

## Cancer Stigma and Awareness among College Students: A Cross-Sectional Study in Malappuram and Thrissur Districts, India

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### ABSTRACT

This study investigates cancer stigma and awareness among college students aged 16-26 in Malappuram and Thrissur districts, India. The aim is to discern differences in cancer stigma across various demographic and experiential variables. Data were collected from 73 participants using customized questionnaires and the Cancer Stigma Scale (CASS). Statistical analysis, including t-tests, was employed to analyze the data. Results indicate no significant differences in cancer stigma between male and female students, those who attended cancer awareness programs, read about cancer, underwent cancer screening, consulted an oncologist, read articles or books by cancer survivors, or googled about cancer. These findings suggest a need for broader educational initiatives to dispel myths and misinformation surrounding cancer, contributing to a less stigmatized society. Limitations include a small sample size and regional focus, highlighting opportunities for further research to explore additional variables and socio-demographic factors impacting cancer stigma and awareness.

**Keywords:** *Cancer Stigma, Awareness, College Students, Malappuram and Thrissur Districts*

Chronic diseases, such as heart disease, cancer, and diabetes, are major causes of death and disability globally. Cancer, a condition where some of the body's cells grow uncontrollably and spread to other parts, is particularly prevalent. Normally, human cells grow and multiply to form new cells as needed. However, this process can break down, leading to the growth of abnormal cells that form tumors. These tumors can be benign (non-cancerous) or malignant (cancerous). Malignant tumors invade nearby tissues and spread to distant body parts, complicating treatment efforts.

Cancer is a leading cause of death worldwide, posing significant health burdens, especially in low and middle-income countries like India. Despite advancements in early detection and treatment, cancer remains stigmatized, often seen as a death sentence. This stigma can hinder early detection and treatment, as individuals may avoid seeking help due to fear of judgment and social isolation. Stigmatization of cancer is influenced by various factors, including income, ethnicity, gender norms, and cultural beliefs.

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Awareness and education are crucial in combating cancer stigma. Adolescents and young adults, such as college students, can play a pivotal role in spreading accurate information about cancer and dispelling myths. School education on cancer is essential to correct misconceptions, provide accurate information, and develop positive attitudes towards cancer. Increasing awareness among adolescents can enhance their knowledge and confidence in identifying cancer symptoms and seeking timely medical help.

The present study focuses on the level of cancer stigma and awareness among college students in Kerala, a state in southern India. Kerala, with its diverse socio-demographic backgrounds, provides an ideal setting to explore the attitudes and knowledge about cancer among young adults. Understanding the extent of cancer stigma and awareness in this group is vital for designing effective educational interventions.

Stigma associated with cancer can lead to social isolation, reduced communication, and poor health outcomes. It creates a barrier to early screening and treatment, exacerbating the disease's impact. Cancer-related stigma is complex, varying with the type of cancer and influenced by cultural and social factors. For instance, cancers perceived as self-induced, such as those linked to smoking or alcohol consumption, may carry more stigma. This can result in reduced funding for screening and treatment, further hindering effective cancer control.

Educational interventions targeting college students are essential for reducing cancer stigma and improving awareness. These students can act as catalysts for change, promoting health and well-being within their communities. By addressing misconceptions and providing accurate information, educational programs can help foster a supportive environment for cancer patients and reduce the negative impacts of stigma.

In conclusion, the study aims to assess cancer stigma and awareness among college students in Kerala. By understanding their knowledge and attitudes towards cancer, the research seeks to identify gaps and develop strategies to enhance cancer education and reduce stigma. Increasing awareness and reducing stigma are critical steps towards improving early detection, treatment, and overall outcomes for cancer patients

### **REVIEW OF LITERATURE**

Green, (1986) investigated the distribution of household responsibilities in families affected by cancer, revealing that adult females bear a disproportionate burden, particularly in partnered families. Despite temporary shifts during treatment and recovery, responsibility distribution tends to revert, highlighting the ongoing need for support for women and healthcare workers involved in breast cancer care.

Lantz, Mujahid, Schwartz, et al. (2006) explored the influence of race, ethnicity, and socioeconomic factors on breast cancer stage at diagnosis, emphasizing the necessity for further research and policy attention to address disparities.

Jiang, Liu, and Li (2007) examined attitudes toward truth-telling among Chinese cancer patients and their families, revealing variations influenced by disease stage and underscoring the importance of effective communication strategies for physicians.

Crawley, Ahn, Winkleby, et al. (2008) investigated perceived medical discrimination and cancer screening behaviors among racial and ethnic minorities in California, highlighting implications for cancer health disparities.

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Ustenberg, Miaskowski, and Ruland (2010) emphasized the complex problems and responsibilities faced by family caregivers of cancer patients, advocating for support for caregivers as part of holistic patient care.

Nielsen (2011) described health care avoidance among women with advanced breast cancer and malignant wounds, suggesting interventions such as early detection education and attentive care by healthcare providers.

Park, Gualla, et al. (2013) assessed public attitudes toward cancer in South Korea, revealing widespread negative attitudes and a reluctance to disclose cancer diagnoses.

Jacobs, Rathouz, Karavolos, et al. (2013) examined the relationship between perceived discrimination and receipt of cancer screening, emphasizing the importance of addressing discrimination to improve healthcare delivery.

Marlow and Wardle (2014) developed and validated a Cancer Stigma Scale (CASS) for use in the general population, providing a tool to assess and address cancer stigma across different populations and contexts.

Kita, Pritlove, and Kirsh (2016) addressed stigma and workplace discrimination as barriers to employment for cancer survivors, advocating for anti-stigma programs and awareness of discrimination legislation.

Valdovinos, Penedo, et al. (2016) examined the association between perceived discrimination and cancer screening adherence in US Hispanic/Latino adults, highlighting the role of health insurance coverage in facilitating screening.

Ongtengco, Thiam, Collins, et al. (2017) investigated gender differences in perspectives on discrimination, stigma, and attitudes toward cervical cancer in rural areas, suggesting targeted interventions to overcome barriers to healthcare services.

Germeni and Schultz (2017) explored patients' motivations for seeking or avoiding cancer information, suggesting that individual and contextual factors influence information-seeking behaviors.

Justine, (2019) investigated the impact of stigmatization on cancer screening and treatment in Malaysian university students, indicating the importance of addressing stigma to improve screening rates.

Vrinten, Waller, and Marlow (2019) focused on cancer stigma in the UK population, noting its negative association with cancer screening behaviors, particularly among certain subpopulations.

Shrestha, and Paneru (2022) highlighted the significance of studying cancer stigma in the non-patient population, emphasizing its role as a barrier to prevention, early diagnosis, and treatment.

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Albenayyan, AlSubaie, Alarfaj, et al. (2023) assessed cancer stigma in the Saudi Arabian population, noting low overall stigma levels but emphasizing the need for targeted efforts to address remaining stigmatization, particularly among older males.

### **METHODOLOGY**

**Aim:** The study aims to understand differences in cancer stigma among different groups of college students.

#### *Objectives of the Study*

The general objective of the study is to understand the difference in cancer stigma with the following specific objectives,

- To determine if there are significant differences in cancer stigma between male and female college students
- To investigate if there are significant differences in cancer stigma between students who have attended cancer awareness programs and those who have not.
- To examine if there are significant differences in cancer stigma between students who have read about cancer and those who have not.
- To assess if there are significant differences in cancer stigma between students who have undergone cancer screening and those who have not.
- To explore if there are significant differences in cancer stigma between students who have consulted an oncologist and those who have not.
- To investigate if there are significant differences in cancer stigma between students who have read articles or books by cancer survivors and those who have not.
- To determine if there are significant differences in cancer stigma between students who have ever searched about cancer on Google and those who have not.
- To examine the relationship between cancer stigma and awareness.

#### *Hypotheses*

- H1: There will be no significant difference in cancer stigma between male and female college students.
- H2: There will be no significant difference in cancer stigma between students who attended cancer awareness programs and those who did not.
- H3: There will be no significant difference in cancer stigma between college students who have read about cancer and those who have not.
- H4: There will be no significant difference in cancer stigma between college students who have undergone cancer screening and those who have not.
- H5: There will be no significant difference in cancer stigma between college students who have consulted an oncologist and those who have not.
- H6: There will be no significant difference in cancer stigma between students who have read articles or books about cancer survivors and those who have not.
- H7: There will be no significant difference in cancer stigma between students who have ever searched about cancer on Google and those who have not.
- H8: There will be no significant correlation between cancer stigma and cancer awareness.

#### *Participants*

The population selected for the study consists of college students aged between 16 and 26.

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## **Inclusion Criteria**

- Individuals aged between 16 and 26.
- College students.

## **Exclusion Criteria**

- Individuals below 16 or above 26.
- Non-students.
- Incomplete responses are omitted.

## ***Selection of Variables***

The variables selected for the study are cancer awareness and stigma, considering their significant psychological impact.

## ***Tools Used for Assessment***

Customized questions and the Cancer Stigma Scale (CASS) are utilized for assessment.

Cancer Stigma Scale (CASS) Subscales:

- Severity
- Responsibility
- Awkwardness
- Avoidance
- Discrimination
- Policy opposition

## ***Procedure for Scoring***

Responses are scored on a scale of 1 to 7, with higher scores indicating higher levels of cancer stigma. Reverse scoring is applied to five items, and final scores are calculated as the mean of items within each subscale.

## **Validity and Reliability of Questionnaires**

The questionnaires demonstrate moderate correlations, adequate to good levels of internal and test-retest reliability, and alignment with existing stigma literature. Mean scores in student samples support the validity of the scales.

## ***Procedure***

The study's plan was initially submitted to the supervisor and, upon receiving approval, data collection commenced using convenient sampling while ensuring participant anonymity. Samples were selected based on the established inclusion and exclusion criteria. The study employed a t-test to examine the mean difference between the variables, which are cancer awareness and stigma among college students. These variables were operationally defined by the scores of the Cancer Stigma Scale (CASS) and a series of yes or no questions.

## ***Statistical Analysis***

For analyzing the coded data, the study utilized statistical techniques via the Statistical Package for the Social Sciences (SPSS), version 27.0. Specifically, the statistical method of t-test was employed to analyze the collected data and address the study's objectives.

### **1) t-Test**

A t-test determines if the difference between two means likely reflects a 'real' difference in the population from which the groups were sampled. The test is based on the t-distribution, where

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if the calculated t-value exceeds a predetermined cut-off point based on the degrees of freedom, the difference in means is considered significant. Conversely, if the t-value falls below the cut-off point, the difference is deemed not significant.

**RESULT AND DISCUSSION**

The result of the statistical technique used in the current study and its findings are discussed below. The aim of the study is to find out the cancer awareness and stigma among college students. 73 samples were collected and the data were collected from colleges of Malappuram and Thrissur districts.

*Table 4.1: The t-test results comparing cancer stigma among male and female students.*

	<b>Group</b>	<b>N</b>	<b>Mean</b>	<b>Standard deviation</b>	<b>Significance</b>	<b>t-value</b>
<b>Cancer</b>	Male	34	<b>75.79</b>	<b>29.433</b>	.580	.505
<b>Stigma</b>	Female	<b>39</b>	<b>72.51</b>	<b>25.494</b>		

Table 4.1 shows t-value and significance of cancer stigma among male and female students. The t-value and significant difference is 0.580 and 0.505 respectively. It indicates that there is no significant difference between cancer stigma among male and female college students. The current finding suggest that there is no significant difference in cancer stigma among male and female college students. As there have been no literature based on this variables to justify the findings.

*Table 4.2: The t-test results comparing cancer stigma among students who attend the any cancer awareness class and who did not.*

	<b>Group</b>	<b>N</b>	<b>Mean</b>	<b>Standard deviation</b>	<b>Significance</b>	<b>t-value</b>
<b>Cancer</b>	Yes	23	<b>73.17</b>	<b>20.619</b>	<b>.358</b>	<b>-.210</b>
<b>Stigma</b>	No	<b>50</b>	<b>74.44</b>	<b>30.001</b>		

Table 4.2 shows the t-score and significant difference among the students who attend any cancer awareness class and who did not. The t-value and significant difference is .358 and -.210 respectively. It indicates that there is no difference between cancer stigma among students who attend any cancer awareness class and who did not. The current value suggest that there is no significant difference between students who attended the class and who didn't. As there have been no literature based on this variables to justify the findings

*Table 4.3: The t-test results comparing cancer stigma among students who read about cancer and whose did not.*

	<b>Group</b>	<b>N</b>	<b>Mean</b>	<b>Standard deviation</b>	<b>Significance</b>	<b>t-value</b>
<b>Cancer</b>	Yes	39	<b>72.33</b>	<b>26.199</b>	<b>.612</b>	<b>-.567</b>
<b>Stigma</b>	No	<b>34</b>	<b>76.0</b>	<b>28.685</b>		

Table 4.3 shows the t-test results comparing cancer stigma among students who read about cancer and whose did not. The t-value and significant difference is -0.567 and 0.612 respectively. It indicates that there is no significant difference cancer stigma among students

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who did read about the cancer and who did not. As there have been no literature based on this variables to justify the findings.

**Table 4.4: The t-test results comparing cancer stigma among students who are subjected to cancer screening and who are did not.**

	<b>Group</b>	<b>N</b>	<b>Mean</b>	<b>Standard deviation</b>	<b>Significance</b>	<b>t-value</b>
<b>Cancer Stigma</b>	Yes	7	<b>81.86</b>	<b>19.446</b>	<b>.483</b>	<b>1.065</b>
	No	<b>66</b>	<b>73.21</b>	<b>27.939</b>		

Table 4.4 shows the t-test results comparing cancer stigma among students who are subjected to cancer screening and who are did not. The t-value and significant difference is 1.065 and 0.483 respectively. It indicates that there is no significant difference between cancer stigma among students who were subjecting the cancer screening and who did not. Several studies conducted on related to cancer screening and diagnosis of cancer. A study conducted by M. Justinea and M. Syazwan Jafrial, concluded that stigmatization level among university students in Malaysia and may be a valuable basis for delivering information and education on cancer screening and treatment, the literature is contradictory to current findings.

**Table 4.5: The t-test results comparing cancer stigma among students who had ever consulted the oncologist and who did not.**

	<b>Group</b>	<b>N</b>	<b>Mean</b>	<b>Standard deviation</b>	<b>Significance</b>	<b>t-value</b>
<b>Cancer Stigma</b>	Yes	2	<b>81.00</b>	<b>5.657</b>	<b>.254</b>	<b>1.384</b>
	No	<b>71</b>	<b>73.85</b>	<b>27.607</b>		

Table 4.5 shows the t-test results comparing cancer stigma among students who had ever consulted the oncologist and who did not. The t-value and significant difference is 1.384 and .254 respectively. It indicates that there is no significant difference among students who had ever consulted an oncologist and who are not. A study conducted by E.germen and p.j.shculz helps to Understanding what motivates patients to seek or avoid information beyond the medical consultation is essential for effective information provision that will be relevant to patients' needs and preferences. The study suggests that information seeking and avoidance should not be necessarily considered as two distinct behaviors pertaining to different groups of patients; rather, a number of personal and contextual characteristics should be taken into account when evaluating patient desire for information, the literature is contradictory to current findings.

**Table 4.6: The t-test results comparing cancer stigma among students who had read articles or books by cancer survivors and who are not.**

	<b>Group</b>	<b>N</b>	<b>Mean</b>	<b>Standard deviation</b>	<b>Significance</b>	<b>t-value</b>
<b>Cancer Stigma</b>	Yes	36	<b>75.03</b>	<b>27.430</b>	<b>.843</b>	<b>.303</b>
	No	<b>37</b>	<b>73.08</b>	<b>27.425</b>		

Table 4.6 shows the t-test results comparing cancer stigma among students who had read articles or books by cancer survivors and who are not. The t-value and significant difference is .303 and .843 respectively. It indicate that there is no significant difference among students

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who had read about the articles or books by cancer survivors and who did not. As there have been no literature based on this variables to justify the findings.

**Table 4.7: The t-test results comparing cancer stigma among students who had ever googled about cancer and who did not.**

	Group	N	Mean	Standard deviation	Significance	t-value
Cancer	Yes	55	74.62	27.300	.575	.311
Stigma	No	18	72.28	27.825		

Table 4.7 shows the t-test results comparing cancer stigma among students who had ever googled about cancer and who did not. The t-value and significant difference is .311 and .575 respectively. It indicates that there is no significant difference among college students who had ever googled about cancer and those who are not. As there have been no literature based on this variables to justify the findings.

### SUMMARY AND CONCLUSION

Support from family, friends, and significant others is crucial for the overall development of college students, aiding them in overcoming obstacles. Cancer stigma affects individuals globally and is influenced by various factors such as income, ethnicity, gender norms, culture, and type of cancer. Addressing cancer-related myths and increasing awareness among college students can lead to a stigma-free society and improve treatment outcomes.

#### Investigation

This study aimed to understand cancer stigma and awareness among college students aged 16-26 in Malappuram and Thrissur districts. Data collection utilized the Cancer Stigma Scale (CASS) and a series of Yes or No questions.

#### Major Findings of the Study

- No significant difference in cancer stigma between male and female college students.
- No significant difference in cancer stigma between students who attended cancer awareness sessions and those who did not.
- No significant difference in cancer stigma between students who read about cancer and those who did not.
- No significant difference in cancer stigma between students who underwent cancer screening and those who did not.
- No significant difference in cancer stigma between students who consulted an oncologist and those who did not.
- No significant difference in cancer stigma between students who read articles or books by cancer survivors and those who did not.
- No significant difference in cancer stigma between students who searched about cancer on Google and those who did not.

#### Implications of the Study

- Provides experimental evidence related to cancer stigma and awareness objectives.
- Enhances understanding of cancer stigma among college students in Malappuram and Thrissur districts.



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### *Limitations of the Study*

- Limited to Malappuram and Thrissur districts, limiting generalizability.
- Small sample size of 73 participants.
- Limited statistical analysis.
- Age range limited to 16-26.
- Mixed data collection methods (questionnaire and Google Form).

### *Suggestions for Further Research*

- Conduct more elaborate studies with additional independent variables.
- Include more socio-demographic factors.
- Conduct in-depth studies with advanced statistical analysis.

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### ***Conflict of Interest***

The author(s) declared no conflict of interest.

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