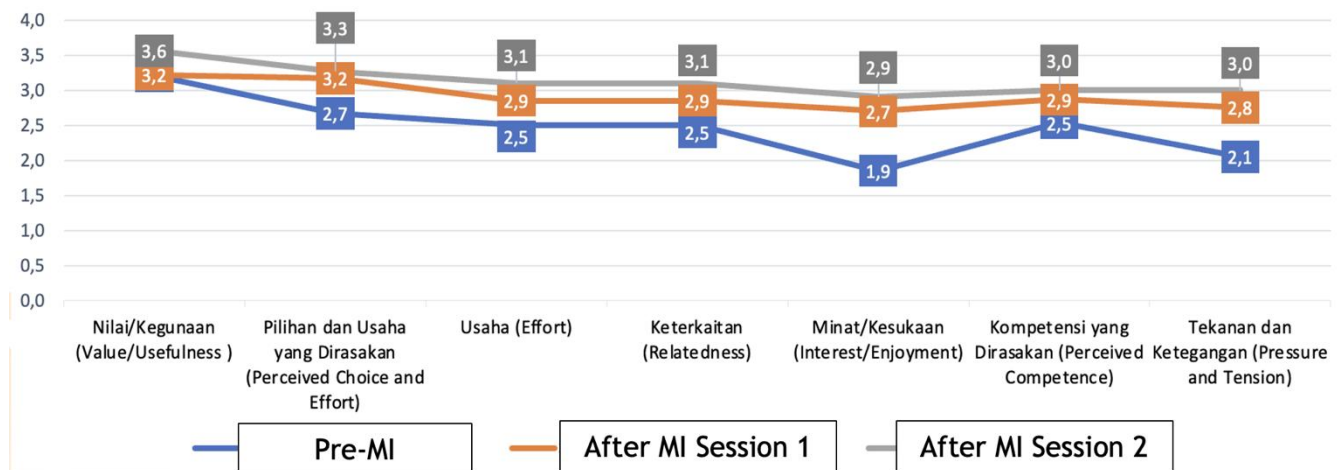


Figure 2. Domain-specific motivation across motivational interviewing (MI) sessions

Levels of knowledge and self-care practices across motivational interviewing sessions among colorectal cancer patients with a stoma

Participants received a tailored booklet in MI session 1 (accompanied by a daily agenda). Level of knowledge improved meaningfully following MI (Figure 3): Pre-MI, most respondents were in the “Sufficient category” (55%, i.e., ~2/4 items correct, 50-75%). After session 1, most shifted to “Good” (75%, $\geq 3/4$ items correct, 76-100%), and this improvement was sustained after MI session 2.

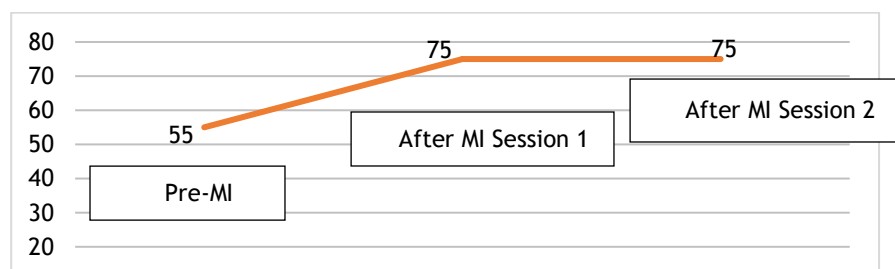


Figure 3. Levels of Knowledge Across Motivational Interviewing (MI) Sessions

Self-care practice also strengthened (Table 3). For stoma care, the proportion reporting “often” increased from 10% pre-MI to 70% after MI session 2. “Often” for nutrition reached 100% from after MI

session 1 and remained stable. Physical activity improved from 20% to 80% reporting “often”. Intimate relations showed a modest shift from “never” (100% pre-MI) to “rarely” in 20% after session 2.

Table 3. Domain-specific self-care knowledge scores in colorectal cancer patients with a stoma before and after the motivational interviewing intervention

Session	Domain/Aspect	Often (%)	Rarely (%)	Never (%)
Pre-MI	Stoma care	10	30	60
	Nutrition	40	40	20
	Exercise / physical activity	20	60	20
	Sexual activity / intimate relations	0	0	100
After MI Session 1	Stoma care	50	30	20
	Nutrition	100	0	0
	Exercise / physical activity	50	50	0
	Sexual activity / intimate relations	0	0	100
After MI Session 2	Stoma care	70	20	10
	Nutrition	100	0	0
	Exercise / physical activity	80	20	0
	Sexual activity / intimate relations	0	20	80

Frequency definitions:

- Stoma care & Nutrition: Often = $\geq 4\times/\text{week}$; Rarely = $1-3\times/\text{week}$; Never = not performed.
- Exercise/Physical activity: Often = $3-4\times/\text{week}$; Rarely = $1-2\times/\text{week}$; Never = not performed.
- Sexual activity (per month): Often = several times per week or more; Rarely = several times per month to once per week; Never = not performed.

DISCUSSION

In this study, we evaluated the effect of MI on motivation, knowledge, and self-care practices in colorectal cancer patients with a stoma. Overall, motivation increased across the three measurement timepoints (baseline, 1 week after MI session 1, and 1 week after MI session 2). Participants also received an educational booklet and a diary between sessions to encourage reflection and support daily activity planning. Knowledge improved from predominantly “sufficient” to “good” after the first MI session and was sustained after the second session, and self-care practices strengthened particularly in stoma care, nutrition, and physical activity, while changes in sexual intimacy remained limited.

The demographic profile of this cohort—predominantly women spanning 34-70 years—contrasts with reports that colorectal cancer patients with stomas are more commonly male with a mean age around 60 years (Perin et al., 2021). This divergence likely reflects single-center sampling, service referral patterns, and ward-based recruitment, and cautions against over-generalization. Most participants had metastatic rectal cancer and were receiving fluoropyrimidine-based combination chemotherapy (modified FOLFOX or FOLFIRI). Contemporary evidence supports the disease-control efficacy of these regimens and strategies to mitigate neurotoxicity (Conroy et al., 2021; Rizzo et al., 2019), providing a clinical context in which motivation to adhere remains pivotal.

The educational booklet was developed responsively to patients’ stated needs—understanding treatment benefits, building self-care autonomy, and managing physical and emotional sequelae. Educational input embedded within, or delivered alongside, MI is supported by prior work showing improvements in self-management skills and quality of life among stoma patients (Faury et al., 2020) and enhanced motivation and autonomy in health decision-making (Chandler & Carpenter, 2015b). Related findings in cancer care indicate that MI-informed self-management training can increase patient activation and attenuate treatment-related distress (Howell et al., 2023). The present study’s

mixed-modality delivery—face-to-face followed by telephone/video—aligns with evidence that remotely delivered MI can effectively mobilise health behaviours (e.g., family-initiated colonoscopy screening) (Salimzadeh et al., 2018), and underscores its pragmatic fit for busy oncology services.

Qualitative summaries of respondents' narratives revealed strong recovery-oriented goals, frequent reliance on clinicians with family involvement in decisions, and a balance of negative affect around side-effects with optimism about manageability. Such patterns are consistent with observations that positive efficacy expectancies support motivation despite symptomatic burden (Perin et al., 2021). In our domain results, the highest scores were observed for value/usefulness, indicating that patients perceived clear personal utility in treatment and self-care actions. This aligns with MI's active ingredients—evocation, autonomy support, and discrepancy development which clarify the benefits and consequences of choices, thereby strengthening commitment to change (Chandler & Carpenter, 2015b; Gobat et al., 2018). Gains in perceived choice/effort further suggest movement towards more autonomous regulation, a recognised mechanism by which MI enhances adherence.

Knowledge improved from predominantly “adequate” to “good” after the first session and remained stable thereafter, and self-care practice showed sizeable increases particularly in stoma care, nutrition, and physical activity. Nonetheless, practice uptake varied by domain. This heterogeneity mirrors prior reports that post-operative stoma patients exhibit diverse self-care needs at one month, benefitting from continued skills training and support to achieve better social outcomes (Salimzadeh et al., 2018; Wiesenberger et al., 2024). Furthermore, individuals with stomas often report lower quality of life and higher fatigue than those without stomas (Faury et al., 2017, 2020), reinforcing the need for sustained psychosocial input beyond initial education.

Sexual intimacy remained limited for most participants, with only a modest shift from “never” to “rarely” by session two. The literature documents high rates of sexual dysfunction after stoma surgery, including erectile dysfunction rising from 46% to 55% at one year in men, and reduced lubrication. Increased dyspareunia in women, with major risk factors including the presence of a stoma and pre-diagnosis sexual inactivity (Sörensson et al., 2019). Mechanisms span autonomic nerve injury, pelvic radiotherapy, chemotherapy effects, and psychosocial impacts of the appliance (appearance, odour, and sounds), all of which can impede intimacy (Albaugh et al., 2017; Tripaldi, 2019). These findings highlight an area where MI-consistent counselling should be complemented by targeted sexual-health assessment, pelvic floor therapy, and partner-inclusive education.

Our results accord with evidence that MI can enhance motivation and quality-of-life domains in ostomy populations (Rajabipour et al., 2014) that psychosocial interventions promoting health behaviours facilitate psychosocial adjustment (Sun & Lee, 2018), and that perceived social support can mediate links between self-efficacy and resilience in colorectal cancer with stoma (Yun & Kim, 2020). They also resonate with data indicating that higher motivation in cancer is associated with age and pre-morbid physical-activity habits (Felser et al., 2020), which may warrant tailored goal setting in future protocols.

CONCLUSION

This study of 10 colorectal cancer patients with a stoma found high motivation despite treatment side-effects, with many using faith-based coping recorded in daily agendas. Two MI sessions were associated with increases in total and domain-specific motivation, improved cancer-treatment adherence, and gains in knowledge and self-care practices; progress in sexual intimacy was limited. Routine, longer-term MI may help patients overcome barriers and sustain autonomous self-management. Future trials should compare MI with an active control and longer follow-up, test mediators (e.g., self-efficacy, perceived support, resilience), and assess cost-effectiveness and subgroup differences by sex, age, stoma status, and treatment phase.

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