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Adapting and avoiding coping strategies for women with ovarian cancer during the COVID-19 pandemic

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HIGHLIGHTS

- 408 ovarian cancer survivors provided information on coping strategies utilized during the COVID-19 pandemic.
- 371 participants (90.9%) reported using at least one adaptive coping strategy.
- 146 participants (35.8%) reported using at least one dysfunctional coping strategy.
- Commonly used adaptive strategies included emotional support (159, 39.0%), self-care (148, 36.3%) and hobbies (139, 34.1%).
- Commonly used dysfunctional coping strategies included self-distraction (111, 27.2%) and substance use (19, 4.7%).

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ABSTRACT

Background: The COVID-19 pandemic has resulted in unprecedented challenges for people living with cancer, impacting not only physical health but psychological well-being. The psychological response affects the individual as well as the community and can persist long after the outbreak. We aim to assess coping strategies employed by women with ovarian cancer during the COVID-19 pandemic.

Methods: Women with a current or prior diagnosis of ovarian cancer completed an online survey which included a query about coping strategies during the COVID-19 pandemic. The survey was distributed from March 30th through April 13, 2020 through survivor networks and social media.

Results: Six hundred and three women visited the survey website during the study period and 555 (92.0%) completed the survey. Four hundred and eight (73.5%) provided information on coping strategies utilized during COVID-19. Among those who responded, the median age was 58 years (range 20–85) and 150 participants (40.8%) were undergoing active cancer treatment. Commonly utilized adaptive coping strategies included emotional support (159, 39.0%), self care (148, 36.3%), hobbies (139, 34.1%), planning (87, 21.3%), positive reframing (54, 13.2%), religion (50, 12.3%) and instrumental support (38, 9.3%). Many participants also relied on avoidance coping strategies including self distraction (111, 27.2%) and substance use (19, 4.7%).

Conclusions: Most ovarian cancer survivors are using adaptive, problem-focused coping strategies during the COVID-19 pandemic, however many are practicing avoidance strategies as well. As coping mechanisms profoundly impact quality of life, oncology providers must assist patients in identifying coping strategies that optimize physical and psychological well-being.

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1. Introduction

COVID-19 is likely uniquely unsettling to people living with cancer: their treatments are interrupted, surgeries cancelled, regular oncology

evaluations rescheduled and the interaction between COVID-19 and cancer remains unclear. Early reports suggest that people with cancer may experience worse outcomes from COVID-19 compared to those without cancer, including higher risk of admission to intensive care units, requirement for invasive ventilation and death [1,2]. Oncology providers and patients find themselves struggling to balance plausible fears of COVID-19 exposure and concern about cancer progression due

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to delaying cancer care [3,4]. Several medical societies have provided guidance for oncology providers during the COVID-19 pandemic and there is a growing literature on coping strategies utilized by health care workers and medical trainees [5–8]. However, there is a dearth of reports of patients' psychosocial perspectives during this crisis [9]. Prior studies suggest that ovarian cancer survivors may experience a unique psychological response to their disease. Although most women present at advanced stage with poor prognosis, many achieve long overall survival, with multiple, often toxic, treatment regimens and periods of remission and recurrence [10,11].

Coping is defined as the thoughts and behaviors used to manage the internal and external demands of stressful situations [12]. People living with cancer, from the moment of diagnosis, experience a variety of health-related, social and emotional concerns related to disease, treatment and prognosis. They engage in various coping strategies which can be beneficial or harmful with regards to adjustment and well-being [13]. Research has conceptualized coping strategies into multiple domains, often separating those that are adaptive versus dysfunctional. Strategies considered adaptive, such as acceptance, positively correlate with quality of life and mood, while those that are dysfunctional, such as denial and self blame, negatively correlate with these outcomes [14–19]. As coping strategies critically influence an individual's quality of life and psychosocial adaptation to major stressors like a cancer diagnosis or national disaster, we aimed to assess coping strategies utilized by ovarian cancer survivors during the COVID-19 pandemic.

2. Methods

This study was approved by the Weill Cornell Medical College and Icahn School of Medicine at Mount Sinai institutional review boards. The COVID-19 Concern Survey consisted of 65 questions assessing participants' demographics, cancer history, cancer-directed treatment during the COVID-19 pandemic, quality of life and coping strategies. The survey was distributed online via survivor networks including the Ovarian Cancer Research Alliance and Community Partners, National Ovarian Cancer Coalition, SHARE Cancer Support, Sandy Rollman Foundation, Woman to Woman Program, Tina's Wish and social media via Twitter and Facebook groups including #gynscm (Gynecologic Cancer Social Media Community), Ovarian Cancer 101, Rare Ovarian Cancer Subtypes Team, Sisterhood of Ovarian Cancer Survivors and Teal Life – Ovarian Cancer Awareness. The survey was available for fourteen days, from March 30 through April 13, 2020 and was completed online by self-identified ovarian cancer survivors. Participation was anonymous and consent was provided electronically. The data regarding treatment interruptions and quality of life have previously been published [20].

Quantitative sociodemographic and clinical data were obtained from closed-ended questions. Sociodemographic information included race, ethnicity, relationship status, living situation, highest level of education and participation in survivor networks. Clinical information included cancer stage, cancer treatment history, access to counseling and medical comorbidities.

Coping strategies were assessed by a free text question “How are you managing during this stressful time?” Responses were analyzed by two members of the study team to identify themes. Coping strategies described in the Brief COPE [21] were used as a framework to develop the codebook and additional codes were added as new themes emerged. New codes were added if both coders agreed on their necessity. Both manifest and latent coding were used [22]. The final codebook and code definitions are outlined in Table 1. Self care was defined as coping with stress by engaging in exercise, healthy eating, mindfulness, meditation or yoga. Hobbies were defined as pleasurable activities including reading, gardening, home projects, spending time outdoors, etc. [23] These were distinguished from self distraction whereby participants did something with the intent of avoiding thoughts about their situation. Inter-rater reliability was determined by comparing coding results for the two coders for each subject's survey

Table 1
Codebook of coping strategies and associated definitions

Adaptive coping strategies	
Acceptance	Accepting what has happened and learning to live with it
Emotional Support	Getting comfort and understanding from others
Humor	Making fun of the situation / making jokes about it
Instrumental Support	Getting help and advice from others
Planning	Concentrating efforts on doing something about the situation / to make the situation better
Positive Reframing	Looking for something good in what is happening / trying to see things in a more positive light
Religion	Trying to find comfort in religion, prayer or spiritual beliefs
Self Care	Doing things to take care of oneself (e.g. exercise, healthy eating)
Hobbies	Participating in active hobbies (e.g. cooking, outdoors, pets)
Dysfunctional coping strategies	
Behavioral Disengagement	Giving up trying to deal with it / the attempt to cope
Self Distraction	Doing things in order to avoid thinking about it
Substance Use	Using alcohol or other drugs to make myself feel better / help me get through it
Venting	Expressing my negative feelings / saying things to let my unpleasant feelings escape
Self Blame	Criticizing oneself / placing blame for things that have happened

response. After completion of coding, the entire dataset was reevaluated to ensure there was no definitional drift. Coping strategies were separated into two broad groups based on prior coping literature: adaptive versus dysfunctional strategies [13,24,25]. Adaptive or problem-focused strategies included acceptance, emotional support, humor, instrumental support, planning, positive reframing, religion, self care and hobbies. Dysfunctional or avoidance strategies included behavioral disengagement, self distraction, self blame, substance use and venting [21,26] (Table 1).

The distribution of continuous variables was tested for normality via the Shapiro-Wilk normality test. To evaluate if coping strategies were associated with sociodemographic or clinical factors, univariate tests were applied based on whether the variable of interest was distributed normally (i.e., *t*-test, analysis of variance) or not normally (i.e., Mann-Whitney *U* test, Kruskal-Wallis test). Associations between categorical variables were evaluated using the chi-square test or Fisher's exact tests, as appropriate for category size. Statistical significance was evaluated at the 0.05 alpha level, and 95% confidence intervals were calculated for all obtained estimates. Data were analyzed using SPSS Statistical software (version 20, SPSS, INC, 2011) and R (version 3.6.1, R Foundation for Statistical Computing, 2019).

3. Results

Six hundred and three women visited the survey website between March 30 and April 13, 2020 and 555 (92%) completed the survey after providing electronic consent. Four hundred and eight participants (73.5%) provided information on coping strategies utilized during the COVID-19 pandemic. Among those who responded, the median age was 58 years (range 20–85). The majority of participants self-identified as White (337, 92.8%). There were participants from 40 states. Participants came from states with the following COVID-19 case volume as designated by the Centers for Disease Control and Prevention (CDC) as of April 17, 2020: low case volume, 9 (2.6%); intermediate case volume, 109 (31.4%); high case volume, 229 (66.0%) [27]. Seventy-five participants (20.3%) reported living alone. Two hundred and forty-five participants (66.2%) had a college degree or higher level of education (Table 2). At the time of survey completion, 150 participants (40.8%) were in active cancer-directed treatment. Overall, 131 participants

(33.9%) reported a delay in some component of their cancer care. Among 151 participants scheduled for nonsurgical cancer-directed therapy, 13 (8.6%) reported that their treatment was postponed. Twenty-nine participants reported that they were scheduled for surgical treatment of ovarian cancer. Among these women, 8 (27.6%) reported that the surgery was delayed due to COVID-19.

Participants were asked about COVID-19 symptoms and testing. Thirty-seven of the 386 responders (9.6%) reported having at least one symptom of COVID-19. Nine participants reported having been tested for COVID-19 and three were uncertain whether or not they had been tested. Among those tested, three had a positive test and six had a negative test. None of the participants reported having been hospitalized, admitted to an intensive care unit or requiring mechanical ventilation due to COVID-19.

When asked whether or not they had access to online or in-person counseling, 208 (55.5%) of the 375 responders said yes, 83 (22.1%) no and 84 (22.4%) were uncertain. Three hundred and one (79.6%) of the 378 respondents participated in networks for ovarian cancer survivors, 67 (17.7%) did not and 10 (2.6%) were uncertain.

Participants were asked, via free text, “How are you managing during this stressful time?” Participants reported using a median of two coping strategies (range 1–5) (see Table 1 for description of coping strategies). When coders evaluated the responses, the initial interrater reliability indicated 97% agreement between the two coders. The coders discussed and resolved coding discrepancies and achieved perfect agreement. The most common coping strategies included emotional support (159, 39.0%), self care (148, 36.3%), hobbies (139, 34.1%), self distraction (111, 27.2%), planning (87, 21.3%), positive reframing (54, 13.2%), religion (50, 12.3%), and instrumental support (38, 9.3%) (Fig. 1). Frequently used self care strategies included exercise (118, 28.9%), mindfulness/meditation (42, 10.3%), yoga (23, 5.6%) and healthy eating (16, 3.9%). Frequently reported hobbies included reading (58, 14.2%), cooking/baking (24, 5.9%) spending time outdoors (24, 5.9%) and gardening (18, 4.4%). As one respondent wrote, “Keeping a routine! I am lucky and still able to work and love my coworkers. Walks with the dog in this gorgeous weather. Small projects that have realistic goals/

ends. Sense of accomplishment” and another, “daily exercise preferably outside. Lots of phone/online communication with friends and family. Eating well. Something fun each day. Some quiet time each day.” Sixty-eight participants reported using technology to obtain emotional or instrumental support by means including FaceTime, telephone and social media. One stated, “[I am] staying connected via Internet and social media” and another noted she used a “support group sponsored conference call” to cope. Thirteen participants reported limited consumption of news as a coping strategy. This was considered planning / active coping as the intent behind this behavior was to make their situation better [23]. For example, one participant explained, “maintaining by not watching too much news and meditating, trying to live in the present.”

Other coping strategies included substance use (19, 4.7%), acceptance (16, 3.9%), venting (12, 2.9%), humor (7, 1.7%), behavioral disengagement (6, 1.5%) and self blame (2, 0.5%) (Fig. 1). Nineteen participants reported using a total of 20 substance use coping mechanisms including using alcohol (4), drugs (11) and unhealthy eating (5). One participant stated, “I have a cocktail every night with my husband and I also have a prescription for 10 milligrams of Lorazepam if things REALLY get me anxious.” Women did not report denial, a coping strategy previously described in the literature [21].

Coping strategies were further clustered into adaptive or dysfunctional approaches based on prior validated self-reported coping tools [13,24,25]. Three hundred and seventy-one participants (90.9%) reported using at least one adaptive coping strategy. Two hundred and sixty-two participants (64.2%) used exclusively adaptive coping strategies. The most common adaptive coping strategy was emotional support. One participant noted that she would have “regular visits with therapist and psychiatrist” and use “online support groups,” while another commented, “thankful that my husband is beside me.” Self care, hobbies, planning, positive reframing, and religion were also frequently used adaptive coping strategies. Participants often reported more than one of these, with one responding that, “Prayer. Choosing to be joyful, hopeful, grateful. Humor. Maintaining favorite outdoor activities. Qi-gong” all helped her to cope. Another said, “Being vocally grateful for

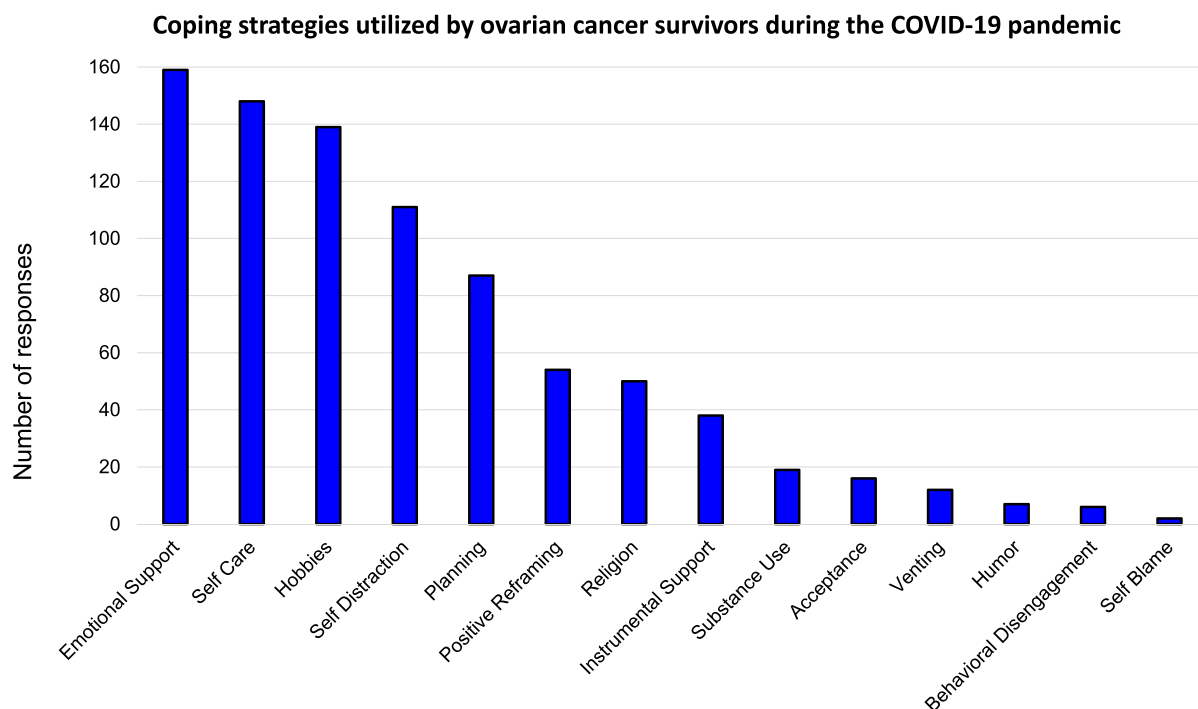


Fig. 1. Coping strategies utilized by ovarian cancer survivors during the COVID-19 pandemic.

home, family, food, rural countryside, community. Having a daily routine that provides a bit of structure and purposeful activity but is not too rigid.”

One hundred and forty-six participants (35.8%) reported using at least one dysfunctional coping strategy. Thirty-seven participants (9.1%) exclusively used dysfunctional coping strategies and 109 (26.7%) a combination of adaptive and dysfunctional strategies. The most common dysfunctional coping strategy was self-distraction, followed by substance use and venting. One participant used sleep as a distractor, stating, “[I am] napping to escape reality” while another simply stated, “I keep busy all the time.” Some participants expressed their frustration through their responses, which was coded as venting. For example, “Ok would be better if I could function better. Terribly debilitating back pain” and “I am not [coping], I have a therapist but not finding her very helpful. She looks at her phone during our sessions.”

Participant demographic and clinical variables were evaluated for associations with employed individual and categorical (adaptive vs. dysfunctional) coping strategies. Subject age, race, ethnicity, current relationship status, living alone, highest level of education, cancer stage, having completed first line treatment, currently receiving treatment, access to counseling, participation in survivor networks, medical comorbidities and COVID-19-related delay in oncology care were not associated with any of the reported coping strategies (Table 2). Residing in states with low versus intermediate versus high COVID-19 case volume did not affect coping strategies.

4. Discussion

Our survey captured the coping strategies of 408 women with ovarian cancer during the COVID-19 crisis. Among our cohort, 40.8% were receiving cancer-directed treatment and 33.9% had a delay in some component of their oncologic care. These significant interruptions in cancer care are not surprising given that medical staff and resources had been redeployed to manage COVID-19, state government and hospital policies called for cancellation of non-emergent surgical procedures, and general recommendations were to avoid hospital visits due to infection risk as well as reinforcement of the current strategy of restrictive social distancing. The most commonly used coping strategies included: emotional support, self care, hobbies, self distraction, planning and positive reframing.

While qualitative studies have helped to illuminate the experiences of people coping with cancer, investigators also have quantitatively examined different coping strategies with validated self-reporting tools [13]. Functional coping involves addressing the problem causing distress and is often considered an adaptive response. Some examples of adaptive coping are making a plan of action or concentrating on the next step. Coping strategies that actively avoid the negative emotions associated with the problem are often considered potentially maladaptive or dysfunctional. Examples of maladaptive or dysfunctional coping are self distraction, venting and using alcohol or drugs [24]. Self distraction has been characterized by such actions as daydreaming and sleeping to separate oneself from a stressor. While such avoidant coping mechanisms have been found to be adaptive in the short-term, long-term outcomes tend to be worse, including an increased risk of traumatic stress [21,28]. Venting, defined as focusing on distressing and upsetting items and expressing those negative emotions, can lead one to concentrate on the distress, which may in fact exacerbate it [29]. Prior research has demonstrated that venting is associated with increased anxiety and decreased social and psychological well-being [19,30]. Such coping mechanisms may worsen quality of life and decrease one's potential problem solving capacity and therefore are considered dysfunctional coping [19].

Among our cohort of women with ovarian cancer, 262 (64.2%) utilized exclusively adaptive coping strategies and 371 (90.9%) used at least one adaptive strategy. This finding was reassuring as prior literature demonstrates that strategies including emotional

support and acceptance correlate with improved quality of life and mood [14,25,31]. Furthermore, engagement coping techniques including planning, seeking support and positive reframing may moderate the effects of symptom stress and distress on quality of life. Additionally, some of the self care strategies including exercise, mindfulness and healthy eating have been associated with improved cancer-related outcomes [15,32,33].

In contrast to adaptive coping strategies, dysfunctional or avoidance coping has been associated with greater symptom severity, distress and worse quality of life [14,34]. In our cohort, 146 participants (35.8%) reported using at least one maladaptive coping strategy and 37 (9.1%) exclusively reported this type of coping. The most common maladaptive coping strategy was self distraction (27%), followed by substance use (5%), venting (3%), behavioral disengagement (1%) and self blame (0.5%). Given that our study period was relatively early in the pandemic, it is possible that many participants who engaged in self distraction did so for the initial, short-term benefit of this strategy. However, as the pandemic continues to pose a strong threat months later with few signs of a return to normal, this form of coping has the potential to result in negative long-term outcomes. This finding, while concerning, does reveal a potential opportunity for health care providers to work with women with ovarian cancer to improve their quality of life, as adaptive coping strategies have been effectively developed for people with cancer through educational programming [35–38].

Religion and spirituality are critical for many people coping with a cancer diagnosis. Studies suggest that spiritual or religious coping is associated with higher quality of life and improved mental health [39,40]. However, other studies suggest that people with advanced cancer struggle with religion and spirituality, and negative religious coping has been associated with psychological distress, suicidal ideation and worse quality of life [41,42]. In our cohort, 50 participants (12.3%) utilized religious coping strategies. From our review of the responses, the religious coping strategies appeared to be adaptive, promoting psychological well-being.

With COVID-19-mandated social distancing practices limiting our respondents' abilities to be with friends and family members, technology improved access to emotional support, with half of the women in our survey employing emotional support coping strategies, doing so via electronic platforms. Technology also contributed to stress, with 13 women (3%) reporting needing to limit access to social media and the news to cope. The CDC has encouraged limiting exposure to news about the crisis as an active and adaptive coping strategy [23].

It is not surprising that, among our population of ovarian cancer survivors, the majority used at least one adaptive coping strategy. Ovarian cancer diagnosis, treatment and survival can be an extremely stressful and uncertain experience. Women often undergo major surgery and receive toxic anti-cancer treatments, and despite this the risk of recurrence is high. Ferrell et al. evaluated 1282 communications from women with ovarian cancer and identified that distress, fear and uncertainty were reported in association with diagnosis [10]. However, focus on coping, renewed appreciation for life, and optimism were also reported throughout the disease course. In fact, in another study of 200 ovarian cancer survivors, 75% reported ovarian cancer highly impacted their life and an overwhelming majority reported that it had impacted their life in a positive way [43]. It is plausible that the experience of diagnosis, prognosis, treatment and long-term survival in ovarian cancer uniquely prepared our study population to adapt to the similarly stressful, uncertain and consuming circumstances of the COVID-19 pandemic.

Interestingly, patient demographic and clinical factors were not associated with any specific coping strategies. There are many plausible explanations. As mentioned above, survivors of ovarian cancer could be uniquely poised to cope with the COVID-19 pandemic simply given their previous experience with the disease. It is possible that the coping strategies employed by each survivor during her ovarian cancer journey correlates more with the strategies she used during the COVID-19 pandemic than any clinical or demographic factors.

Table 2
Participants using at least one adaptive and/or dysfunctional coping strategy*

	Adaptive coping strategies			Dysfunctional coping strategies		
	Utilizing N=352	Not utilizing N=34	P Value	Utilizing N=136	Not utilizing N=250	P Value
Age (median, range)	58.0 (53.0-65.0)	58.0 (50.0-64.2)	0.63	58 (50.0-65.0)	58.5 (53.0-65.0)	0.45
Race			0.48			0.86
American Indian or Alaska Native	3 (0.90%)	0 (0.00%)		0 (0.00%)	3 (1.27%)	
Asian or Asian American	8 (2.41%)	2 (6.45%)		5 (3.94%)	5 (2.12%)	
Black or African American	9 (2.71%)	1 (3.23%)		3 (2.36%)	7 (2.97%)	
White	309 (93.1%)	28 (90.3%)		117 (92.1%)	220 (93.2%)	
Other	3 (0.90%)	0 (0.00%)		2 (1.57%)	1 (0.42%)	
Ethnicity			1.00			0.50
Not Hispanic or Latino	320 (97.3%)	34 (100%)		127 (98.4%)	227 (97.0%)	
Hispanic or Latino	9 (2.74%)	0 (0.00%)		2 (1.55%)	7 (2.99%)	
Current relationship status			0.71			1.00
Married / civil union / domestic partnership	225 (67.0%)	23 (71.9%)		88 (67.2%)	160 (67.5%)	
Divorced / widowed / separated	60 (17.9%)	2 (6.25%)		17 (13.0%)	45 (19.0%)	
Single	51 (15.2%)	7 (21.9%)		26 (19.8%)	32 (13.5%)	
Living alone			0.53			0.90
Yes	70 (20.8%)	5 (14.7%)		26 (19.5%)	49 (20.7%)	
No	266 (79.2%)	29 (85.3%)		107 (80.5%)	188 (79.3%)	
Highest level of education			0.89			0.84
High school degree or equivalent	22 (6.53%)	2 (6.06%)		6 (4.55%)	18 (7.56%)	
Some college	91 (27.0%)	10 (30.3%)		40 (30.3%)	61 (25.6%)	
Bachelor degree	113 (33.5%)	11 (33.3%)		45 (34.1%)	79 (33.2%)	
Graduate degree	111 (32.9%)	10 (30.3%)		41 (31.1%)	80 (33.6%)	
Ovarian cancer stage			0.68			0.67
I/II	120 (35.8%)	10 (30.3%)		44 (33.6%)	86 (36.3%)	
III/IV	207 (61.8%)	22 (66.7%)		84 (64.1%)	145 (61.2%)	
Uncertain	8 (2.39%)	1 (3.03%)		3 (2.29%)	6 (2.53%)	
Completed first line treatment			0.63			0.51
Yes	317 (94.6%)	30 (90.9%)		121 (92.4%)	226 (95.4%)	
No	13 (3.88%)	2 (6.06%)		7 (5.34%)	8 (3.38%)	
Uncertain	5 (1.49%)	1 (3.03%)		3 (2.29%)	3 (1.27%)	
Currently receiving treatment			0.58			0.91
No	201 (59.8%)	17 (53.1%)		76 (58.5%)	142 (59.7%)	
Yes	135 (40.2%)	15 (46.9%)		54 (41.5%)	96 (40.3%)	
Access to counseling			0.42			1.00
Yes	191 (56.0%)	17 (50.0%)		74 (56.1%)	134 (55.1%)	
No	73 (21.4%)	10 (29.4%)		29 (22.0%)	54 (22.2%)	
Uncertain	77 (22.6%)	7 (20.6%)		29 (22.0%)	55 (22.6%)	
Participation in survivor networks			0.82			0.42
Yes	275 (79.9%)	26 (76.5%)		103 (76.9%)	198 (81.1%)	
No	60 (17.4%)	7 (20.6%)		27 (20.1%)	40 (16.4%)	
Uncertain	9 (2.62%)	1 (2.94%)		4 (2.99%)	6 (2.46%)	
Medical comorbidity			0.42			0.64
Yes	67 (19.0%)	9 (26.5%)		29 (21.3%)	47 (18.8%)	
No	285 (81.0%)	25 (73.5%)		107 (78.7%)	203 (81.2%)	
Oncology care postponed due to COVID-19			0.69			0.45
Yes	121 (34.4%)	10 (29.4%)		50 (36.8%)	81 (32.4%)	
No	231 (65.6%)	24 (70.6%)		86 (63.2%)	169 (67.6%)	

Our study has several limitations. First, our aim was to assess the types of coping strategies utilized by ovarian cancer survivors, and therefore outcomes related to quality of life were not obtained. Given the cross-sectional study design, impact of coping strategies on anxiety, depression and quality of life over time cannot be determined in this present study and is an area of important research for future studies. Additionally, the patient cohort may not be representative of the greater population of women with ovarian cancer as survivors who participate in online surveys via survivor networks and Twitter and Facebook groups may be more reflective than those who do not. Furthermore, women with ovarian cancer responding to online survey invitations may represent a limited spectrum of survivors with computer literacy and access to computers. This cohort had extremely limited diversity in race and ethnicity with the majority of participants identifying as Non-Hispanic White. Emerging data suggest that the COVID-19 pandemic has disproportionately affected many minority and marginalized populations in the U.S. and future studies focused on more diverse populations are needed [44,45]. All of these selection biases could have skewed our findings. However, our study did include a large number of ovarian cancer survivors with diversity in geographic location, age, education and spectrum on the treatment continuum and, to our knowledge, is one of the first reports on coping mechanisms utilized by people living with cancer during the COVID-19 crisis.

Our findings demonstrate that ovarian cancer survivors are primarily utilizing adaptive problem-focused coping strategies during the COVID-19 pandemic. While most of the reported strategies have been considered beneficial based on prior coping literature, associated with improved quality of life and well-being, 27% of the women in our cohort used self distraction and 5% substance use, both of which have been inversely associated with quality of life. Interestingly, more than half of emotional support occurred virtually, demonstrating that technology facilitated adaptive coping, which would not have been otherwise possible during the pandemic.

This survey was completed over the first two weeks of April 2020, earlier in the natural history of the pandemic, and, certainly, since then the COVID-19 situation has developed in a manner that was neither predictable nor controllable. The prolonged length of time that the pandemic has impacted survivors' interaction with their healthcare team and treatments could not have lessened the stress associated with the conflicting priorities described above, and therefore, if anything, the importance of focusing on coping strategies has increased with the time this public health crisis has continued.

Historians have noted that pandemics end when either they are medically resolved or fear about the disease wanes [46]; given that neither of these options seems imminent, it is likely that women with ovarian cancer will need to navigate the stresses of both their condition and COVID-19 for the foreseeable future. The oncology and ovarian cancer literature suggest that people with cancer value communication with their treating oncologist and shared decision-making throughout the disease course, especially at times of uncertainty [11]. In addition to remaining well-informed on the emerging data on COVID-19 and cancer, oncologists must screen patients for their psychosocial well-being, inquire about coping strategies during these times and be prepared to provide support to promote coping that will improve psychological well-being and quality of life.

Disclosures / Conflict of Interest statement

Kevin Holcomb serves as a consultant for Johnson and Johnson and receives research support from Fujirebio Diagnostics.

None of the remaining authors have a conflict of interest to disclose.

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Melissa K Frey: Conceptualization; Data curation; Formal analysis; Investigation; Methodology; Project administration; Resources;

Software; Supervision; Validation; Visualization; Roles/Writing - original draft; Writing - review & editing.

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