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7 **The Unmet Supportive Care Needs of Omani Women Diagnosed with Breast** 8 **Cancer**

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19

20 **Abstract**

21 **Objectives:** This study aimed to assess the unmet supportive care needs of Omani women with
22 breast cancer (BC). **Methods:** This cross-sectional study was conducted from November 2020 to
23 February 2021 among 250 adult Omani women diagnosed with BC at a university teaching
24 hospital in Muscat, Oman. An Arabic version of the 34-item Supportive Care Needs Survey-
25 Short Form tool was used to determine perceived unmet supportive care needs across five
26 domains. **Results:** A total of 181 women participated in the study (response rate: 72.4%). The
27 domain with the highest mean score per item was health system and information (mean score:
28 3.33), with the greatest unmet need in this domain being informed about things that the patient
29 could do to help themselves get well (40.9%). The domain with the second highest mean score
30 per item was patient care and support (mean score: 3.04), with the greatest unmet need being for

31 clinicians to be more sincere with the patient (36.5%). Higher total mean scores were reported by
32 women who had visited the hospital four times or more over the past two months ($P = 0.045$),
33 those with stage 3 or 4 cancer ($P = 0.047$) and those who had recently undergone radiotherapy or
34 chemotherapy ($P = 0.014$). **Conclusion:** Most unmet supportive care needs fell under the health
35 system and information domain. Healthcare providers in Oman should explore patient concerns
36 and provide sufficient information at various stages of the care process in order to decrease the
37 anxiety associated with living with cancer.

38 **Keywords:** Breast Neoplasms; Needs Assessment; Supportive Care; Women; Oman.

39

40 **Advances in Knowledge**

- 41 • To the best of the authors' knowledge, this is the first study to assess the unmet supportive
42 care needs of Omani women diagnosed with breast cancer (BC).
- 43 • The most frequently reported unmet supportive care needs were informational in nature,
44 while the greatest unmet psychological need was how to deal with fears of cancer recurrence.
- 45 • Women most frequently reported needing more help with sleeping issues and greater
46 sincerity from their clinicians, but were less concerned regarding unmet sexual needs.
- 47 • Significantly higher unmet supportive care needs were reported by women who had recently
48 received radiotherapy or chemotherapy.

49

50 **Application to Patient Care**

- 51 • The findings of this study indicate an urgent need to improve existing informational support
52 services for Omani women with BC, as well as to incorporate psychological support services
53 into routine oncology practice.
- 54 • In addition, clinicians should consider improving patient-clinician communication and
55 adopting a patient-centred care approach during consultations to help address the unmet care
56 needs of women with BC in Oman. This may help reduce the rate of related psychological
57 comorbidities such as depression, anxiety and stress.

58

59 **Introduction**

60 Supportive care refers to a person-centred approach to care in which necessary services are
61 provided in order to meet the emotional, social, informational and spiritual needs of patients with

62 serious illnesses.^{1,2} Patient-centred care is recognised as a benchmark of quality in cancer care,
63 with the delivery of supportive care services deemed to be just as important as that of curative or
64 palliative cancer treatments.³ Thus, although cancer treatment is essential to cure the patient and
65 increase their likelihood of survival, supportive care is considered necessary to improve their
66 quality of life.

67
68 In recent years, there has been a shift in focus from treatment to supportive care to help cancer
69 patients cope with the experience of living with cancer.^{3,4} The supportive care requirements of
70 cancer patients have been categorised into six different domains, including health system and
71 informational, patient care, psychosocial, sexual and financial needs.⁵ A greater understanding of
72 the supportive care needs of cancer patients can help to identify specific challenges and
73 concerns.⁶ On the other hand, failing to meet these needs can interfere with the patient's comfort,
74 quality of life, treatment decision-making abilities and adherence to treatment.⁷

75
76 A study of Chinese patients with breast and colorectal cancer showed that both types of patients
77 most commonly experienced unmet health system and informational needs, with younger
78 patients having more frequent unmet needs in the sexuality and health system and information
79 domains.⁶ On the other hand, a recent study conducted in the United Arab Emirates (UAE)
80 showed that the most prevalent unmet supportive care needs rated at a moderate-to-high level by
81 patients with different cancers were in the psychological domain, while needs in the sexuality
82 domain were least frequently reported.⁸

83
84 In Oman, BC is a leading cause of death and disability, accounting for 12.79% of all cancers and
85 24.50% of all female cancers.⁹ As a result of increased life expectancy, urbanisation and the
86 adoption of more Westernised lifestyles, the incidence of BC in Oman has almost doubled over
87 the last two decades.¹⁰ Moreover, most women with BC in Oman are diagnosed a younger age
88 and at a later stage compared to those in Western countries, with an average five-year survival
89 rate of 63%.^{10,11} Previous studies have shown that Omani women diagnosed with BC are at risk
90 of adverse physical and psychosocial morbidities.^{4,12,13} However, no previous study has yet
91 attempted to assess the unmet supportive care needs of Omani women diagnosed with BC.

92 Identifying and addressing the unmet supportive care needs of cancer patients is imperative to
93 help improve their quality of life.⁶

94

95 **Methods**

96 This cross-sectional questionnaire study was conducted from 1st November 2020 to 28th February
97 2021 at the Sultan Qaboos University Hospital (SQUH), a referral teaching and training hospital
98 and provides comprehensive oncological treatment to BC patients. Adult Omani women aged
99 ≥ 18 years who had been diagnosed with any stage of BC over the past five years at SQUH were
100 identified from the electronic hospital information system. According to official data from the
101 Ministry of Health, the incidence of BC in Oman in 2017 was 274 cases.¹⁴ Thus, assuming a
102 prevalence of 50% of unmet supportive care needs in five domains, with a precision rate of 5%
103 and desired confidence interval of 95%, the necessary sample size for the study was calculated to
104 be 170 participants. However, in order to compensate for non-respondents, a total of 250 patients
105 were invited to participate in the study by telephone or e-mail according to the contact
106 information available in the system.

107

108 A previously validated Arabic version of the 34-item Supportive Care Needs Survey-Short Form
109 (SCNS-SF34) was used to collect data regarding the respondents' unmet supportive care needs.⁸
110 The original SCNS-SF34 is a validated instrument used as part of routine cancer care to measure
111 cancer patients' perceived unmet supportive care needs across five domains, including
112 psychological (10 items), health system and information (8 items), patient care and support (6
113 items), physical and daily living (5 items), sexuality (2 items) and other needs (3 items).¹⁵
114 Originally, it was intended that the data were to be collected using a paper-based questionnaire;
115 however, as a result of the ongoing coronavirus disease 2019 (COVID-19) pandemic, research
116 assistants were prohibited from entering SQUH and having direct contact with patients in order
117 to minimise the risk of transmission. Thus, the Arabic version of the SCNS-SF34 tool was
118 modified so that it could be accessed and completed electronically by literate participants. For
119 illiterate participants, the questionnaires were completed by a researcher based on information
120 collected during telephone interviews.

121

122 Participants were asked to rate their perceived level of need for additional support for each item
123 on a five-point scale. The internal consistency of the original SCNS-SF34 tool has been found to
124 be high (Cronbach's alpha coefficient range: 0.86–0.96).¹⁵ In addition, the tool has been
125 translated into various languages and used in different populations worldwide.^{5,16,17} Nair *et al.*
126 translated the SCNS-SF34 into Arabic for use in the UAE, a neighbouring country to Oman.⁸ In
127 addition, a pilot study was conducted of the first 30 participants in order to determine the
128 reliability and clarity of the Arabic version of the SCNS-SF34 questionnaire used in the present
129 study. This revealed Cronbach's alpha coefficients of 0.90, 0.92, 0.83, 0.87 and 0.94 for the
130 psychological, health system and information, patient care and support, physical and daily living,
131 and sexuality domains of unmet supportive care needs, respectively.

132
133 Collected data were analysed using the Statistical Package for the Social Sciences (SPSS), Version
134 25.0 (IBM Corp., Armonk, New York, USA). For descriptive purposes, categorical variables were
135 presented as numbers and percentages, while continuous variables were presented as means and
136 standard deviations or standard errors of measurement. Frequencies of ratings for individual items
137 were calculated in order to determine items most and least commonly reported to have a high level
138 of unmet need in each domain. Associations between continuous and categorical variables were
139 compared using an independent t-test or analysis of variance. A *P* value of <0.05 was considered
140 statistically significant. The study has been approved by the Medical Research and Ethics
141 Committee of the College of Medicine and Health Sciences, Sultan Qaboos University (MREC
142 #2189). All study procedures conformed to the tenets of the Declaration of Helsinki. Written
143 informed consent was obtained from all respondents prior to their participation in the study.

144 145 **Results**

146 Of the 250 women with BC invited to take part in the study, a total of 181 agreed to participate
147 (response rate: 72.4%). The mean age was 47.5 ± 10.6 years, with most participants being 41–50
148 years old (44.4%), married (72.9%) and educated to the university level or higher (40.3%). Most
149 women were unemployed (58.0%) and had a monthly household income of ≤500 Omani rials
150 (56.4%). Over one-third were residents of Muscat (35.9%) and a quarter reported a family
151 history of BC (25.4%). The majority of women had been diagnosed with BC more than two
152 years previously (70.2%) and at an advanced stage (stage 3 or 4; 42.2%). A total of 78 patients

153 (44.1%) had recently undergone chemotherapy or immunotherapy [Table 1]. Across the five
154 domains of unmet supportive care needs, the domain with the highest mean score per item was
155 health system and information (3.33 ± 0.09), followed by patient care and support (3.04 ± 0.08),
156 physical and daily living (2.90 ± 0.08), psychological (2.77 ± 0.08), and sexuality (2.27 ± 0.10)
157 [Table 2].

158

159 The mean total score for items in the psychological domain was 27.70 ± 10.33 . Overall, the item
160 most frequently perceived by respondents to have a high level of unmet need in this domain was
161 fears about cancer recurrence (34.3%), followed by fears about cancer spreading (33.7%) and
162 fears about children or people close to the patient (32.6%). The least frequently reported items
163 included fears about loss of the patient's independence (5.0%), concerns regarding the ability of
164 those close to the patient to cope with their care (11.6%) and thinking about death (11.6%). The
165 mean total score for items in the physical and daily living domain was 14.51 ± 5.40 . Items most
166 frequently reported to have a high level of unmet need included not sleeping well (16.0%) and
167 not being able to do things that the patient had done before getting cancer (15.5%). In contrast,
168 few participants reported a high level of unmet need for items such as pain (9.9%) and
169 nausea/vomiting (9.9%).

170

171 The mean total score for items in the health system and information domain was 26.64 ± 9.42 .
172 The need to be informed about things that the patient could do to help themselves get well was
173 most frequently found to be unmet at a high level (40.9%), followed by the need to be informed
174 about available treatments and their benefits and side-effects (39.8%), the need to be given an
175 explanation about any tests conducted on the patient (35.9%), the need for more information
176 about the patient's diagnosis and prognosis (33.7%) and the need to talk to someone who
177 understood and had experience with the patient's case (31.5%). The least frequently reported
178 items with high unmet needs in this domain included the need for access to professional
179 counselling (22.7%), the need to be informed about support groups (26.5%) and the need for
180 information about how to manage the patient's illness and side-effects at home.

181

182 The mean total score for items in the patient care and support domain was 18.23 ± 6.55 . The
183 most frequently reported unmet needs rated highly by the participants included the need for

184 clinicians to be more sincere with the patient (36.5%), followed by the need for the hospital to
185 protect the patient's privacy (32.6%) and the need for clinicians to show sensitivity to the
186 patient's emotional needs (30.4%). Fewer participants reported a high level of unmet need for
187 more choice about which hospital to attend (18.2%) and waiting a long time for a clinic
188 appointment (19.3%). The mean total score for items in the sexuality domain was 4.53 ± 2.67 .
189 Overall, few respondents reported a high level of unmet needs regarding changes in sexual
190 feelings (9.9%) and sexual relationships (9.9%). Other items rated by participants to have a high
191 level of unmet need included the need to receive less commiseration from other people (27.1%),
192 the need for economic help (18.2%) and the need to talk to other people who had experienced
193 cancer (10.5%) [Table 3].

194
195 Significant associations were observed between total mean scores and certain sociodemographic
196 and clinical variables. Higher mean scores were reported by women who had visited the hospital
197 four or more times over the past two months ($P = 0.045$), those diagnosed with stage 3 or 4
198 cancer ($P = 0.047$) and those who had recently received radiotherapy or chemotherapy over the
199 past two months ($P = 0.014$) [Table 4].

200

201 **Discussion**

202 To the best of the authors' knowledge, this is the first study conducted in Oman to evaluate the
203 unmet supportive care needs of Omani women diagnosed with BC. In general, supportive care
204 services—incorporating the social, spiritual, educational and informational needs of cancer
205 patients—require substantial improvement in most healthcare systems; moreover, until such
206 services are easily available and accessible, the needs of cancer patients will continue to go
207 unfulfilled.³ Nonetheless, although there were slight variations between different domains of
208 supportive care needs in this study, the Omani women demonstrated a need for additional
209 support across most domains, with the greatest unmet needs attributed to the domain of health
210 system and information. When a domain is reported to have a high prevalence of unmet needs,
211 the provision of related services in this area is commonly perceived to be insufficient; as such,
212 future work should be performed to improve these services for the population.¹⁸

213

214 Cancer patients often report high levels of unmet supportive care needs with regards to
215 information and communication; in particular, many patients express a desire for further
216 information regarding the short- and long-term implications of cancer, how they can manage
217 their illness, and the effectiveness and side-effects of potential treatments.^{7,19,20} Similarly, many
218 of the women in the current study reported high unmet needs for more information regarding
219 things that they could do to help themselves, as well as further explanation regarding tests,
220 disease prognosis and the benefits and side-effects of different treatment options.

221
222 In general, cancer patients often seek additional information to assuage anxiety associated with
223 the uncertainty of living with cancer, particularly concerning cancer type, stage, and potential
224 side-effects of cancer prognosis and management.²⁰ Several factors have been found to influence
225 cancer patients' needs for cancer-related information, including time since diagnosis, chosen
226 treatment, cancer stage, disease severity and the role of the patient in the treatment decision-
227 making process.²⁰ Approximately one-third of patients in the present study expressed fear
228 regarding cancer recurrence and spread as well as for their children and loved ones, ranking these
229 unmet needs highest in the psychological domain. Failure to identify and address topics of
230 concern among cancer patients through informational support and resource availability can result
231 in depression, anxiety and feelings of fear.^{18,21} Insufficient time for adequate information
232 provision during consultations may also exacerbate unmet supportive care needs in the
233 information and psychological domains.¹⁹

234
235 Patient-physician interaction is central to the process of healthcare delivery, with adequate
236 informational support associated with various desirable health outcomes for cancer patients.²² In
237 addition, good physician-patient communication helps to ensure an effective working
238 relationship.²³ However, patients in the current study reported a high level of unmet needs in the
239 patient care and support domain, especially in terms of the lack of sincerity and sensitivity of the
240 clinician to their emotional needs. The interpersonal relationship between healthcare providers
241 and patients plays a major role in shaping perceptions of service quality.²⁴ Moreover, patients
242 who feel that their treating physician is not capable of addressing the broader aspects of their
243 care may seek information, help and advice from other sources.²³

244

245 Interestingly, few women in the present study prioritised certain needs related to the sharing of
246 their experiences with others, including the need to be informed about support groups, to talk
247 with other cancer patients/survivors or for access to professional counselling services. In
248 Western countries, support groups are often perceived by cancer patients to be very important as
249 they provide many benefits, including a greater sense of control of cancer and its treatment.¹⁹ On
250 the other hand, cancer patients in Oman and other Arab Islamic countries often rely more heavily
251 on family members to support them, especially when dealing with the side-effects of
252 chemotherapy.^{3,4} In general, family members in Oman demonstrate a greater degree of
253 involvement in the treatment decision-making process, a finding which may be exacerbated by
254 poor communication with their oncologists.²⁵

255
256 In Western countries, women with BC have reported feelings of fear, anxiety and guilt during
257 and after cancer treatment which affects communication with their partners and interferes with
258 sexual activity.²⁶ However, few Omani women in the current study perceived a high level of
259 unmet need for additional support in the sexuality domain, despite previous research indicating
260 that women in this population are concerned regarding the potential for bodily disfigurement,
261 alopecia and the loss of their femininity as a result of surgical intervention and chemotherapy.¹²
262 However, previous studies conducted in other Islamic countries like Malaysia and the UAE have
263 similarly found the sexuality domain to be ranked low in terms of priority compared to other
264 domains.^{8,16} As in other conservative communities, Omani women are often embarrassed and
265 reluctant to explore their sexual needs and concerns with healthcare professionals, as such topics
266 are considered taboo due to cultural norms.²⁷ Furthermore, it is not considered routine practice to
267 assess the sexual wellbeing of cancer patients in Oman. Healthcare professionals may not have
268 the knowledge and skills necessary to do so; moreover, some may believe that such issues fall
269 outside the scope of their professional responsibilities and could carry legal ramifications.²⁶

270
271 The present study reported significant associations between total mean scores and various
272 sociodemographic and clinical variables. In particular, women who had visited the hospital more
273 frequently in the past two months, those diagnosed with BC at more advanced stages and patients
274 receiving chemotherapy or radiotherapy demonstrated significantly higher total mean scores for
275 unmet supportive care needs in comparison to their respective counterparts. Previous studies

276 have shown that most unmet supportive care needs for cancer patients occur during the treatment
277 phase.^{5,28} Surgical or medical treatments for cancer often result in serious physical side-effects
278 and complications as well as negative psychosocial outcomes.²⁹ Moreover, if their informational
279 needs are not met, cancer patients are more likely to become anxious and depressed which can
280 worsen their health status.³⁰ Thus, adequate informational and psychosocial support should be
281 provided to cancer patients to help them cope with symptoms at different stages of treatment.²⁸

282
283 Certain limitations to the current study should be acknowledged. First, although the
284 questionnaire used in this study was originally intended to be self-completed by the participants
285 or administered by research assistants to illiterate participants, the tool was modified so that it
286 could be administered online due to the risk of COVID-19 cross-infection. This could have
287 impacted the patients' responses. Moreover, the occurrence of a global pandemic and disruptions
288 to normal cancer service provisions at the time of the study may have affected perceptions of
289 unmet supportive care needs among the respondents.

290
291 Second, although the current study reported a significant association between women who
292 received chemotherapy or radiotherapy and higher total mean scores for unmet supportive care
293 needs, other factors may have played a role in these findings. Psychological or emotional
294 distress, as discussed, as well as other variables like age, education level, family history of BC,
295 access to information and financial status all might have a strong bearing on a patient's
296 perceptions and concerns regarding their unmet needs. Thus, further research utilising more
297 objective measures and evaluation tools and with a larger sample size is needed to rule out such
298 negative associations. Third, future research evaluating the unmet supportive care needs of
299 women with BC in Oman should consider the impact of their level of involvement in the
300 decision-making process and the influence and perceptions of other family members, particularly
301 male family members, as well as other psychosocial aspects of attitudes to health, such as the
302 stigma associated with a BC diagnosis and the patient's own level of knowledge regarding their
303 diagnosis, stage of disease and health outcome. Finally, participants were recruited from one of
304 two main oncology treatment centres in Oman; as such, differences in findings between the two
305 centres cannot be ruled out.

306

307 **Conclusion**

308 Despite slight variations between different domains, this study found that the majority of unmet
309 supportive care needs among Omani women with BC were informational in nature. As such,
310 there is an urgent need to improve informational support services at SQUH. In addition,
311 physicians should consider adopting a patient-centred care approach during consultations. This
312 should include exploring the concerns and expectations of the patient at various stages of the
313 cancer care process, including the short- and long-term implications of cancer, their prognosis,
314 potential side-effects of treatment and the risk of cancer among family members. Moreover,
315 additional training should be provided to improve language barriers between patients and non-
316 Arabic-speaking providers.

317

318 **Authors' Contribution**

319 MA, KA, AAA, HA and AKA conceived the design of the study. AAA, HA and AKA performed
320 data collection. SMP and SJ conducted data analysis. All authors took part in preparation of the
321 manuscript for submission. All authors approved the final version of the manuscript.

322

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327

328 **Conflict of Interest**

329 The authors declare no conflicts of interest.

330

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333

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Table 1: Sociodemographic and clinical characteristics of Omani women diagnosed with breast cancer (N = 181)

Characteristic	n (%)
Age in years (n = 180)	
≤30	10 (5.6)
31–40	30 (16.7)
41–50	80 (44.4)
51–60	41 (22.8)
>60	19 (10.6)
Education level (n = 181)*	
Illiterate (cannot read or write)	28 (15.5)
Completed primary school (grade 6)	10 (5.5)
Completed intermediate school (grade 9)	13 (7.2)
Completed secondary school (grade 12)	57 (31.5)
Completed university	63 (34.8)
Completed postgraduate/doctorate	10 (5.5)
Marital status (n = 181)	
Married	132 (72.9)
Single	13 (7.2)
Widowed	12 (6.6)
Divorced	24 (13.3)
Place of residence (n = 181)	
Muscat	65 (35.9)
South Al Batinah	16 (8.8)
North Al Batinah	27 (14.9)
A'Dakhiliyah	38 (21.0)
South Ash Sharqiyah	6 (3.3)
North Ash Sharqiyah	10 (5.5)
Dhofar	6 (3.3)
Ad Dhahirah	12 (6.6)
Al Buraimi	1 (0.6)
Employment status (n = 181)	
Unemployed	105 (58.0)
Employed	41 (22.7)
Retired	35 (19.3)
Monthly family income in OMR (n = 181)	
≤500	102 (56.4)
501–1,000	52 (28.7)
1,001–2,000	26 (14.4)
>2,001	1 (0.6)
Family history of BC (n = 181)	
No	135 (74.6)
Yes	46 (25.4)
Number of hospital visits in the last two months (n = 181)	

1	79 (43.6)
2	36 (19.9)
3	21 (11.6)
4	17 (9.4)
>4	28 (15.5)
Time since diagnosis in years (n = 181)	
≤2	54 (29.8)
>2	127 (70.2)
Stage of cancer at diagnosis (n = 180)	
1	52 (28.9)
2	52 (28.9)
3 or 4	76 (42.2)
Treatment received in the last two months (n = 177)	
Chemotherapy	45 (15.4)
Immunotherapy	33 (18.6)
Radiotherapy	10 (5.6)
Surgery	10 (5.6)
Combined treatment	18 (10.2)
Hormonal therapy	25 (14.1)
Other	26 (14.7)
None	10 (5.6)

430 OMR = Omani rials; BC = breast cancer. *According to the education system in Oman.

431

432 **Table 2:** Mean score per item for each domain of perceived unmet supportive care needs*
 433 among Omani women diagnosed with breast cancer (N = 181)

Domain	Number of items per domain	Minimum score per item	Maximum score per item	Mean score per item ± SEM
Psychological	10	1.0	5.0	2.77 ± 0.08
Physical and daily living	5	1.0	5.0	2.90 ± 0.08
Health system and information	8	1.0	5.0	3.33 ± 0.09
Patient care and support	6	1.0	5.0	3.04 ± 0.08
Sexuality	2	1.0	5.0	2.27 ± 0.10

434 SEM = standard error of measurement. *Self-assessed using a previously validated Arabic
 435 version of the 34-item Supportive Care Needs Survey-Short Form.⁸ Items were scored in terms of
 436 perceived level of need for additional support on a five-point scale as either 1 (no need/not
 437 applicable), 2 (no need/satisfied), 3 (low need), 4 (moderate need) or 5 (high need).¹⁵

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Table 3: Perceived level of unmet supportive care needs* in each domain among Omani women diagnosed with breast cancer (N = 181)

Domain	Item	Perceived level of unmet need, n (%)				
		None/not applicable	None/satisfied	Low	Moderate	High
Psychological	Fears about loss of independence	73 (40.3)	38 (21.0)	33 (18.2)	28 (15.5)	9 (5.0)
	Feeling depressed/sad	64 (35.4)	30 (16.6)	35 (19.3)	25 (13.8)	27 (14.9)
	Fears about pain	37 (20.4)	28 (15.5)	50 (27.6)	43 (23.8)	23 (12.7)
	Fears about cancer spreading	30 (16.6)	22 (12.2)	32 (17.7)	36 (19.9)	61 (33.7)
	Fears about cancer recurrence	28 (15.5)	28 (15.5)	31 (17.1)	32 (17.7)	62 (34.3)
	Accepting changes to your body/appearance	22 (12.2)	82 (45.3)	24 (13.3)	28 (15.5)	25 (13.8)
	Thinking about death	69 (38.1)	47 (26.0)	20 (11.0)	24 (13.3)	21 (11.6)
	Fears about lifestyle changes	54 (29.8)	42 (23.2)	39 (21.5)	24 (13.3)	22 (12.2)
	Concerns regarding the ability of those close to you to cope with your care	73 (40.3)	37 (20.4)	33 (18.2)	17 (9.4)	21 (11.6)
	Fears about your children or those close to you	43 (23.8)	23 (12.7)	26 (14.4)	30 (16.6)	59 (32.6)
Physical and daily living	Pain	28 (15.5)	39 (21.5)	50 (27.6)	46 (25.4)	18 (9.9)
	Tiredness	19 (10.5)	38 (21.0)	48 (26.5)	53 (29.3)	23 (12.7)
	Nausea/vomiting	65 (35.9)	26 (14.4)	36 (19.9)	36 (19.9)	18 (9.9)
	Not sleeping well	42 (23.2)	22 (12.2)	41 (22.7)	47 (26.0)	29 (16.0)
	Not able to do the things that you could before cancer	38 (21.0)	34 (18.8)	41 (22.7)	40 (22.1)	28 (15.5)
Health system and information	Need to talk to someone who understands and has experience with your case	19 (10.5)	41 (22.7)	34 (18.8)	30 (16.6)	57 (31.5)
	Need for more information about your diagnosis and prognosis (i.e. your future condition)	19 (10.5)	48 (26.5)	20 (11.0)	33 (18.2)	61 (33.7)
	Need to be informed about available treatments and their benefits and side-effects	14 (7.7)	44 (24.3)	22 (12.2)	29 (16.0)	72 (39.8)
	Need for information about how to manage your illness and side-effects at home	26 (14.4)	34 (18.8)	31 (17.1)	40 (22.1)	50 (27.6)
	Need for an explanation regarding any tests that you undergo	15 (8.3)	47 (26.0)	21 (11.6)	33 (18.2)	65 (35.9)

	Need to be informed about things that you can do to help yourself get well	19 (10.5)	40 (22.1)	20 (11.0)	28 (15.5)	74 (40.9)
	Need to be informed about support groups	35 (19.3)	32 (17.7)	31 (17.1)	35 (19.3)	48 (26.5)
	Need for access to professional counselling	51 (28.2)	31 (17.1)	32 (17.7)	26 (14.4)	41 (22.7)
Patient care and support	Waiting a long time for a clinic appointment	44 (24.3)	50 (27.6)	29 (16.0)	23 (12.7)	35 (19.3)
	Need for the hospital to protect your privacy	18 (9.9)	70 (38.7)	10 (5.5)	24 (13.3)	59 (32.6)
	Need for more choice about which hospital you attend	41 (22.7)	56 (30.9)	26 (14.4)	25 (13.8)	33 (18.2)
	Need for clinicians to attend promptly to your physical needs	23 (12.7)	67 (37.0)	15 (8.3)	27 (14.9)	49 (27.1)
	Need for clinicians to show sensitivity to your emotional needs	19 (10.5)	65 (35.9)	12 (6.6)	30 (16.6)	55 (30.4)
	Need for clinicians to be more sincere with you	20 (11.0)	62 (34.3)	13 (7.2)	20 (11.0)	66 (36.5)
Sexuality	Changes in your sexual feelings	73 (40.3)	42 (23.2)	29 (16.0)	19 (10.5)	18 (9.9)
	Changes in your sexual relationship	79 (43.6)	35 (19.3)	25 (13.8)	24 (13.3)	18 (9.9)
Other needs	Need to talk with other people who have experienced cancer	41 (22.6)	58 (32.0)	31 (17.1)	32 (17.7)	19 (10.5)
	Need for economic help	75 (41.4)	28 (15.5)	23 (12.7)	22 (12.2)	33 (18.2)
	Need to receive less commiseration from other people	69 (38.1)	32 (17.7)	19 (10.5)	12 (6.6)	49 (27.1)

440 *Self-assessed using a previously validated Arabic version of the 34-item Supportive Care Needs
441 Survey-Short Form.⁸ Items were scored in terms of perceived level of need for additional support
442 on a five-point scale as either 1 (no need/not applicable), 2 (no need/satisfied), 3 (low need), 4
443 (moderate need) or 5 (high need).¹⁵

444 **Table 4:** Associations between sociodemographic and clinical variables and total mean score for
 445 perceived unmet supportive care needs* among Omani women diagnosed with breast cancer (N
 446 = 181)

Variable	Mean score ± SEM	P value
Age in years		0.855
≤40	100.98 ± 27.79	
41–50	99.51 ± 25.34	
51–60	96.17 ± 31.98	
>60	101.26 ± 26.13	
Education level†		0.800
Illiterate (cannot read or write)	99.50 ± 22.85	
Completed primary school (grade 6)	105.70 ± 28.38	
Completed intermediate school (grade 9)	97.08 ± 26.21	
Completed secondary school (grade 12)	99.37 ± 28.28	
Completed university	97.18 ± 29.17	
Completed postgraduate/doctorate	109.40 ± 26.03	
Marital status		0.509
Married	100.50 ± 27.75	
Single	94.00 ± 31.27	
Widowed	89.58 ± 24.33	
Divorced	100.92 ± 24.78	
Employment status		0.209
Unemployed	99.45 ± 26.99	
Employed	104.39 ± 26.91	
Retired	93.23 ± 28.66	
Monthly family income in OMR		0.136
<500	103.02 ± 25.50	
501–1,000	92.31 ± 31.06	
1,001–2,000	98.62 ± 25.25	
Family history of BC		0.297
No	100.61 ± 27.86	
Yes	95.72 ± 25.91	
Number of hospital visits in the last two months		0.045‡
1	94.62 ± 27.27	
2	101.61 ± 25.54	
3	93.14 ± 29.20	
4	112.82 ± 26.38	
>4	106.36 ± 26.34	
Time since diagnosis in years		0.403
≤2	101.98 ± 25.95	
>2	98.25 ± 28.01	
Stage of cancer at diagnosis		0.047‡
1	92.11 ± 30.24	
2	99.50 ± 23.47	
3 or 4	104.32 ± 27.24	

Treatment received in the last two months		0.014‡
Chemotherapy	109.76 ± 24.49	
Immunotherapy	102.52 ± 26.38	
Radiotherapy	110.70 ± 24.66	
Surgery	82.30 ± 24.51	
Combined treatment	88.44 ± 26.99	
Hormonal therapy	94.48 ± 30.48	
Other	96.27 ± 26.62	
None	93.50 ± 25.19	

447 *SEM = standard error of measurement; OMR = Omani rials; BC = breast cancer. *Self-*
448 *assessed using a previously validated Arabic version of the 34-item Supportive Care Needs*
449 *Survey-Short Form.⁸ Items were scored in terms of perceived level of need for additional support*
450 *on a five-point scale as either 1 (no need/not applicable), 2 (no need/satisfied), 3 (low need), 4*
451 *(moderate need) or 5 (high need).¹⁵ †According to the education system in Oman. ‡Significant at*
452 *P <0.05.*

Accepted Article