RESEARCH ARTICLE

Quantitative Evaluation of Cancer Stigma among Non-Patient Population in Oman

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Abstract

Background: Cancer is widely considered as one of the most stigmatized diseases globally, despite scientific advances in the medicine. While most existing literatures focuses on cancer stigma as perceived by patients, there has been limited research on stigma towards cancer among the non-cancer population. In 2014, Marlow et al developed and validated the "Cancer Stigma Scale" (CASS) specifically for the non-Cancer population. This study aims to quantitatively evaluate cancer stigma within the non-patient population in Oman. **Methods:** This is a cross-sectional study conducted in Oman. The Cancer Stigma Scale (CASS) has been used to evaluate the cancer-related stigma among the non-cancer patient population in Oman. **Results:** A total of 510 participants completed the survey of whom 57.6% were male. The personal responsibility section had the highest mean score, followed by the avoidance and financial discrimination. The lowest mean scores were observed in the danger and policy opposition sections. Female participants showed ore disagreement with cancer stigma statements compared to males. Participants who knew someone with cancer expressed more disagreement with stigma statements than those who did not know anyone with cancer. **Conclusion:** This study provides a baseline measurement of cancer-related stigma among non-cancer patients in Oman, tilizing the CASS in a representative sample of the population. The results indicate generally low levels of stigma, though certain aspects are more pronounced, varying according to the participants' gender, age, and personal connections to someone with cancer.

Keywords: Cancer stigma- cancer stigma scale (CASS)- cross-sectional- non-cancer patients- quantitative study

Introduction

Cancer is a complex disease with significant social, spiritual, psychological, and physiological impacts on patients. Often, cancer patients experience feelings of awkwardness and associate the disease with death and suffering [1]. A recent survey in the UK revealed that 25% of the population views a cancer diagnosis as a death sentence, and half believe cancer therapy as more burdensome than the disease itself [2]. Negative beliefs about cancer have been linked to lower screening rates due to the fear of being diagnosed with the disease [3, 4] where individuals fear being associated with a stigmatized group [5, 6]. Furthermore, cancer-related stigma is strongly linked to low self-esteem, depression, anxiety, delayed healthcare seeking, and difficulties in returning to work for survivors [1, 7]. It is crucial to recognize that the consequences of cancer-related stigma extend beyond patients, potentially hindering public health efforts to reduce the disease burden in society. Therefore, stigma should be examined not only from the perspective of those who experience it "felt stigma" but also from those who stigmatize, "public stigma" [2]. The Health Belief Model highlights the significant influence of cultural values and religious beliefs in shaping health and illness perceptions, influencing management within specific societies [8]. For example, in the context of breast cancer, Arab women have reported experiencing avoidance and blame due to their illness. They often fear abandonment and divorce, and worry about their diagnosis impacting their daughters' or sisters' marriage prospects, affecting family reputation [9]. This phenomenon is more prevelant in Arab societies than in other regions. Consequently, many patients opt to travel abroad for treatment or second opinion, seeking privacy from the "cancer stigma" and a break from family responsibilities [9].

In Oman, there has been no quantitative assessment of cancer stigma among the non-cancer patient population. Investigating the Omani population's knowledge and awareness of cancer-related stigma and identifying associated factors would be valuable. Globally, few studies have focused on non-cancer patients. The scientific community is increasingly interested in understanding the factors contributing to cancer-related stigma, its consequences, and potential interventions [2]. Identifying these contributing factors and subsequently improving the public perception of cancer could enhance acceptance of health promotion activities and increase participation in

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cancer screening programs [10].

Materials and Methods

Study design

This is a cross-sectional study to quantitatively measure the magnitude and factors associated with cancer related stigma among the non-cancer patient population in Oman. The study has been approved by the Medical Research and Ethics committee (MREC) at the College of Medicine and Health Sciences in SQU. To be part of this, participant should be Omani, 18 years old or older, not on active cancer treatment, and able to read and write.

Study instrument

The measurement of cancer stigma in this study utilized the Cancer Stigma Scale (CASS), which was developed and validated by Marlow et al. in 2014 for the non-cancer patient population [11]. The CASS is a self-administered scale consisting of 25 items divided into six sections: avoidance (7 items), personal responsibility (4 items), severity (5 items), policy opposition against cancer patients (3 items), awkwardness (2 items), and financial discrimination (3 items).

The survey was translated into Arabic and then back translated into English by language experts. The Arabic version of the survey was piloted on 20 participants who were not part of the study, and necessary adjustments were made based on their feedback. In the Arabic version, one item was omitted from each of the avoidance and personal responsibility sections due to reliability issues. Additionally, the awkwardness section was entirely removed because the items were found to have a high similarity in meaning to the items in the avoidance section. The reliability score of the final Arabic version of the survey was above 0.7 for all sections.

The survey was disseminated via an online link shared on various social media platforms. Social media is recognized as an effective channel for the distribution of nationwide surveys [12]. Recent statistics from Dataportal 2023 reveal that 90.4% of the Omani population engages with social media [13]. Thus, employing social media as a medium for survey distribution is a strategic approach to ensure access to a broadly representative demographic.

A demographic section was added at the beginning of the survey, which included items related to gender, educational level, age, personal history of cancer, or knowing someone with cancer. Informed consent was obtained from all participants prior to their participation in the survey. It is important to note that the scale used in this study measures the stigma of cancer in general and is not specific to any particular type of cancer.

Statistical analysis

Data analysis was conducted using the Statistical Package for Social Science (SPSS), version 23. Descriptive statistics, including standard deviations, percentages, means, and frequencies, were employed to summarize and interpret the data. The significance level was set at $p \leq 0.05$.

Results

Demographics

A total of 510 respondents completed the survey. Approximately half of the respondents are male (57.6%) and (42.4%) are female. The demographics of respondents are shown in Table 1. Most of the respondents are between 20-30 years old. Third of the participants (34.3%) were married while the unmarried participants formed the largest segment at 64.1%. Educational qualifications of the participants varied, with 44.1% holding a school degree and 55.9% have a university degree. Additionally, 53.1% reported knowing someone with cancer, while 46.9% did not have such personal connections. Among the participants, 4.5% reported having had cancer themselves, while the vast majority, 95.5%, had not.

The perception of cancer stigma varies across different sections Table 2. Personal responsibility section had the highest mean score of agreement. There is a general trend against avoidance and financial discrimination. Only a small fraction of participants, 3.7% agreed they would physically distance themselves from someone with cancer, while a substantial majority, 86.3% disagreed, and 10.0% were unsure. Similarly, minimal agreement was observed in statements about avoiding a colleague with

Table 1. Demographics of Respondents to Survey among Non-Cancer Patients in Oman

Charectrestic	
Gender	
Male	294 (57.6%)
Female	216 (42.4%)
Age	
Less than 20	73 (14.3%)
20-30	276 (54.1%)
30-40	85 (16.7%)
40-50	68 (13.3%)
50-60	8 (1.6%)
Social status	
Married	175 (34.3%)
Divorce	6 (1.2%)
Widow	2 (0.4)
Unmarried	327 (64.1%)
Qualification	
School degree	225 (44.1%)
University degree	285 (55.9%)
Knowing someone with cancer	
Yes	271 (53.1%)
No	239 (46.9%)
If had cancer	
Yes	23 (4.5%)
No	487 (95.5%)
Knowing someone with cancer.	
Yes	271 (53.1%)
No	239 (46.9%)

Table 2. Mean Scores of the Non-Cancer Repondents Responses in each Section

	Agree n (%)	Disagree n (%)	I don't know	Mean	SD
Avoidance				1.71	0.31
I would distance myself physically from someone with cancer.	19 (3.7%)	440 (86.3%)	51 (10.0%)		
If a colleague had cancer, I would try to avoid them.	14 (2.7%)	463 (90.8%)	33 (6.5%)		
I would try to avoid a person with cancer.	14 (2.7%)	462 (90.6%)	34 (6.7%)		
I would feel irritated by someone with cancer.	12 (2.4%)	461 (90.4%)	37 (7.3%		
I feel embarrassed when discussing cancer with someone who has cancer.	167 (32.7%)	234 (45.9%)	109 (21.4%)		
I would find it difficult being around someone with cancer.	34 (6.7%)	406 (79.6%)	70 (13.7%)		
Personal Responsibility					
I would find it hard to talk to someone with cancer.	50 (9.8%)	360 (70.6%)	100 (19.6%)	1.8	0.25
A person with cancer is accountable for their condition.	28 (5.5%)	406 (79.6%)	76 (14.9%)		
If a person has cancer, it is probably their fault.	50 (9.8%)	371 (72.7%)	89 (17.5%)		
Severity					
Getting cancer means having to mentally prepare oneself for death.	57 (11.2%)	382 (74.9%)	71 (13.9%)	1.64	0.3
Once someone had cancer, he can never be normal again.	45 (8.8%)	405 (79.4%)	60 (11.8%)		
Having cancer usually ruins a person's career.	247 (48.4%)	126 (24.7%)	137 (26.9%)		
Cancer devastates the lives of those it touches.	289 (56.7%)	121 (23.7%)	100 (19.6%)		
Cancer usually ruins close personal relationships.	76 (14.9%)	316 (62.0%)	118 (23.1%)		
Policy opposition					
More government funding should be spent on the care and treatment of cancer patients.	453 (88.8%)	13 (2.5%)	44 (8.6%)	1.64	0.32
We have a responsibility to provide the best possible care for cancer patients.	485 (95.1%)	10 (2.0%)	15 (2.9%)		
The needs of cancer patients should be given top priority.	476 (93.3%)	13 (2.5%)	21 (4.1%)		
Financial discrimination					
It is acceptable for banks to refuse to approve loans for people with cancer.	55 (10.8%)	304 (59.6%)	151 (29.6%)	1.71	0.379
Banks should be allowed to refuse mortgage applications for cancer-related reasons.	63 (12.4%)	260 (51.0%)	187 (36.7%)		
It is acceptable for insurance companies to reconsider a policy if someone has cancer.	148 (29.0%)	211 (41.4%)	151 (29.6%)		

cancer (2.7%) with the majority disagreeing (90.8%). Only 2.4% felt irritated by someone with cancer, and 32.7% felt embarrassed discussing cancer with someone who has it. Regarding personal responsibility, 9.8% found it hard to talk to someone with cancer, and a minority viewed cancer as a personal fault (5.5%). In terms of perceived severity, 11.2% associated cancer with preparing for death, and 48.4% believed cancer could ruin a person's career. However, there was strong support for policy measures favoring cancer patients, with 88.8% advocating for more government funding and 95.1% emphasizing the responsibility to provide the best care. Financial discrimination was less supported, with 10.8% finding it acceptable for banks to refuse loans and 29.0% agreeing that insurance policies could be reconsidered for those with cancer.

The correlation of different sections with the participant's demographics is detailed in Table 3. The highly qualified respondents were significantly agreeing with the item "I feel embarrassed when discussing cancer with someone who has cancer." in the avoidance section (p-value =0.007). Furthermore, male respondents and those who has a prior history of cancer significantly agreed with the item "the person who has cancer is accountable for getting the disease" in the personal responsibility section (p-value=0.022). Those who had cancer or know someone with cancer are significantly reporting that cancer ruins a person's career and close personal relationships (p-value < 0.05). A significant portion of those who know someone with cancer reported the need for more funds from the government to support cancer care and management where cancer patients' needs should be given priority.

There was a significant association between items of the financial discrimination section and the male gender where male respondents significantly agree with the items "It is acceptable for banks to refuse to approve loans for people with cancer" and "Banks should be allowed to refuse mortgage applications for cancer-related reasons" from the financial discrimination section compared to

Table 3. Correlation Analysis of Demographics with Items of the Survey

	Gender	Qualification	Had cancer	Knowing someone with cancer
Avoidance				
I would distance myself physically from someone with cancer.	0.022	0.092	0.627	0.044
If a colleague had cancer, I would try to avoid them.	0.052	0.804	0.825	0.026
I would try to avoid a person with cancer.	0.157	0.809	0.849	0.024
I would feel irritated by someone with cancer.	0.108	0.19	0.91	0.014
I feel embarrassed when discussing cancer with someone who has cancer.	0.065	0.007	0.054	0.322
I would find it difficult being around someone with cancer.	0.534	0.4	0.354	0.115
Personal Responsibility				
I would find it hard to talk to someone with cancer.	1	0.121	1	0.399
A person with cancer is accountable for their condition.	0.139	0.75	0.051	0.251
If a person has cancer, it is probably their fault.	0.022	0.892	0.956	0.29
Danger				
Getting cancer means having to mentally prepare oneself for death.	0.049	0.355	0.169	0.045
Once someone had cancer, he can never be normal again.	0.52	0.547	0.61	1
Having cancer usually ruins a person's career.	0.012	0.816	0.0000068	0.014
Cancer devastates the lives of those it touches.	0.067	0.849	0.000005	0.105
Cancer usually ruins close personal relationships.	0.0004	0.683	0.482	0.043
Policy opposition				
More government funding should be spent on the care and treatment of cancer patients.	0.529	0.67	0.215	0.038
We have a responsibility to provide the best possible care for cancer patients.	0.255	0.456	0.917	0.013
The needs of cancer patients should be given top priority.	0.226	0.295	1	0.051
Financial discrimination				
It is acceptable for banks to refuse to approve loans for people with cancer.	0.016	0.757	0.113	0.548
Banks should be allowed to refuse mortgage applications for cancer-related reasons.	0.041	0.274	0.528	0.358
It is acceptable for insurance companies to reconsider a policy if someone has cancer.	0.762	0.561	1	0.908

females (p-value = 0.041).

Discussion

The prevalence and manifestation of stigma surrounding a specific disease can vary across different ethnic groups and geographical regions, highlighting the need to consider these factors when assessing stigma. In the Middle East, the term "cancer" often carries a negative connotation due to its association with death and end-of-life scenarios [9] "Illness as Metaphor" by Susan Sontag sheds light on how societal perceptions and the language used to describe cancer can negatively shape patients' perceptions and experiences [14]. Consequently, this study focused on exploring cancer-related stigma among non-cancer patients in Oman marking the first population-representative investigation into cancer stigma within this group. Oman, an Arab Muslim nation, is a member of the Gulf Cooperation Council countries.

This research quantitatively evaluated the level of cancer-related stigma among non-cancer patients. For survey dissemination, social media platforms were used, a method increasingly recognized as suitable for nationwide surveys [13]. These platforms are considered effective in recruiting a diverse group of participants, representative of the broader population. This is particularly relevant in Oman, where the vast majority of the population uses social media for communication, averaging 6 hours of usage per day [13].

The findings revealed higher mean scores in the sections of personal responsibility, followed by avoidance and financial discrimination. In contrast, the sections on severity and policy opposition had lower agreement among respondents on the cancer-related stigma scale.

These results suggest that non-patient individuals are more inclined towards avoidance attitudes, attributing personal responsibility to cancer patients, and support financial discrimination policies. Compared to to a study among university students in Malaysia [15] and another study in Nepal [16], the avoidance section and policy

opposition received lower mean scores, while the severity and personal responsibility sections scored higher. An online survey in the United States reported very low scores for personal responsibility [17].

The concept of personal responsibility involves perceptions about an individual's own behavior in relation to their cancer diagnosis, particularly in cases like lung cancer where smokers may be blamed for acquiring the disease [18]. Studies have shown that populations with higher scores for personal responsibility are those aware of the modifiable risk factors of cancer, such as unhealthy diet, lack of exercise, obesity, and smoking. Paradoxically, public awareness campaigns highlighting these modifiable factors can reinforce the belief that cancer is self-inflicted. This may negatively impact cancer screening uptake as individuals aim to avoid victim-blaming attitudes [2]. Therefore, prevention campaigns should carefully disseminate messages, aiming for a balanced approach that enhances risk factor awareness without exacerbating stigma [19].

In this study, the avoidance of cancer patients was notably high. Respondents who knew someone with cancer showed lower avoidance scores compared to those without such personal connections. Interestingly, participants with higher qualification tended to agree more with stigma related phrases about avoidance, such as feeling embarrassed when discussing cancer with an affected individuals. This finding contrasts with a Japanese study where no such association was found [20]. Women were less inclined than men to avoid or distance themselves from cancer patients, aligning with previous research [21]. It is beleived that treatment-induced physical changes, like alopecia and surgical scars, may affect the social interactions and relationships of cancer patients, potentially leading to feelings of being different and avoided [22].

Male participants and those with a personal history of cancer were more likely to agree with phrases related to the impact of cancer on relationships and psychological preparation for death, as previously reported [2, 15]. The financial discrimination section evaluated respondents' perception regarding giving loans or financial assistance to people with cancer and highlighted potential biases, such as banks; reluctance to approve loans for them. Male participants showed higher agreement with these statements than females. The financial strain following a cancer diagnosis, including potential job loss and discrimination from employers, can be a significant source of stress [23]. Understanding attitudes towards financial discrimination and its correlation with demographic factors in the non-cancer patient population in Oman is essential for informing future policies. Notably, in Oman, cancer treatment is provided free of charge. However, a cancer diagnosis still brings financial concerns, primarily due to job loss and reduced employability, especially given the increased incidence of cancer among younger patients [24]. The high score in the financial discrimination section might also be attributed to late cancer diagnosis in Oman, often leading to poor survival rates and limited overall survival, thereby contributing to direct and indirect financial losses [24, 25]. The perception that a cancer

diagnosis is synonymous with death, primarily due to late diagnosis and lack of screening programs, may also influence these attitudes.

Gender differences were apparent across various scales. The lower levels of cancer stigma observed among females may be attributed to their typically higher levels of empathy [3] and active participation in cancer awareness campaigns which often focus on issues like breast cancer screening and women's health [15].

Understanding the influence of political parties on cancer patients is essential. Factors such as funding, support, and the prioritization of cancer care in healthcare facilities can significantly affect patients' perceptions regarding early diagnosis and treatment. Participants who knew someone with cancer were more likely to agree that "the needs of cancer patients should be given top priority". Interestingly, gender and qualifications did not markedly influence participants' views on political opposition related to cancer stigma in Oman. This observation is consistent with a similar study conducted in Japan, which also found no correlation between demographic factors and responses to items of the cancer-related stigma scale in the policy opposition section [20].

The issue of cancer-related stigma requires attention from various stakeholders due to its detrimental effect on patients, their families, and society at large. The fear of stigma deter patients from disclosing their diagnosis, impacting their professional and social lives [26]. One approach to reduce cancer stigma is to through enhancing awareness and support for patients [26]. For instance, educational campaigns aimed at children, like those conducted by the Cancer Control Center in Japan, have been effective in improving children's attitudes and reducing stereotypical perceptions of cancer patients [20].

To combat cancer-related stigma and promote early help-seeking behavior and participation in screening programs, awareness campaigns should be complemented by a comprehensive national screening initiatives. These initiatives are crucial for facilitating early detection and improving survival rates. Additionally, effective communications between patients and physicians is vital n reducing cancer stigma. However, the concealment of a cancer diagnosis, often influenced by family and sociocultural norms, can significantly impact patients' impact decision-making and coping strategies [27].

Limitation

The limitations of our study are summarized in the following points. First, the inability to establish the causal relationships among variables because the design of our study is cross-sectional. Second, the survey was disseminated on an online platform, so the level of credibility of respondents in choosing the answers is low. Selection bias is anticipated due to the study design which can't be avoided.

In conclusion, this was the first study to use the CASS in a population-representative sample in Oman and thus serves as a baseline measure for cancer-related stigma in the general population in the country. Overall, cancer-related stigma in Oman is low, but some aspects of stigma are more prevalent than others. This study provides

important baseline data on the magnitude of stigma in the community which might hinder the effectiveness of health promotion and cancer prevention programs. Furthermore, the impact of this public stigma on the wellbeing of cancer patients and their acceptance of the disease and its treatment need to be evaluated.

Author Contribution Statement

Conceptualization, A.Az.; methodology, A.Z.and M.A; formal analysis, M.A; investigation, A.Z.; data curation, A.Z.and M.A.; writing—original draft preparation, M.A writing—review and editing, A.Z.; supervision, A.Z. All authors have read and agreed to the published version of the manuscript.

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