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Research Article

Debunking Cancer Myths: Understanding Cancer Awareness and Misconceptions Among Patients in Türkiye

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Introduction: Cancer is a major global health concern with modifiable risk factors such as tobacco use, alcohol consumption, unhealthy diet, and physical inactivity. Low public awareness of evidence-based risk factors and common cancer myths hamper prevention efforts. This study evaluated the awareness of evidence-based risk factors and the prevalence of cancer myths among patients in Denizli, Türkiye.
Methods: This cross-sectional study was conducted at Pamukkale University Hospital between 1 February 2024 and 15 February 2024. A total of 747 participants were recruited. Data were collected using a structured questionnaire that assessed awareness of both evidence-based cancer risk factors and cancer myths. The questionnaire included the Cancer Awareness Measure Mythical Causes Scale (CAM-MYCS) and a scale assessing evidence-based cancer risk factors. Statistical analyses included Pearson correlation and backward linear regression.
Results: The mean CAM-MYCS score was 20.9 ± 26.4, reflecting substantial variability in beliefs about cancer myths. The mean score for the evidence-based cancer risk factor scale was 57.3 ± 23.1, suggesting a moderate awareness of evidence-based cancer risk factors. The mean total cancer awareness score was 44.1 ± 16.6, reflecting an overall moderate level of cancer awareness. Linear regression analysis identified higher education, seeking information from healthcare professionals and scientific books/articles, and self-perceived knowledge of cancer prevention as significant predictors of total cancer awareness.
Conclusion: This study highlights that despite a moderate level of awareness of evidence-based cancer risk factors, the high prevalence of cancer myths contributes to inadequate awareness of evidence-based cancer risk factors among the Turkish population. Targeted educational interventions are necessary to correct misconceptions and promote evidence-based knowledge to reduce the risk of cancer.

Keywords: cancer awareness; cancer myths; health education; public health; Turkey

1. Introduction

Cancer is a significant global health issue, with an estimated 20 million new cases diagnosed worldwide in 2022 and 9.7 million deaths attributed to cancer [1]. In Türkiye, cancer was the second leading cause of death in 2022, with 211,273 new cases reported [2, 3]. These figures show that cancer has become a leading public health challenge in the 21st century, both worldwide and in Türkiye. It remains the second leading cause of death worldwide [4]. Understanding the etiology of cancer is crucial for prevention efforts. Therefore, it is essential to examine both environmental and lifestyle factors that contribute to the development of cancer.

As a multifactorial disease, cancer arises from interactions between environmental and lifestyle factors, which contribute to approximately 50% of all global cancer cases [5, 6]. Notably, tobacco use, alcohol consumption, unhealthy diet, physical inactivity, air pollution, and obesity are well-established, modifiable risk factors for cancer [7–10]. Despite evidence that 30%–50% of all cancer cases are preventable through effective primary prevention measures, the global burden of cancer continues to rise [7]. For instance, 17% of individuals over the age of 15 smoke worldwide [11], while 2.3 billion people consume alcohol [12]. In addition, approximately 800 million individuals live with obesity, and these numbers continue to rise [13]. In Türkiye, the 2022 Turkish Health Survey revealed tobacco use rates of 28.3%, alcohol consumption of 12.1%, and an obesity prevalence of 20.2% [14]. These figures indicate persistent exposure to modifiable risk factors that substantially contribute to the national cancer burden in Türkiye.

Given these risks, raising public awareness of cancer risk factors is essential for promoting informed decision-making and encouraging lifestyle changes that can reduce cancer risk [15, 16]. Accurate knowledge of risk factors enables informed choices that can lead to protective behavioral changes [17]. However, misconceptions or lack of knowledge about cancer risk factors can result in false beliefs (myths) about cancer. These myths, often rooted in unfounded or insufficient evidence, are prevalent in many populations. Research has demonstrated that cancer-related misconceptions are widespread across populations [18]. Belief in such myths can divert attention from evidence-based risk factors and hinder the adoption of preventive behaviors [16].

Therefore, understanding both public awareness of evidence-based risk factors and the prevalence of cancer myths is critical for effective prevention of cancer. Although the literature on public awareness of cancer risk factors remains limited, existing studies suggest that awareness levels are generally low [15, 19–21]. Research on cancer myths is even more limited [22], and in Türkiye, no studies have explored cancer myths, and only a few have examined the awareness of evidence-based risk factors. This study aimed to assess the awareness of evidence-based cancer risk factors and the prevalence of cancer myths among patients at Pamukkale University Hospital. In addition, we identified the factors associated with these beliefs.

2. Methods

2.1. Study Design, Study Setting, and Duration. This cross-sectional study was conducted at Pamukkale University Hospital, a tertiary care facility in Denizli, Türkiye. Data collection was conducted from 1 February 2024 to 15 February 2024.

2.2. Study Population. The study population consisted of patients admitted to Pamukkale University Hospital during the data collection period.

2.3. Sample Size Calculation, Inclusion, and Exclusion Criteria. Sample size calculation was performed using G∗Power software (version 3.1.9.7) [23]. The primary outcome variable was the total score obtained from the Cancer Awareness Measure Mythical Causes Scale (CAM-MYCS). For this calculation, effect size estimations were based on previous research that employed the same scale [16]. The calculated effect size was $d = 0.054$. Utilizing this effect size, with 80% power and $\alpha = 0.05$, the required sample size was determined to be at least 634 participants. To account for an anticipated 20% dropout rate, the target sample size was set to 760 participants.

Participants were recruited using purposive sampling. Individuals were selected from the waiting areas of various outpatient clinics at the Pamukkale University Hospital. Data were collected from 15 designated patient waiting areas. Outpatient clinics were selected to represent a broad range of medical specialties, providing a comprehensive overview of evidence-based cancer risk factors and cancer myths across various patient populations. All departments in the hospital were included in the study to avoid any bias towards particular patient groups, except for the emergency department, which was excluded because of the acute nature of patient visits, which could affect their ability to participate in the study. This comprehensive approach was adopted to capture a broad spectrum of patient experiences and perspectives, thereby enhancing the generalizability of the findings. Data collection was conducted during the morning (09:30–11:30) and afternoon (13:30–16:00) shifts to increase the likelihood of capturing a representative sample across daily patient flow. These time slots were selected based on typical clinic operation hours to maximize recruitment opportunities and minimize potential biases associated with patient availability at different times of the day.

The inclusion criteria were the ability to read and understand Turkish and willingness to participate. Non-Turkish-speaking individuals, those unable to read and understand Turkish, and patients admitted to the emergency department were excluded from the study.

2.4. Study Variables

2.4.1. Dependent Variables. In this study, the primary dependent variable was the total score derived from the CAM-MYCS, which assesses participants' awareness of cancer myths. In addition, the dependent variables included the participants' scores on the scale assessing evidence-based cancer risk factors. The cumulative scores of cancer myths and evidence-based cancer risk factors were also considered dependent variables.

For clarity, in this study, "evidence-based cancer risk factors" refer to modifiable or nonmodifiable factors with a robust scientific consensus (e.g., peer-reviewed epidemiological studies, WHO/IARC reports) confirming their association with cancer. Cancer myths denote widely held beliefs about cancer causation that lack empirical support or are contradicted by current scientific evidence.

2.4.2. Independent Variables. The independent variables were categorized into several groups as follows: sociodemographic factors included age, gender, income, education level, marital status, presence of health insurance, and the place of longest residence. Physical characteristics, such as height, weight, and body mass index (BMI), based on self-reported data, were also examined. Income was categorized into four levels based on self-reported income status: (1) insufficient income and in debt; (2) insufficient income but no debt; (3) sufficient income but no savings; and (4) sufficient income and able to save. The BMI was calculated using the standard formula: weight (kg)/height $(m)^2$. The participants self-reported their weight and height. BMI categories were defined according to the World Health Organization (WHO) classification: (1) underweight ($< 18.5\,kg/m^2$); (2) normal weight ($18.5–24.9\,kg/m^2$); (3) overweight ($25.0–29.9\,kg/m^2$); (4) obese ($30.0–39.9\,kg/m^2$); and (5) morbidly Obese ($\geq 40\,kg/m^2$). Habit-related variables included smoking and alcohol consumption status, and the presence of any chronic diseases. The study further explored participants' sources of health information, previous cancer diagnoses, and whether family members or acquaintances had been diagnosed with cancer. Perceived knowledge of cancer prevention, perceived risk of developing cancer, and levels of fear regarding cancer diagnosis were also assessed as independent variables.

2.5. Data Collection Tools. The data collection tool used in this study was a comprehensive structured questionnaire designed to assess participants' awareness of evidence-based cancer risk factors and cancer myths, along with related factors. The questionnaire consisted of 51 items divided into several sections. The first section included eight sociodemographic questions, covering basic information such as age, gender, education, and income. Participants were also asked to self-report their height, weight, and information about harmful habits such as smoking and alcohol consumption (assessed with two questions). To evaluate participants' awareness of cancer risk factors, the questionnaire featured eight questions based on a thorough literature review, aimed at exploring factors that might influence their understanding of both cancer myths and evidence-based risk factors. In addition, 12 items from the CAM-MYCS and 21 items related to evidence-based cancer risk factors were included to evaluate participants' awareness.

In 2018, Smith et al. developed a tool to assess people's beliefs in common cancer-related myths. The Turkish version of the CAM-MYCS, adapted by Sabahat Coşkun in 2020, was used to evaluate participants' cancer myths [24]. The internal consistency of the CAM-MYCS in our study was calculated using a Cronbach's alpha value of 0.88, demonstrating good reliability. This scale consists of 12 items, each scored on a 5-point Likert scale ranging from "1 = strongly disagree" to "5 = strongly agree." For scoring purposes, responses of "strongly disagree" or "disagree" were scored as 1, indicating correct awareness, while responses of "neutral," "agree," or "strongly agree" were scored as 0, indicating incorrect awareness. A higher CAM-MYCS score reflects a lower belief in cancer myths, whereas a lower score indicates a stronger belief. To obtain the total CAM-MYCS score, the individual item scores were summed and converted to a percentage score ranging from 0 to 100, using the percent of the maximum possible method, to ensure comparability between participants' myth-based cancer beliefs. For example, a participant scoring 100% would correctly reject all 12 myths, whereas a score of 0% indicated a strong endorsement of all cancer myths. For instance, a CAM--MYCS score of 20 indicates that participants correctly rejected only 20% of the cancer myths, reflecting a strong belief in 80% of those myths.

In addition, 21 items were developed based on information from the WHO [7], Centers for Disease Control and Prevention (CDC) [10], and International Agency for Research on Cancer (IARC) [8] to assess awareness of evidence-based cancer risk factors.

2.6. Pretesting and Cultural Adaptation. To ensure clarity and cultural appropriateness, the questionnaire underwent a rigorous pretesting process before the main study. Initially, the instrument was reviewed by a panel of experts (10 health professionals) in oncology, public health, and survey methodology to assess its content validity and cultural relevance. Subsequently, a pilot test was conducted with a sample of 28 individuals from the target population (Turkish-speaking patients attending outpatient clinics at the Pamukkale University Hospital). Participants in the pilot study were asked to complete the questionnaire and provide feedback on the clarity of the questions, appropriateness of the language used, and overall length of the survey. Based on their feedback, minor adjustments were made to the wording of certain items to enhance comprehension and cultural relevance. The Cronbach's alpha for the revised 21-item scale was 0.85, indicating good internal consistency of the scale. The revised questionnaire was used in the main study. The pretest participants were not included in the final sample.

These 21-item questions about evidence-based cancer risk factors were scored as 1 for "Yes, it causes cancer," 0 for "I don't know," and "No, it does not cause cancer." The total score for these items was also converted to a percentage score using the percent of the maximum possible method, ensuring consistency across both the cancer myths and evidence-based cancer risk factor awareness scales. A higher total score on this scale indicated a higher level of awareness of evidence-based cancer risk factors. By including both cancer myths and evidence-based cancer risk factors, the questionnaire provided a comprehensive measure of participants' cancer awareness and the factors influencing their perceptions.

2.7. Data Analysis. Data analysis was performed using the Statistical Package for the Social Sciences (SPSS) version 29. Descriptive statistics were reported as frequencies and percentages for categorical variables and as means and standard deviations for continuous variables. To compare the cancer awareness scores from the CAM-MYCS and the awareness of evidence-based cancer risk factors, both scales were normalized using a min–max scaling method to a range of 0–100 points [16]. The CAM-MYCS score was calculated as the percentage of correct responses based on a dichotomized scoring system, where 1 represented correct awareness and 0 indicated incorrect awareness. This method

Table 1: Sociodemographic characteristics of the participants.

Variable	*n*	%
Age (mean ± SD)	41.0 ± 15.0	
Age group		
18–34 years	308	41.5
35–64 years	377	50.7
65+ years	58	7.8
Gender		
Female	398	54.5
Male	332	45.5
Marital status		
Married	430	58.4
Single	246	33.4
Divorced/widowed/separated	60	8.2
Education level		
Illiterate	10	1.3
Literate	17	2.3
Primary school	102	13.7
Secondary school	65	8.7
High school	200	26.8
University or higher	351	47.1
Income status		
Income insufficient and in debt	192	26.0
Income insufficient but no debt	113	15.3
Income sufficient but no savings	263	35.6
Income sufficient and able to save	170	23.0
Health insurance		
None	42	5.7
Social Insurance Institution (SSK)	373	50.3
BAĞ-KUR (Social security organization for artisans and the self-employed)	102	13.8
Emekli Sandığı (retirement fund)	165	22.3
Yeşil Kart (green card)	16	2.2
Private insurance	43	5.8
Place of residence		
City	423	57.2
Town	195	26.4
Village	111	15.0
Abroad	11	1.5

allowed for consistent comparisons between the participants' understanding of cancer myths. Similarly, the evidence-based cancer risk factor scale was scored, with a higher score reflecting better knowledge of evidence-based cancer risk factors.

The combined score from the CAM-MYCS and evidence-based cancer risk factor awareness scale was used as a composite indicator of total cancer awareness. The relationship between CAM-MYCS scores and awareness of evidence-based cancer risk factors was examined using Pearson's correlation analysis. A backward linear regression analysis was employed to investigate the independent factors influencing both cancer myths and awareness of evidence-based cancer risk factors.

2.8. Ethical Considerations. Ethical approval for this study was obtained from the Pamukkale University Ethics Committee (Approval Date and Number: 25.01.2024-E.481616). Permission to conduct the study at Pamukkale University Hospital was obtained from the hospital administration. Written informed consent was obtained from all participants before inclusion in the study.

3. Results

The study included 760 participants, with 13 surveys excluded because of incomplete data. Therefore, 747 surveys were analyzed in this study.

The mean age of the participants was 41.0 ± 15.0 years. The age distribution was as follows: 41.5% ($n = 308$) were between 18 and 34 years, 50.7% ($n = 377$) were between 35 and 64 years, and 7.8% ($n = 58$) were 65 years or older. Most participants were married (58.4%, $n = 430$), and 54.5% ($n = 398$) were female. Nearly half of the participants (47.1%, $n = 351$) were university graduates, followed by high school graduates (26.8%, $n = 200$). In terms of income, 35.6% ($n = 263$) reported that their income was sufficient but without savings, while 26.0% ($n = 192$) stated that their income was insufficient, leading to debt. In addition, 50.3% ($n = 373$) had social security coverage through social insurance institution (SSK), followed by the Emekli Sandığı (retirement fund) (22.30%) and BAĞ-KUR (social security organization for artisans and the self-employed) (13.80%). A minority of participants had no health insurance (5.70%), green card (2.20%), or private health insurance (5.80%). Most participants lived in cities (57.2%, $n = 423$) (Table 1).

Table 2: Health and lifestyle characteristics of participants.

Variable	n	%
Smoking status		
Nonsmoker	456	61.1
Smoker	249	33.4
Former smoker	41	5.5
Alcohol consumption		
Never	404	54.4
Monthly or less	208	28.0
Weekly or less	69	9.3
2–4 times a week	60	8.1
5+ times a week	2	0.3
BMI categories		
Underweight	19	2.6
Normal weight	326	44.8
Overweight	260	35.7
Obese	115	15.8
Morbidly obese	8	1.1
Having chronic disease		
Yes	233	34.4
No	445	65.6
Source of health information*		
Family physician	520	69.6
Specialist physician	490	65.6
Google	344	46.1
Healthcare personnel	283	37.9
Family	254	34.0
Friends/relatives	231	30.9
Radio/TV/newspaper	198	26.5
Instagram	162	21.7
YouTube	159	21.3
Facebook	120	16.1
Books/magazines	88	11.8
Twitter	68	9.1
WhatsApp/telegram	63	8.4
Seminar/course	58	7.8
TikTok	47	6.3

*Multiple options could be selected.

In terms of smoking habits, 61.1% ($n = 456$) reported not smoking, while 33.4% ($n = 249$) were current smokers with an average pack-year of 13.8 ± 15.1. In addition, 5.5% ($n = 41$) were former smokers. Alcohol consumption varied, with 54.4% ($n = 404$) reporting never consuming alcohol, and 28.0% ($n = 208$) consuming alcohol once a month or less. The average body height and weight of the participants were 169.0 ± 10.0 cm and 73.3 ± 15.1 kg, respectively, with 44.8% ($n = 326$) classified as having a normal BMI, and 35.7% ($n = 260$) as overweight. Chronic diseases were present in 34.4% ($n = 233$) of the participants. Participants predominantly sought health information from family physicians (69.6%) and specialist physicians (65.6%), while online resources such as Google were also commonly used (46.1%). Other common sources included healthcare personnel (37.9%), family (34.0%), and media such as radio, TV, and newspapers (26.5%). Social media platforms such as Instagram (21.7%) and YouTube (21.3%) were also utilized (Table 2).

Among the participants, 5.4% ($n = 40$) had a cancer diagnosis, 40.3% ($n = 299$) reported a family history of cancer, and 73.0% ($n = 544$) knew someone diagnosed with

Table 3: Cancer diagnosis, family cancer history, and perceptions of cancer risk of participants.

Variable	n	%
Personal cancer diagnosis		
Yes	40	5.4
No	707	94.6
Family member with a cancer diagnosis		
Yes	299	40.3
No	443	59.7
Friend/acquaintance with cancer diagnosis		
Yes	544	73.0
No	201	27.0
Perceived knowledge about cancer prevention		
Yes	190	25.6
No	308	41.5
Unsure	245	33.0
Perceived cancer risk		
Very high	103	13.9
High	166	22.4
Moderate	291	39.3
Low	121	16.4
Very low	59	8.0
Fear of cancer		
Very afraid	143	19.2
Afraid	292	39.1
Neutral	204	27.3
Not afraid	81	10.9
Not afraid at all	26	3.5

cancer. Regarding perceived knowledge of cancer prevention, 41.5% ($n = 308$) felt uninformed, while 33.0% ($n = 245$) were uncertain. Participants' perceived cancer risk varied, with 13.9% ($n = 103$) reporting a very high perceived risk, and 39.3% ($n = 291$) considering their risk to be moderate. Fear of cancer was common, with 39.1% ($n = 292$) expressing fear and 19.2% ($n = 143$) reporting extreme fear (Table 3).

The participant's belief in various cancer myths was notably high. The majority (87.6%) mistakenly believed that eating genetically modified food was a cancer-causing factor. Stress was another commonly endorsed myth, with 86.6% of participants attributing it to cancer. Similarly, substantial proportions of participants associated cancer risk with consuming food containing artificial sweeteners (85.3%), using aerosol containers (85%), and consuming food additives (84.3%) (Figure 1).

The findings revealed varying levels of awareness and beliefs regarding evidence-based cancer risk factors. A significant majority of respondents recognized smoking (95.6%) and radiation exposure (90.9%) as risk factors for cancer. Similarly, high levels of endorsement were observed for drinking alcohol (81.9%), unhealthy diet (75.8%), passive smoking (71.2%), and outdoor air pollution (71.2%). Exposure to ultraviolet (UV) radiation (71.1%) and the use of e-cigarettes (66.7%) were also widely acknowledged as cancer-causing. Lower levels of endorsement were observed for infections such as HIV (44.3%), hepatitis B (39.2%), hepatitis C (38%), *Helicobacter pylori* (34.1%), and Epstein–Barr virus (31.7%). The use of oral contraceptives was considered a cancer risk by 28.8% of the participants (Figure 2).

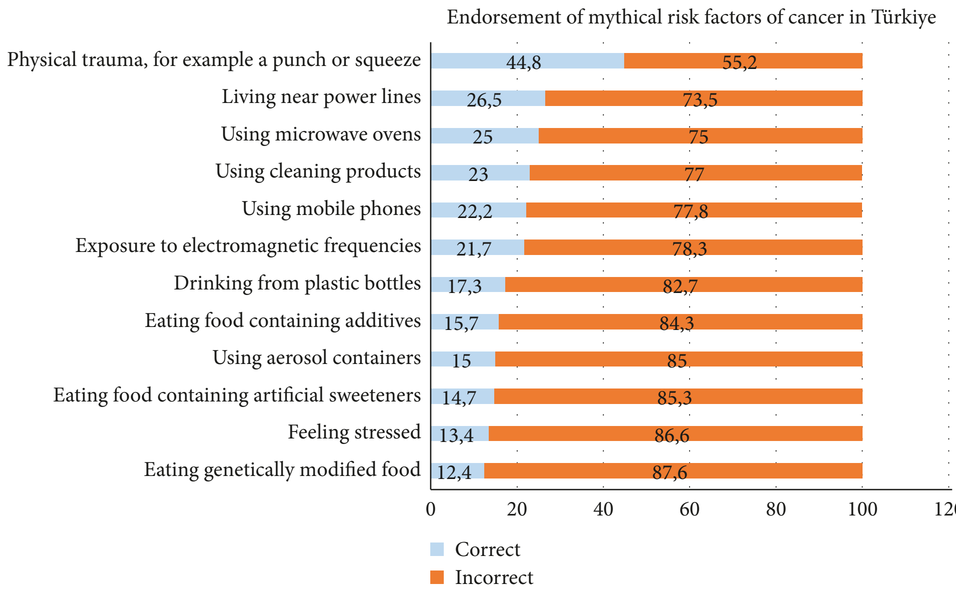

Figure 1: Endorsement of cancer myths in Türkiye. A bar chart showing the percentage of people in Türkiye who believe in various cancer myths. The myths are listed on the left side of the chart, and the percentage of people who believe in each myth is shown on the right side of the chart. The percentage of people who believe in each myth is divided into two categories, and each category is represented by a different color "Correct" (light blue) and "Incorrect" (orange). The "Correct" category represents the percentage of people who correctly believe that the myth is not linked to cancer, and the "Incorrect" category represents the percentage of people who incorrectly believe that the myth is linked to cancer.

The cancer awareness scale scores were analyzed to assess participants' understanding of cancer risk factors. The mean score for awareness of "Mythical Causes of Cancer" was 20.9 (SD = 26.4), with a median of 8.3 (IQR = 0–33.3). This low score indicates a higher belief in cancer myths among participants, suggesting that many respondents held misconceptions regarding unverified cancer risk factors. Conversely, the mean score on the "Evidence-Based Cancer Risk Factors" scale was higher, at 57.3 (SD = 23.1), with a median of 57.1 (IQR = 42.8–71.4), suggesting a moderate level of understanding of evidence-based cancer risk factors, with less variability than the cancer myths. The total cancer awareness score, which combines cancer myths and evidence-based cancer risk factor awareness, had a mean score of 44.1 (SD = 16.6), with a median of 42.4 (IQR = 33.3–54.5). This composite score reflects an overall moderate level of cancer awareness among the participants, with a tendency towards a better understanding of evidence-based cancer risk factors over myth-based ones (Table 4). Furthermore, a low negative correlation was found between CAM-MYCS and the evidence-based cancer risk factors scale ($r = -0.190$, $p < 0.001$) (not shown in table).

Linear regression analysis revealed several factors significantly associated with the total cancer awareness score. Receiving health information from family physicians ($B = 3.037$, $p = 0.020$), specialist physicians ($B = 3.546$, $p = 0.006$), and books/articles ($B = 4.452$, $p = 0.019$) were significant predictors of the higher total cancer awareness score. In addition, self-perceived adequacy in cancer prevention ($B = 5.663$, $p < 0.001$) and having a university-level education or higher ($B = 2.572$, $p = 0.044$) were significant factors (Table 5).

4. Discussion

This study aimed to evaluate cancer awareness in Türkiye, particularly examining beliefs about cancer myths and evidence-based risk factors of cancer. Our findings reveal a noteworthy dual trend: a moderate understanding of evidence-based cancer risk factors accompanied by a persistent belief in cancer myths. This duality reveals a significant gap in public health education. While our findings share similarities with those from other regions, they also highlight the unique aspects of cancer awareness in Türkiye.

Our participants scored a mean of 20.9 on the mythical causes scale and 57.3 on the evidence-based cancer risk factors scale, with a total score of 44.1. This outcome suggests a relatively strong belief in cancer myths and moderate understanding of evidence-based cancer risk factors. Compared to Shahab et al.'s UK study, our participants showed lower myth endorsement (20.9 vs. 36) but slightly higher knowledge of evidence-based risk factors (57.3 vs. 53) [16]. However, this finding should not obscure the overall concern that awareness of cancer prevention remains inadequate across all settings. Munir et al. reported a similar pattern in Pakistan, with higher scores for evidence-based knowledge than for myths (55 vs. 46) [22]. This suggests a broader international trend in which factual knowledge generally exceeds the belief in myths. However, our findings highlight a more significant gap between these two aspects, suggesting that despite public health campaigns, substantial misconceptions about cancer continue to exist in Türkiye.

Rydz et al. found higher scores for both evidence-based knowledge (70.4) and belief in myths (49.4) [25], suggesting

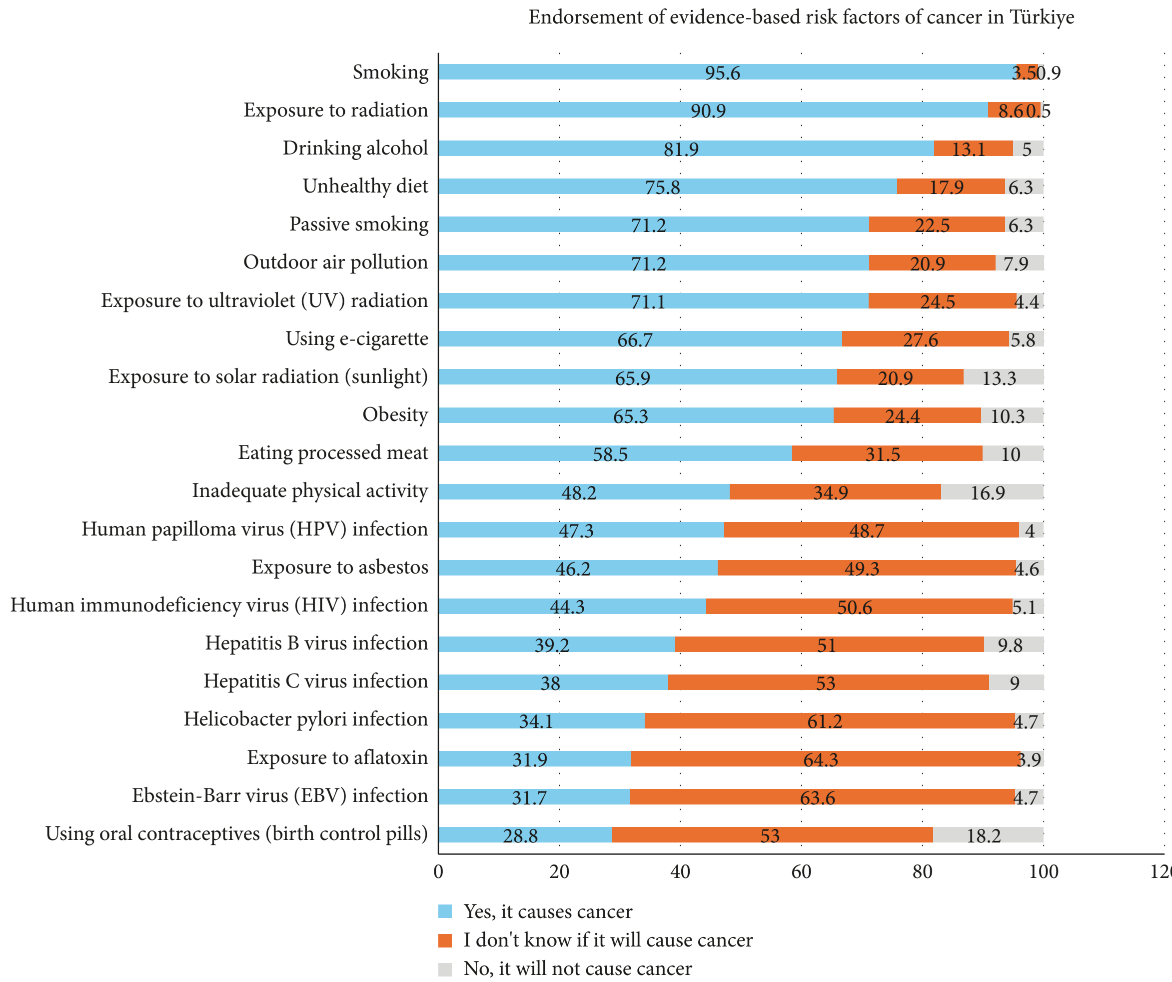

Figure 2: Endorsement of evidence-based risk factors of cancer in Türkiye. A bar chart showing the percentage of people in Türkiye who believe in various evidence-based risk factors of cancer. The risk factors are listed on the left side of the chart, and the percentage of people who believe in each risk factor is shown on the right side of the chart. The percentage of people who believe in each risk factor is divided into three categories, and each category is represented by a different color: "Yes, it causes cancer" (light blue), "I don't know if it will cause cancer" (orange), and "No, it will not cause cancer" (gray).

Table 4: Cancer awareness scale scores.

Scale	Mean ± SD	Median (Q1–Q3)
Mythical risk factors of cancer	20.9 ± 26.4	8.3 (0–33.3)
Evidence-based cancer risk factors	57.3 ± 23.1	57.1 (42.8–71.4)
Total cancer awareness score	44.1 ± 16.6	42.4 (33.3–54.5)

Note: Scale scores range from 0 to 100. Higher scores on the mythical risk factors scale indicate a lower belief in myths, while higher scores on the evidence-based cancer risk factors scale and the total cancer awareness scale indicate better awareness of evidence-based cancer risk factors.

greater overall engagement with cancer-related information in Canada. This gap suggests that public health campaigns in higher-income regions may have had a more extensive impact, highlighting the need for scaled, targeted interventions in Türkiye. Smith et al. found nearly identical myth and evidence-based knowledge scores in the United Kingdom (43.7 and 43.9, respectively) [26]. This balanced pattern differed markedly from the higher overall scores in Canada. This suggests that despite global efforts to reduce cancer misconceptions, some regions still face significant challenges in dispelling myths, particularly in low to middle-income countries (LMICs) such as Türkiye.

We observed a negative correlation between beliefs in myths and evidence-based knowledge. This finding underscores the need for health communication strategies that both debunk myths and actively promote accurate cancer prevention. This finding aligns with previous research conducted in other cultural contexts. Shahab et al. reported a moderate negative correlation between evidence-based knowledge and beliefs in myth in England [16]. Similarly,

Table 5: Linear regression analysis of factors associated with total cancer awareness scores.

Variable	B	Standard error	95% confidence interval (lower–upper)	p value
Receiving health information from a family physician				0.020
No			Reference	
Yes	3.037	1.307	0.470–5.603	
Receiving health information from a specialist physician				0.006
No			Reference	
Yes	3.546	1.291	1.011–6.081	
Receiving health information from books/articles				0.019
No			Reference	
Yes	4.452	1.894	0.734–8.170	
Feeling adequate about cancer prevention				< 0.001
No			Reference	
Yes	5.663	1.353	3.006–8.320	
Education level				0.044
High school or lower			Reference	
University and above	2.572	1.272	0.074–5.069	

Note: The following variables were included in the model: marital status, educational status, receiving health information from family physician, receiving health information from specialist physician, receiving health information from YouTube, receiving health information from Twitter, receiving health information from scientific sources such as books/articles, having cancer, place of residence, feeling adequate about cancer prevention. Backward LR method was used. $R^2 = 0.30$.

a study conducted in Pakistan demonstrated a significant negative correlation [22]. These consistent findings suggest that increased knowledge of evidence-based risk factors are associated with decreased myth adherence. Therefore educational interventions should focus not only on imparting correct information but also on directly challenging prevailing misconceptions. Effective cancer awareness campaigns in Türkiye should integrate myth-debunking content with accessible prevention information. This dual approach could provide a more comprehensive and accurate understanding of cancer risk factors.

The most prevalent cancer myths in our study were "genetically modified foods" and "stress," consistent with findings from the United Kingdom and Canada [16, 25]. In Pakistan, however, myths around "microwave ovens" and "drinking from plastic bottles" were more prevalent, suggesting that cultural and regional factors influence specific beliefs in myths [22]. This variation in commonly held myths highlights the impact of social media, national media narratives, and cultural health beliefs on shaping cancer awareness and misconceptions about it.

Consistent with international findings, smoking was the most recognized preventable cancer risk factor among our participants, a well-publicized risk factor. Studies by Shahab et al. [16] and Munir et al. [22] also reported high awareness of smoking as a risk factor, although knowledge of other evidence-based cancer risk factors, such as physical inactivity and obesity, remains low across populations. Despite moderate awareness of smoking risks, our findings reveal insufficient understanding of obesity and sedentary lifestyles, which are major modifiable cancer risk factors. This awareness gap is particularly concerning, given that approximately 5% of cancers in Türkiye are attributed to obesity. These findings underscore a critical need for culturally adapted public health messages emphasizing the cancer risks associated with lifestyle factors.

Moreover, regression analysis identified several factors significantly associated with higher awareness scores. These included higher education levels, receiving information from healthcare professionals (e.g., family physicians and specialist physicians) and scientific publications (e.g., books or articles), and self-perceived adequacy regarding cancer prevention. This positive effect of education on health knowledge aligns with findings of Shahab et al. [16], where individuals with higher educational attainment scored significantly higher on cancer awareness. Similarly, Munir et al. [22] found that educated participants demonstrated greater awareness, although their findings were not statistically significant. Access to reliable health information is crucial for reducing the influence of myths and enhancing factual understanding of cancer risks. These findings suggest that enhancing communication between patients and healthcare providers, as well as boosting individuals' confidence in their preventive knowledge, could be key strategies for improving cancer awareness in the community.

4.1. Strengths and Limitations. This study has several strengths, including its focus on a previously under-researched area in Türkiye. Therefore, our study will contribute to the existing literature and raise awareness of the subject. However, there are some limitations to consider. The use of a cross-sectional design limits the ability to infer causation from the observed associations. Given that our sample was recruited from a single tertiary hospital, the findings may not be entirely representative of the general population or of individuals residing in rural regions. Future studies should include more diverse settings, including community-based and rural populations, to enhance the external validity of the results. Another potential limitation of this study is the selection bias inherent in the recruitment of participants from a hospital setting. Patients in this setting may be more health-aware and motivated to seek healthcare. This might have overestimated awareness levels and underestimated myth prevalence, particularly among those with limited healthcare access. In addition, since nearly half of the participants reported a personal or family history of cancer, there is a possibility that these individuals might possess higher baseline cancer awareness. This factor should be considered when interpreting the results, and future studies should stratify analyses by cancer exposure status or prioritize samples without prior cancer experience to minimize this bias.

5. Conclusion

This study revealed a substantial prevalence of cancer-related misconceptions and a notable deficit in knowledge regarding evidence-based cancer risk factors within the Turkish population. It indicated significant gaps in cancer awareness among the Turkish population, particularly in understanding evidence-based cancer risk factors. This study highlights the need for continuous public education efforts that address both myths about cancer and evidence-based cancer risk factors, with a focus on under-recognized modifiable risk factors such as physical inactivity and obesity, which play substantial roles in cancer prevention. Future research should focus on developing and evaluating educational interventions tailored to regional needs, leveraging the role of healthcare professionals and accessible information sources to enhance public knowledge and reduce the prevalence of cancer myths. Future research should adopt multicenter designs across urban, rural, and socioeconomically diverse regions of Türkiye to enhance representativeness. Community-based recruitment strategies can further reduce selection bias and improve external validity. Future research could benefit from longitudinal designs to assess the impact of specific interventions on reducing cancer myths and improving knowledge of evidence-based cancer risk factors in Türkiye and similar contexts.

Data Availability Statement

The data underlying this article will be shared upon reasonable request to the corresponding author.

Ethics Statement

This study was performed in accordance with the Declaration of Helsinki and was approved by the Pamukkale University Clinical Research Ethics Committee (Approval date: 23.01.2024, Approval number: 02).

Consent

Before data collection, all study participants were informed about the purpose of the study and their right to either participate or decline participation. The respondents were also informed about the confidentiality of their information and assured that all the data would be used solely for research purposes. Prior to administering the questionnaires, all participants provided informed consent by signing the consent form.

Conflicts of Interest

The authors declare no conflicts of interest.

Author Contributions

Research conception and study design: Süleyman Utku Uzun. Data analysis and interpretation: Süleyman Utku Uzun and Merve Akin. Statistical analysis: Süleyman Utku Uzun and Merve Akin. Data acquisition: Merve Akin. Supervision: Süleyman Utku Uzun. Each author made important intellectual contributions during the drafting of the manuscript or revision and is accountable for the overall work, ensuring that questions pertaining to the accuracy and integrity of any part of the work are appropriately investigated and resolved.

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