

# Using Mixed-Methods Research to Study Coping Strategies among Colorectal Cancer Patients

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Received: December 10, 2018, Accepted: April 09, 2019, Published: June 24, 2019

## ABSTRACT

**Objective:** The objective was to identify and understand the coping strategies of colorectal cancer (CRC) patients.

**Methods:** A mixed-methods approach including quantitative and qualitative methods was used to collect data from Jordanian patients. In the quantitative phase, we aimed to determine the coping strategies employed in a representative sample ( $n = 200$ ) of Jordanian adult patients with CRC using the Jalowiec Coping Scale. In the qualitative phase, we aimed to understand these coping strategies through an in-depth and detailed exploration. A sample of ten participants was chosen purposefully based on their coping score in the quantitative phase, and interviews were conducted. Quantitative data were analyzed using SPSS software version 23. Qualitative data were analyzed using directed content analysis. **Results:** Results from the quantitative phase indicated that evasive coping strategies were used predominantly, followed

by confrontive coping strategies and optimistic coping strategies. In contrast, fatalistic and emotive coping strategies had the lowest scores. In addition, the results indicated that the total scores for the effectiveness of coping strategies ranged from 42 to 143, with a mean of 93.45 (standard deviation 13.67); higher scores reflected greater effectiveness. Content analysis in the qualitative phase identified three themes, and subcategories emerged, including perceived collaborative support, increased awareness of treatment, and internal power. **Conclusions:** CRC patients used different coping strategies to face the new challenge. Oncology nurses can play a pivotal role in enhancing these coping strategies through implementing multidisciplinary programs.

**Key words:** Colorectal cancer, coping strategies, mixed-methods

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Website: [www.apjon.org](http://www.apjon.org)

DOI:  
10.4103/apjon.apjon\_20\_19

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**Cite this article as:** Sharour LA, Omari OA, Malak MZ, Salameh AB, Yehia D, Subih M, *et al.* Using Mixed-Methods Research to Study Coping Strategies among Colorectal Cancer Patients. *Asia Pac J Oncol Nurs* 2019;7:81-7.

## Introduction

Almost 1.8 million new cases of colorectal cancer (CRC) have been reported recently, and 700,000 deaths occur worldwide.<sup>[1,2]</sup> However, survival rates have increased throughout the last decade because of earlier diagnosis, improved diagnostic tests, the introduction of adjuvant therapy, and advances in the treatment of metastatic disease.<sup>[3]</sup>

Cancer represents a stressful life event that has wide-ranging negative physical, psychological, social, financial, and spiritual effects.<sup>[4-6]</sup> Levels of anxiety, depression, and stress are high before, during, and after the treatment of CRC patients;<sup>[7,8]</sup> hopelessness is another negative outcome distinguished for CRC patients.<sup>[9]</sup> Coping is, therefore, an essential factor in overcoming stressful physical and psychosocial negative outcomes. Coping refers to the strategies that people follow to challenge and overcome the negative experiences they encounter.<sup>[10]</sup>

In literature, several studies have identified factors that enhance the use of coping strategies: social support,<sup>[11]</sup> positive self-talk,<sup>[12]</sup> and spirituality and faith.<sup>[13]</sup> Sociodemographic factors such as marital status and gender were found to affect psychological coping in CRC patients.<sup>[14]</sup> A recent study found that the burden of disease was significantly higher in women than in men, which may constitute a challenge to coping.<sup>[15]</sup> Socioeconomic status is also a variable that contributes to how patients cope with CRC.<sup>[16]</sup>

The most common coping strategies used by cancer patients were having emotional support, being strong and self-reliant, and engaging in distracting activities.<sup>[17]</sup> Additional methods used were behavioral disengagement, denial, venting, self-distraction, substance use, acceptance, and humor.<sup>[18]</sup> A qualitative study was conducted to explore the experiences of CRC patients, and the results showed that several coping strategies were used, such as goal-setting, managing informal networks, and adopting strategies for physical and emotional recovery.<sup>[19]</sup> A recent study explored the coping methods used by CRC patients about to undergo surgery, who were using problem-focused, emotion-focused, and meaning-focused coping strategies.<sup>[20]</sup>

In Jordan, the total number of new cancer cases registered by the Jordanian Cancer Registry (JCR) has increased in recent years. Of all the new cases reported, 71.1% were Jordanians and 25.9% were non-Jordanians living in Jordan. Cancer is considered a life-threatening health problem in Jordan, and the number of new cases has increased by 44% in the last 10 years. The incidence of cancer is 79.4 per 100,000 population.<sup>[21]</sup> Taking into consideration the population structure of Jordan and the fact that cancer is primarily a disease of the elderly, the pattern of cancer has some unique characteristics. CRC is

considered one of the most common cancers among the Jordanian population, as reported by the JCR. Significantly, CRC has the highest incidence rate among male Jordanian cancer patients (14.4%) and is the second most common cancer (11.9%), after breast cancer,<sup>[21]</sup> among female Jordanian cancer patients.

Regardless of the incidence rate of CRC, an extensive literature search found a dearth of studies investigating the coping strategies of CRC patients at international and Jordanian levels.<sup>[20]</sup> Previous research studies were conducted in Western countries, which have a different culture from Jordan. In addition, a single method (qualitative or quantitative) was used in previous studies. Using a quantitative approach alone could explore the coping strategies among cancer patients, but it would be unable to clarify how patients cope with new challenges, such as a cancer diagnosis.<sup>[22]</sup> Accordingly, a mixed-methods study was planned to provide that understanding. The current study is significant because of the dearth of evidence on Jordanian CRC patients' experience, perceptions, and concerns regarding coping issues. For this reason, the present research was designed as a mixed-methods descriptive study to explore coping strategies among Jordanian CRC patients.

## Methods

### *Design and purpose*

A sequential, explanatory mixed-methods (quantitative phase followed by qualitative phase) approach was used in the current study to (1) determine the types of coping strategies used by Jordanian CRC patients during their treatment journey and (2) to understand and explain the coping strategies. A cross-sectional design was used in the quantitative phase, followed by a semi-structured interview in the qualitative phase.

### *Quantitative phase: Sampling procedure*

In the quantitative phase, a convenience sample of patients who were (1) diagnosed with CRC, (2) older than 18 years, (3) able to read and speak Arabic, (4) aware of their diagnosis, and (5) without any illness that could hinder their ability to understand and answer the questions were approached by oncology nurses for their agreement to participate in the study. In addition, the researchers posted flyers with contact information on the patient noticeboard. Patients who were willing to participate in the study contacted the researchers who explained the study and obtained a signed consent form. A file containing an information sheet and questionnaire was handed over to each eligible participant, and once completed, the file was returned to a locked box in the outpatient oncology clinic.

Contact details, including full name, address, mailbox number, and telephone/mobile phone numbers, were collected from eligible participants so that they could be contacted for the second phase. The researchers used a code to match the patient ID and contact details. Cohen's formula (1988) was used to estimate the required sample size for this quantitative phase of the current study. A sample size of 180 participants was estimated to be necessary to achieve 80% power.

### Measurements

The Jalowiec Coping Scale (JCS), a 60-item, self-report instrument, was used in the current study. This scale has been widely used nationally and internationally in a large number of studies and projects with many different clinical settings and among patients with cancer.<sup>[23]</sup> The test–retest reliability for the total coping scores was 0.79, and the alpha reliability for total effectiveness was 0.92.<sup>[24]</sup> The following eight coping styles were identified: (1) confrontive, such as trying to keep the situation under control; (2) evasive, such as trying to get away from the problem for a while; (3) optimistic, such as hoping things would get better; (4) fatalistic, such as expecting the worst that could happen; (5) emotive, such as worrying about the problem; (6) palliative, such as physical activity; (7) supportive, such as talking the problem over with family and friends; and (8) self-reliant, such as keeping feelings to oneself. The degree of the use and effectiveness of coping strategies is rated on a four-point (0–3) Likert scale. The overall score ranged from 0 to 180, where a higher score indicates greater use of coping styles and greater effectiveness of these strategies.<sup>[24]</sup>

Questions regarding demographic data were developed, based on the literature, to elicit background information about the participants. A standard set of seven questions was included, relating to age, marital status, gender, educational level, annual income, number of family members, and type of religion; the literature highlighted the role of religion in facing challenges among patients with cancer.

### Data analysis

Data were analyzed using Statistical Package for the Social Sciences software, version 23 (IBM Corp, Armonk, New York) Descriptive analysis, including frequencies and percentages, was used to describe the sample characteristics in terms of demographics (age, marital status, gender, educational level, and religion) and disease-related conditions (regional metastasis, treatment modalities, presence of chronic diseases, and complications). Descriptive statistics using means and standard deviations were used to describe age, annual income, number of family

members, time since diagnosis, and the JCS. Thematic analysis was used to analyze qualitative data.

### Ethical approval

This study was approved by the Institutional Review Board of the Faculty of Nursing, AL Zaytoonah University of Jordan (Approval No. MH/18/NUR/0036). All participants provided written informed consent. The researchers maintained all the ethical principles detailed in the Declarations of Helsinki and Belmont.

## Results

Demographic data were collected to describe the participants in this study; these data included educational level, marital status, and religion. The participants' educational level varied from primary to postgraduate certification. The majority of participants were married (95.0%) and Muslim (89.0%) by religion. Table 1 summarizes these results.

In the current study, data related to the presence of complications and chronic diseases were collected, in addition to time since diagnosis, treatment modalities, and number of family members living with the patient in the same house. The participants' ages ranged from 23 to 76 years, with a mean (standard deviation [SD]) age of 51.9 years (9.48); time since diagnosis ranged from 2 to 24 months, with a mean of 11.69 (4.80); and patients' monthly income ranged from 120 to 1000 Jordanian Dinar, with a mean of 397.03 (138.10). In addition, 55% of the participants had no complications at the time of data collection and 97% had no regional metastasis. The vast majority (95%) were treated with different treatment

Table 1: Selected demographical characteristics of the participants (*n* = 200)

Variable	<i>n</i>	Frequency (%)
Gender		
Male	110	55.0
Female	90	45.0
Marital status		
Single	10	5.0
Married	190	95.0
Widow	0	0
Divorce	0	0
Education level		
Primary	40	20.0
Secondary	60	30.0
Diploma	30	15.0
Bachelor	50	25.0
Postgraduate	20	10.0
Religion		
Islam	178	89.0
Christianity	22	11.0
Other	0	0.0

modalities: a combination of chemotherapy and surgery. Table 2 summarizes these results.

### Scale results

#### Use of eight coping strategies

The descriptive results indicate that participants' use of coping strategies ranged from 47 to 135, with a mean (SD) of 99.31 (13.03). A higher score indicates a greater level of coping. The results show that evasive coping strategies were used predominantly by the participants, with a mean of 21.35 (3.78), followed by confrontive coping strategies, with a mean of 18.45 (3.33), and optimistic coping strategies, with a mean of 17.82 (3.10). In contrast, fatalistic and emotive coping strategies had the lowest scores, with means of 3.75 (1.58) and 3.28 (1.84), respectively [Table 3]. The JCS constitutes 60 items that measure all the eight coping strategies.

#### Effectiveness of coping strategies

The second part of the JCS reflects the effectiveness of the different coping strategies used by the patients to manage difficult situations. The results indicate that the total scores for the effectiveness of coping strategies ranged from 42 to 143, with a mean (SD) of 93.45 (13.67); higher scores reflect greater effectiveness. In addition, the results indicate that evasive coping strategies were the most effective style of coping, with a mean of 19.8 (3.79), followed by confrontive coping strategies, with a mean of 17.62 (3.69), and optimistic coping strategies, with a mean of 14.86 (2.78). Moreover, and consistent with the results for the use of coping strategies, fatalistic and emotive coping strategies had the lowest scores, with means of 3.58 (1.59) and 2.96 (2.18), respectively [Table 4].

### Qualitative phase

In this second phase, we attempted to gain an understanding of coping strategies through an in-depth and detailed exploration. Ten participants were chosen purposefully based on their coping score in the quantitative phase. Participant selection for individual interviews was guided by the need for a better understanding of the new challenge they faced. Audio-taped, semi-structured interviews were conducted by the principal investigator (PhD in nursing with qualitative research experience). The interviews took place in a private room that was calm, quiet, and comfortable, and each interview was completed within 45 min on an average. In this study, back-translation, consultation, and collaboration with the research team (native speakers of the Arabic language who were fluent in English) were employed to translate the interview and achieve the maximum level of accuracy.<sup>[25,26]</sup> Thematic analysis was used to identify the coping strategies used or received by the CRC patients [Table 5].

**Table 2: Disease-related characteristics of the participants (n=200)**

Variable	n	Frequency (%)
Present chronic illness		
Yes	80	40.0
No	120	60.0
Complications		
Yes	90	45.0
No	110	55.0
Complication type		
Gastrointestinal	75	83.3
Neurological	8	8.9
Genitourinary	7	7.8
Regional metastasis		
Yes	6	3.0
No	194	97.0
Treatment modalities		
Chemotherapy	10	5.0
Combined (chemotherapy and surgery)	190	95.0

**Table 3: Part A: Use of eight coping strategies (n=200)**

Coping strategy	Minimum	Maximum	Mean	SD
Confrontive	7.00	28.00	18.45	3.33
Evasive	9.00	31.00	21.35	3.78
Optimistic	6.00	25.00	17.82	3.10
Fatalistic	0.00	9.00	3.75	1.58
Emotive	0.00	9.00	3.28	1.84
Palliative	3.00	17.00	12.82	2.63
Supportive	7.00	14.00	10.97	1.55
Self-reliant	4.00	18.00	11.24	2.55
Total of all the coping strategies that are used to handle stressful situation	47.00	135	99.31	13.03

SD: Standard deviation

**Table 4: Part B: Effectiveness of coping strategies (n=200)**

Coping strategy	Minimum	Maximum	Mean	SD
Confrontive	7	41	17.62	3.69
Evasive	9	31	19.78	3.79
Optimistic	5	21	14.86	2.78
Fatalistic	0	10	3.58	1.59
Emotive	0	10	2.96	2.18
Palliative	3	19	11.95	2.71
Supportive	6	33	10.64	2.03
Self-reliant	3	18	10.42	2.26
Total of how much these strategies are useful	42	143	93.45	13.67

SD: Standard deviation

## Discussion

This study aimed to explore the coping strategies used by Jordanian patients with CRC. Evasive and optimistic coping strategies were identified as the most commonly used and effective strategies for the participants, mainly to cope with their diagnosis during their treatment. In a similar study, patients who were diagnosed with cancer used positive reframing and self-distraction coping styles.<sup>[18]</sup> However,

Table 5: Themes and subcategories emerged (n = 10)

Theme	Subcategories	Representative quote (example)
Perceived collaborative support	Practical support by family members	.....My beloved family help. They helping me in everything, this help making my life easy..... without their support I don't know I can continue and face this new challenge. ....they taking care of my food, personal things, almost everything. (male, 53 years old)
		....., my brother look after my small shop while I was sick or at hospital. My business is secure now. I don't know, without his support I might lose my business. (male, 55 years old)
Increased awareness of treatment	Increasing knowledge and being oriented	.... It was a new experience for me, I knew nothing about cancer, when I told that I have cancer, I started reading about it, how to treat, food, drinks, problems related to drugs. Everything, I know my enemy now. I can fight it....am helping other also. I mean the new patients. (female, 45 years old)
Internal power	Faith and religion	.....I am sure this is a test for my patience and I must succeed not only to be cured from this disease but also to restart my life again with the people I love (female, 47 years old) .....My God will not leave me alone. I do believe this my time to think again about my life. Every time am praying and reading my book, am feeling huge power inside me (male, 53 years old)
	Normalcy and positive attitude	.....I will continue to fight in this war. Yes, it is like this, and I must win in this battle. I will be myself, am back to my life, routine, people I love. I will continue whatever happen. This sickness will not stop me (female, 49 years old)

a recent study examining CRC patients' coping strategies found that the patients relied on their own strategies and social support.<sup>[20]</sup> In this study, patients sought more information, reflected on prior health, focused on positivity in life, used humor, denied negative cancer symptoms, and suppressed negative thoughts.<sup>[20]</sup> Abelson *et al.*<sup>[27]</sup> reported one of the few studies that explored the coping strategies of CRC patients alone, as previous studies explored these strategies from families' and caregivers' perspectives and focused on general malignancies.<sup>[28,29]</sup> However, Abelson *et al.* (2018) only explored CRC patients who were about to undergo surgery. The current study will add further knowledge and augment the findings of Abelson *et al.*<sup>[19]</sup>, as it examined the same variables but included all CRC patients. Another study explored the lived experience of CRC patients following their treatment period from survivors' perspectives. They socialized and set goals for their lives in order to cope with having cancer. It seems that coping styles are similar among cancer patients, but a variable that was unique to the participants in the current study was social support. In a study comparing coping strategies used by healthy individuals and cancer patients, the researchers found that cancer patients used social support and emotion-focused coping strategies more than their healthy counterparts.<sup>[30]</sup> The community network and social support is very prominent in Jordanian culture and is part of day-to-day life; although participants of the current study did not value it as a very important coping style, previous studies found it to be important for promoting well-being.<sup>[31]</sup> The findings from the qualitative phase showed that the participants who developed such an adaptive mechanism, and used all effective and useful strategies to face the diagnosis of cancer and live with it, reported more life satisfaction, less psychological/emotional problems, and more power/spirit to manage their life under the new circumstances. These qualitative results support a previous quantitative research undertaken by Schnoll *et al.*<sup>[32]</sup>

who recruited a sample of 700 participants to identify the predictors of positive psychological adjustment for cancer patient survivors. Their results indicated that possessing a positive meaning of life and optimism were essential factors in predicting the participants' positive adjustment to cancer. These results present a logical explanation for why and how positive perceptions, and the attachment of positive meanings, can work as a protective mechanism or coping strategy against the impact of psychological, physical, or social problems/difficulties. In this study, the results indicated that the patients' ability to cope and find the meaning of life, despite being diagnosed with a life-threatening disease such as cancer, was an important and crucial element in improving their coping ability. Moreover, adopting a positive outlook enabled them to cope with their new situation.

It can be asserted that, regardless of the participants' type of cancer, culture, religion, or ethnic group, spirituality positively enhances participants' psychological adjustment to their cancer.<sup>[33]</sup> Although the role of nurses in this area of patient spirituality is limited, they can provide basic spiritual information to facilitate the practice of religious rituals or provide contacts with religious mentors.

According to several studies in recent decades,<sup>[34-37]</sup> effective coping strategies enhance psychological adjustment among cancer patients while also fostering and increasing their fighting spirit and decreasing their feelings of hopelessness, anxiety, and depression, all of which improve patients' quality of life.<sup>[38]</sup> Consistent with this outcome, the participants in the present study faced the challenge of living with CRC. This challenge requires great adaptability on the part of the patients so that they can carry on with life. Thus, it is clear how necessary it is to understand the patients' ability to cope and to identify the kinds of strategies they are applying/utilizing as they face their problems.

The use of a mixed-methods approach has provided a holistic view and expanded our understanding of the

variables under study. Findings from the qualitative phase have identified further coping strategies that influence the participants (*viz.*, spirituality and attitude toward prognosis and life), which were not included in the quantitative phase of the current study (*viz.*, the JCS); thus the findings of the current study have expanded the knowledge regarding coping strategies used by cancer patients (specifically, CRC) and identified that spirituality and attitude toward life and prognosis are also effective coping strategies used by the participants. Although there are valid and reliable scales to measure spirituality, such as the Spiritual Coping Strategies scale,<sup>[39]</sup> these scales are not available in Arabic; therefore, translation and validation of these scales are recommended in future to address this important coping strategy.

In the current study, the qualitative results indicated spirituality as both a religious activity alongside the participants' religious practices (such as praying, reading holy books, and visiting holy places) and as a way to find the meaning of disease, death, and life, with the participants defining disease as a test from God in terms of their patience and ability to continue with their life. The majority of the participants in the present study were Muslim by religion; their spirituality enhanced their coping skills and fostered their acceptance. These findings seem to have a universal component because similar results are found regardless of the study population, ethnic grouping, or religion.<sup>[40]</sup> Walton and Sullivan's qualitative study<sup>[40]</sup> contributed to the theory, development, and understanding of what spirituality means to men with prostate cancer, as well as how their spirituality influenced their treatment. The results showed that prayer was an important and vital element in improving their quality of life, providing them with assurance and comfort (emotionally) and increasing their inner strength. Spirituality also helped the participants to manage their disease through receiving support from their God, that is, their belief that God would help them through this disaster. These and the findings from the current study are also congruent with Levine *et al.*'s<sup>[41]</sup> results, namely, that African-American women with breast cancer engaged in spiritual activities, had faith, and appreciated life. In addition, they had a strong belief in God's help and assistance during their illness period.<sup>[41]</sup>

The qualitative results of this study and that of others<sup>[42]</sup> have identified the importance of the participants' social support (*i.e.*, family and friends) in increasing their coping mechanisms. The majority of the participants in the current study were married and they acknowledged the support provided by their families. Such a support network provides the strength, hope, ability, and spirit that the participants needed to enable them to face their diagnosis and continue their treatment. The outcome was a belief in their personal

capacity to overcome a difficult situation with the ultimate ending of being cured.

## Conclusion

The current study identified the coping strategies used by CRC patients during their illness period. Using a mixed-methods approach provided in-depth understanding and enriched our knowledge regarding these coping strategies. The role of health professionals should be extended and focused on fostering the use of these coping strategies to enable patients to face this challenge. Further research is recommended to explore the impact of coping on patient outcomes, such as prognosis, treatment response, and quality of life.

## Acknowledgments

Special thanks go to the participants for their time and effort. We would also like to thank AL Bashir Hospital and AL Zaytoonah University for their support.

## Financial support and sponsorship

Nil.

## Conflicts of interest

There are no conflicts of interest.

## References

1. World Cancer Research Fund International. Colorectal Cancer Statistics. World Cancer Research Fund International; 2018. Available from: <https://www.wcrf.org/dietandcancer/cancer-trends/colorectal-cancer-statistics>. [Last accessed on 2018 Oct 01].
2. Arnold M, Sierra MS, Laversanne M, Soerjomataram I, Jemal A, Bray F, *et al.* Global patterns and trends in colorectal cancer incidence and mortality. *Gut* 2017;66:683-91.
3. Miller KD, Siegel RL, Lin CC, Mariotto AB, Kramer JL, Rowland JH, *et al.* Cancer treatment and survivorship statistics, 2016. *CA Cancer J Clin* 2016;66:271-89.
4. Balboni T, Balboni M, Paulk ME, Phelps A, Wright A, Peteet J, *et al.* Support of cancer patients' spiritual needs and associations with medical care costs at the end of life. *Cancer* 2011;117:5383-91.
5. Girgis A, Lambert S, Johnson C, Waller A, Currow D. Physical, psychosocial, relationship, and economic burden of caring for people with cancer: A review. *J Oncol Pract* 2013;9:197-202.
6. Lai JS, Garcia SF, Salsman JM, Rosenbloom S, Cella D. The psychosocial impact of cancer: Evidence in support of independent general positive and negative components. *Qual Life Res* 2012;21:195-207.
7. Bronner MB, Nguyen MH, Smets EM, van de Ven AW, van Weert JC. Anxiety during cancer diagnosis: Examining the influence of monitoring coping style and treatment plan. *Psychooncology* 2018;27:661-7.
8. Graça 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.

9. Calderón C, Jimenez-Fonseca P, Jara C, Hernández R, Martínez de Castro E, Varma S, *et al.* Comparison of coping, psychological distress, and level of functioning in patients with gastric and colorectal cancer before adjuvant chemotherapy. *J Pain Symptom Manage* 2018;56:399-405.
10. Carter I. *Human Behavior in the Social Environment: A Social Systems Approach*. 6<sup>th</sup> edition. New York, Routledge; 2017.
11. Lin CC. The roles of social support and coping style in the relationship between gratitude and well-being. *Pers Individ Dif* 2016;89:13-8.
12. Hamilton R, Miedema B, Macintyre L, Easley J. Using a positive self-talk intervention to enhance coping skills in breast cancer survivors: Lessons from a community-based group delivery model. *Curr Oncol* 2011;18:e46-53.
13. Vallurupalli M, Lauderdale K, Balboni MJ, Phelps AC, Block SD, Ng AK, *et al.* The role of spirituality and religious coping in the quality of life of patients with advanced cancer receiving palliative radiation therapy. *J Support Oncol* 2012;10:81-7.
14. Goldzweig G, Andritsch E, Hubert A, Walach N, Perry S, Brenner B, *et al.* How relevant is marital status and gender variables in coping with colorectal cancer? A sample of middle-aged and older cancer survivors. *Psychooncology* 2009;18:866-74.
15. Schrank B, Ebert-Vogel A, Amering M, Masel EK, Neubauer M, Watzke H, *et al.* Gender differences in caregiver burden and its determinants in family members of terminally ill cancer patients. *Psychooncology* 2016;25:808-14.
16. Orbell S, O'Sullivan I, Parker R, Steele B, Campbell C, Weller D, *et al.* Illness representations and coping following an abnormal colorectal cancer screening result. *Soc Sci Med* 2008;67:1465-74.
17. Agarwal M, Hamilton JB, Crandell JL, Moore CE. Coping strategies of African American head and neck cancer survivors. *J Psychosoc Oncol* 2010;28:526-38.
18. Priscilla D, Hamidin A, Azhar MZ, Noorjan KO, Salmiah MS, Bahariah K, *et al.* Coping styles in patients with haematological cancer in a Malaysian hospital. *East Asian Arch Psychiatry* 2011;21:44-51.
19. Appleton L, Goodlad S, Irvine F, Poole H, Wall C. Patients' experiences of living beyond colorectal cancer: A qualitative study. *Eur J Oncol Nurs* 2013;17:610-7.
20. Abelson JS, Chait A, Shen MJ, Charlson M, Dickerman A, Yeo H, *et al.* Coping strategies among colorectal cancer patients undergoing surgery and the role of the surgeon in mitigating distress: A qualitative study. *Surgery* 2019;165:461-8.
21. Abdel-Razeq H, Attiga F, Mansour A. Cancer care in Jordan. *Hematol Oncol Stem Cell Ther* 2015;8:64-70.
22. Greene JC, Caracelli VJ, Graham WF. Toward a conceptual framework for mixed-method evaluation designs. *Educ Eval Policy Anal* 1989;11:255-74.
23. Saffari M, Sanaeinasab H, Hashempour M, Pakpour AH, Lovera JF, Al Shohaib S, *et al.* Cultural adaptation, validity, and factor structure of the Jalowiec coping scale in Iranian women with multiple sclerosis: Which coping strategies are most common and effective? *Int J MS Care* 2017;19:209-16.
24. Jalowiec A, Grady KL, White-Williams C. Predictors of perceived coping effectiveness in patients awaiting a heart transplant. *Nurs Res* 2007;56:260-8.
25. Birbili M. Translating from one language to another. *Soc Res* 2000;2000:1-7.
26. Temple B, Young A. Qualitative research and translation dilemmas. *Qualitative Res* 2004;2:161-78.
27. Asiedu GB, Eustace RW, Eton DT, Radecki Breitkopf C. Coping with colorectal cancer: A qualitative exploration with patients and their family members. *Fam Pract* 2014;31:598-606.
28. McCahill LE, Hamel-Bissell BP. The patient lived experience for surgical treatment of colorectal liver metastases: A phenomenological study. *Palliat Support Care* 2009;7:65-73.
29. Traa MJ, De Vries J, Bodenmann G, Den Oudsten BL. Dyadic coping and relationship functioning in couples coping with cancer: A systematic review. *Br J Health Psychol* 2015;20:85-114.
30. Ahadi H, Delavar A, Rostami A. Comparing coping styles in cancer patients and healthy subjects. *Soc Behav Sci* 2014;116:3467-70.
31. Brannan D, Biswas-Diener R, Mohr CD, Mortazavi S, Stein N. Friends and family: A cross-cultural investigation of social support and subjective well-being among college students. *J Posit Psychol* 2013;8:65-75.
32. Schnoll RA, Knowles JC, Harlow L. Correlates of adjustment among cancer survivors. *J Psychosoc Oncol* 2002;20:37-59.
33. Astrow AB, Kwok G, Sharma RK, Fromer N, Sulmasy DP. Spiritual needs and perception of quality of care and satisfaction with care in hematology/medical oncology patients: A multicultural assessment. *J Pain Symptom Manage* 2018;55:56-640.
34. Mullens AB, McCaul KD, Erickson SC, Sandgren AK. Coping after cancer: Risk perceptions, worry, and health behaviors among colorectal cancer survivors. *Psychooncology* 2004;13:367-76.
35. Deimling GT, Wagner LJ, Bowman KF, Sterns S, Kercher K, Kahana B, *et al.* Coping among older-adult, long-term cancer survivors. *Psychooncology* 2006;15:143-59.
36. Lazarus RS. Coping theory and research: Past, present, and future. *Psychosom Med* 1993;55:234-47.
37. Schnoll RA, Harlow LL, Stolbach LL, Brandt U. A structural model of the relationships among stage of disease, age, coping, and psychological adjustment in women with breast cancer. *Psychooncology* 1998;7:69-77.
38. Hamilton JB, Agarwal M, Carter JK, Crandell JL. Coping profiles common to older African American cancer survivors: Relationships with quality of life. *J Pain Symptom Manage* 2011;41:79-92.
39. Baldacchino DR, Buhagiar A. Psychometric evaluation of the spiritual coping strategies scale in English, Maltese, back-translation and bilingual versions. *J Adv Nurs* 2003;42:558-70.
40. Walton J, Sullivan N. Men of prayer: Spirituality of men with prostate cancer: A grounded theory study. *J Holist Nurs* 2004;22:133-51.
41. Levine EG, Yoo G, Aviv C, Ewing C, Au A. Ethnicity and spirituality in breast cancer survivors. *J Cancer Surviv* 2007;1:212-25.
42. Devine D, Parker PA, Fouladi RT, Cohen L. The association between social support, intrusive thoughts, avoidance, and adjustment following an experimental cancer treatment. *Psychooncology* 2003;12:453-62.