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From Screens to Stress: Public Health Implications of Cancer Worry in a Digitally Connected World

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SUMMARY

Aims: This study examines how digital information environments, genetic testing experiences, health behaviors, and psychological distress influence cancer-related worry among adults in the United States. It further considers the public health implications of elevated or reduced cancer worry for prevention and risk communication.
Methods: Data were drawn from a nationally representative survey of 6,252 U.S. adults. Measures included reliance on social media for health decision-making, smoking status, history of genetic testing, and psychological distress. Multivariable analyses assessed associations between these factors and levels of cancer worry.
Results/Findings: Reliance on social media for health decisions was associated with greater cancer worry, indicating that exposure to misinformation or amplified risk cues may heighten anxiety. Smoking was also linked to increased worry, consistent with higher perceived vulnerability. In contrast, individuals who had undergone genetic testing reported lower cancer worry, suggesting that structured risk information can reduce uncertainty. Psychological distress emerged as the strongest predictor of extreme cancer worry, highlighting the central role of mental health in shaping risk perceptions.
Conclusions: Cancer worry is influenced by the interaction of digital information sources, behavioral risk factors, and psychological distress. Public health efforts should focus on strengthening digital health literacy, countering online misinformation, and incorporating mental health assessment into cancer prevention and communication strategies. These approaches may help support balanced risk appraisal and reduce unnecessary distress in the population.

Keywords: Cancer, Social Media, Genetic Testing, Smoking, Education, Prevention

INTRODUCTION

Cancer is a leading cause of mortality for both men and women in the United States [1, 2]. In 2025, the American Cancer Society projects that approximately 2 million new cancer cases will be diagnosed in the United States, with around 600,000 people expected to die from the disease [3-5]. The emotional and psychological toll of cancer is profound, affecting not only those diagnosed but also their families and caregivers [6-8]. A cancer diagnosis often brings fear, anxiety, and uncertainty as patients navigate treatment decisions, potential side effects, and financial burdens [9-11].

Social media plays a crucial role in the creation, exchange, and dissemination of user-generated

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content, transforming the way people access and share information [12, 13]. With approximately 5.24 billion users worldwide, social media platforms have become an integral part of daily life, influencing communication, business, healthcare, and education [14, 15]. In the healthcare domain, social media has become an essential resource for information seekers, patients, caregivers, and healthcare professionals [16, 17]. Many individuals turn to these platforms to find and share knowledge about chronic diseases, including their causes, symptoms, diagnosis, treatment options, and preventive measures. Despite many benefits, the widespread use of social media in healthcare also presents challenges, particularly in the spread of misinformation. False or misleading health claims can easily go viral, influencing public perceptions and potentially leading to harmful consequences [18, 19]. Some users may rely on unverified sources instead of consulting medical professionals, making it essential for regulatory bodies, healthcare experts, and technology companies to implement measures that promote accurate and science-based health information [20].

Genetic testing plays a vital role in cancer prevention by identifying individuals who have inherited genetic mutations that increase their risk of developing certain types of cancer [21, 22]. Many cancers, such as breast, ovarian, colorectal, and prostate cancer, have been linked to specific genetic mutations, including BRCA1, BRCA2, and Lynch syndrome-associated genes [23, 24]. This proactive approach allows for earlier screenings and interventions that could significantly improve long-term health outcomes.

Anxiety and depression play an important role in understanding the psychological factors that may influence cancer risk and progression [25, 26]. While they are direct biomarkers for cancer, research suggests that chronic stress, depression, and anxiety, conditions identified through the Patient Health Questionnaire-4 (PHQ-4), a brief screening tool, can contribute to cancer risk through behavioral, hormonal, and immune-related mechanisms [27, 28]. The fear of developing cancer, often referred to as cancer worry or cancer anxiety, can significantly impact an individual's overall health and well-being [10, 29]. Persistent anxiety about getting cancer can lead to chronic stress, heightened cortisol levels, and immune system dysregulation, which may inadvertently increase susceptibility to various health issues, including cancer itself [30]. Consistent with prior work, chronic psychological distress has been associated with immune dysregulation, prolonged inflammatory responses, and hypothalamic–pituitary–adrenal axis disruption—mechanisms described as indirect pathways linking psychosocial factors to disease progression and overall health rather than direct causal risk factors for cancer [31].

Additionally, individuals who excessively worry about cancer may experience health-related anxiety, leading to frequent medical visits, unnecessary tests, and a diminished quality of life due to constant fear [32]. On the other hand, in some cases, extreme worry may result in avoidance behavior, where individuals delay screenings or medical check-ups due to fear of receiving bad news [33]. This can be particularly dangerous, as delayed diagnoses often lead to worse outcomes if cancer is present.

In Section 2, we describe the material and methods to investigate various factors that might affect cancer-related worries. In Section 3, we present results, and in Section 4, we provide discussions and future directions.

MATERIALS AND METHODS

Sample

The Health Information National Trends Survey (HINTS) 2022, Cycle 6, conducted by the National Cancer Institute (NCI) [34], is about collecting information about cancer without looking at previous medical history. HINTS is a cross-sectional study of health communication among the US adult population. The description of the methodology of the survey and sampling procedure can be obtained from NCI (USDHHS 2022) [34]. A total of 6,252 surveys were included in the final dataset.

In this study, we consider "Worry about getting cancer" as the outcome variable. Cancer worry was measured using a single self-reported survey item asking respondents how worried they were about getting cancer, with response options ranging from "not at all worried" to "extremely worried". Also, race/ethnicity, age, education level, and use of information from social media to make decisions about health, genetic testing, and PHQ4 scores are considered independent variables.

Statistical Analysis

Data was analyzed by using IBM SPSS version 28. The preliminary selection of questions was based on the bivariate association between respondents' various characteristics such as age, sex, education, worrying about getting cancer, health status, PHQ-4 scores, etc. Based on this analysis, we studied the effect of race, education, age, genetic testing, social media use, and PHQ-4 scores on their worry about getting cancer using a multinomial regression model. We eliminated responses "Refused" and "Don't know" to survey items under study.

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Table 1. Characteristics of the Population

		Number of People	Marginal Percentage
Worried About Getting Cancer	**Extremely**	401	9.2%
	Moderatly	706	16.3%
	Somewhat	1273	29.4%
	Slightly	1218	28.1%
	Not at all	739	17.0%
Race/Ethnicity	**Non-Hispanic White**	2469	56.9%
	Non-Hispanic Black or African American	679	15.7%
	Hispanic	792	18.3%
	Non-Hispanic Asian	242	5.6%
	Non-Hispanic Other	155	3.6%
Education	**Less than High School**	207	4.8%
	High School Graduate	662	15.3%
	Some College	1264	29.1%
	Bachelor's Degree	1303	30.0%
	Post-Baccalaureate Degree	901	20.8%
Gender	**Male**	1665	38.4%
	Female	2672	61.6%
Smoking Status	**Current**	466	10.7%
	Former	1032	23.8%
	Never	2839	65.5%
Age Group (Years)	**18-34**	791	18.2%
	35-49	1036	23.9%
	50-64	1291	29.8%
	65-74	841	19.4%
	75+	378	8.7%
Use Social Media Information to Make Health Decisions	**Strongly Agree**	49	1.1%
	Somewhat Agree	653	15.1%
	Somewhat disagree	918	21.2%
	Strongly Disagree	2717	62.6%
Genetic Testing for Specific Disease	**No**	4158	95.9%
	Yes	179	4.1%
flipped PHQ4 Scores Categories	**Severe**	191	4.4%
	Moderate	401	9.2%
	Mild	995	22.9%
	Normal	2750	63.4%
Valid		4337	
Missing		1915	
Total		6252	

Table 2. Correlation

		Worried About Getting Cancer
Smoking Status	**Pearson Correlation**	0.058**
	Sig. (2-tailed)	<.001
	N	5782
Ever Had Cancer	**Pearson Correlation**	0.151**
	Sig. (2-tailed)	<.001
	N	5822
Use Social Media Information to Make Health Decisions	**Pearson Correlation**	0.075**
	Sig. (2-tailed)	<.001
	N	4653
Overall, how confident are you that your genetic testing results are correct and accurate?	**Pearson Correlation**	-0.011
	Sig. (2-tailed)	0.665
	N	1567
Genetic Testing for Specific Disease	**Pearson Correlation**	-0.063**
	Sig. (2-tailed)	<.001
	N	5856
Age Group	**Pearson Correlation**	0.042**
	Sig. (2-tailed)	0.001
	N	5784
Race/Ethnicity	**Pearson Correlation**	-0.021
	Sig. (2-tailed)	0.113
	N	5521
Gender	**Pearson Correlation**	-0.046**
	Sig. (2-tailed)	<.001
	N	5782
Education	**Pearson Correlation**	-0.005
	Sig. (2-tailed)	0.681
	N	5787
PHQ-4 Categories	**Pearson Correlation**	-0.183**
	Sig. (2-tailed)	<.001
	N	5740

*** Significant at the 0.01 level (two-tailed)*
**Significant at the 0.05 level (two-tailed)*

RESULTS

The population characteristics reveal important demographic, behavioral, and psychological patterns related to cancer worry (Table 1). In terms of cancer concern, nearly 54% of individuals report being "Somewhat" or "Slightly" worried about getting cancer, while only 9.2% are "Extremely" worried. The majority of the sample consists of non-Hispanic Whites (56.9%), followed by Hispanics (18.3%), and non-Hispanic Black or African Americans (15.7%). Educational attainment is relatively high, with 50.8% holding a bachelor's or post-baccalaureate degree and only 4.8% having less than a high school education. Women (61.6%) outnumber men (38.4%) in the sample.

The correlation analysis, presented in Table 2, examines the relationships between worry about getting cancer and various demographic, behavioral, and psychological factors. Several variables show statistically significant associations at the 0.01 level ($p < .001$), though most correlations are weak. Smoking status is positively correlated with worry about cancer ($r = 0.058$, $p < .001$), suggesting that smokers tend

to report higher levels of cancer worry compared to non-smokers. Similarly, individuals who have ever had cancer show a stronger positive correlation with worry ($r = 0.151$, $p < .001$), indicating that those with a cancer history experience greater anxiety about the disease. Social media use for health decisions also has a weak but significant positive correlation ($r = 0.075$, $p < .001$), implying that those who rely more on social media for health-related information tend to worry more about cancer. Reliance on social media for health decision-making was associated with a modest but statistically significant increase in cancer-related worry, indicating a consistent relationship of small magnitude within the population. Interestingly, genetic testing for specific diseases is negatively correlated with cancer worry ($r = -0.063$, $p < .001$), meaning that individuals who have undergone genetic testing tend to worry less about cancer. However, confidence in genetic testing accuracy does not show a significant relationship with cancer worry ($r = -0.011$, $p = .665$). Age is weakly but significantly correlated with cancer worry ($r = 0.042$, $p = .001$), suggesting that older individuals may experience slightly greater concern.

Gender was negatively correlated with cancer worry ($r = -0.046$, $p < .001$), indicating that males reported lower worry than females, while race/ethnicity and education showed no significant associations. Psychological distress exhibited the strongest correlation ($r = -0.183$, $p < .001$), with higher distress linked to extreme cancer worry. Overall, behavioral, psychological, and demographic factors influenced worry, though effect sizes were modest. Table 3 showed a significant association between social media use for health decisions and cancer worry ($\chi^2 = 55.790$, $p < .001$). Individuals who relied on social media reported higher worry, suggesting possible effects of risk amplification or misinformation exposure.

The results in Table 4 indicate a statistically significant association between genetic testing for a specific disease and worry about getting cancer ($\chi^2 = 55.292$, $p < .001$). The majority of individuals in the sample (95.3%) have not undergone genetic testing, and among them, cancer worry is fairly evenly distributed across levels of concern. However, among the small proportion who have undergone genetic testing (4.7%), a distinct pattern emerges, this group has a higher proportion of individuals reporting "Extremely" worried about cancer (59 out of 277; 21.3%) compared to the non-tested group (511 out of 5,579; 9.2%). This suggests that those who undergo genetic testing may experience heightened cancer-related worry, potentially due to an increased awareness of their health risks. Although genetic testing was associated with lower cancer worry overall, the

Table 3. Association between the Use of Social Media Information to Make Health Decisions and Worrying about Getting Cancer

		How worried are you about getting cancer?					Total
		Not at all	Slightly	Somewhat	Moderately	Extremely	
Use Social Media Information to Make Health Decisions	**Strongly Agree**	12	16	10	7	9	54
	Somewhat Agree	113	175	189	121	97	695
	Somewhat disagree	130	252	322	178	91	973
	Strongly Disagree	565	848	824	447	247	2931
Total		820	1291	1345	753	444	4653

Chi-Square Tests

	Value	Degrees of Freedom	Asymptotic Significance (2-sided)
Pearson Chi-Square	55.790[a]	12	<.001
Likelihood Ratio	54.428	12	<.001
Linear-by-Linear Association	26.355	1	<.001
N of Valid Cases	4653		

[a]. *0 cells (0.0%) have an expected count of less than 5. The minimum expected count is 5.15*

Table 4. Genetic Testing for Specific Diseases and Worrying about Getting Cancer

		How worried are you about getting cancer?					Total
		Not at all	Slightly	Somewhat	Moderately	Extremely	
Genetic Testing for Specific Disease	**No**	1083	1557	1577	851	511	5579
	Yes	53	43	83	39	59	277
Total		1136	1600	1660	890	570	5856

Chi-Square Tests

	Value	Degrees of Freedom	Asymptotic Significance (2-sided)
Pearson Chi-Square	55.292[a]	4	<.001
Likelihood Ratio	48.220	4	<.001
Linear-by-Linear Association	22.987	1	<.001
N of Valid Cases	5856		

[a]. 0 cells (0.0%) have an expected count of less than 5. The minimum expected count is 26.96

Table 5. Association between PHQ-4 Score and Worrying about Getting Cancer

		How worried are you about getting cancer?					Total
		Not at all	Slightly	Somewhat	Moderately	Extremely	
PHQ-4 Categories	**Normal (0-2)**	863	1074	1052	514	249	3752
	Mild (3-5)	155	342	376	206	161	1240
	Moderate (6-8)	67	108	136	102	81	494
	Severe (9-12)	28	48	71	47	60	254
Total		1113	1572	1635	869	551	5740

Chi-Square Tests

	Value	Degrees of Freedom	Asymptotic Significance (2-sided)
Pearson Chi-Square	233.267[a]	12	<.001
Likelihood Ratio	222.434	12	<.001
Linear-by-Linear Association	192.228	1	<.001
N of Valid Cases	5740		

[a]. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 24.38

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presence of a smaller subgroup reporting extreme worry likely reflects heterogeneity in testing indications and results, such as positive findings, uncertain variants, or strong family history, which could not be examined due to limitations in the available data.

Table 5 shows a strong association between psychological distress (PHQ-4) and cancer worry. Individuals with normal PHQ-4 scores were least worried, whereas increasing distress corresponded to progressively higher levels of moderate and extreme cancer worry. Among those with severe distress, only 11% reported no worry, while 24% reported extreme worry, the highest of any group. Although an association between anxiety and cancer worry may appear intuitive, this finding is notable because the PHQ-4 measures general psychological distress rather than cancer-specific anxiety. The strength of this association exceeded that of sociodemographic factors, health behaviors, and information sources, suggesting that extreme cancer worry reflects broader emotional vulnerability rather than informed risk appraisal alone.

The Chi-Square test results confirm a highly significant relationship ($\chi^2 = 233.267$, $p < .001$) between psychological distress and cancer worry, indicating that this association is unlikely to be due to chance.

The Relationship Maps show how social media use, genetic testing, and psychological distress relate to cancer worry.

Figure 1 indicates that individuals who rely on social media for health decisions tend to report higher cancer worry, likely reflecting exposure to alarming content or misinformation. Figure 2 shows that those who have undergone genetic testing are more likely to report moderate or extreme worry, whereas individuals without testing tend to report lower worry. Figure 3 demonstrates a strong link between severe psychological distress (PHQ-4 scores) and extreme cancer worry, highlighting mental health as a key factor shaping heightened cancer-related concern.

Figure 1. Relationship map between Cancer Perception and the use of social media for making health decisions.

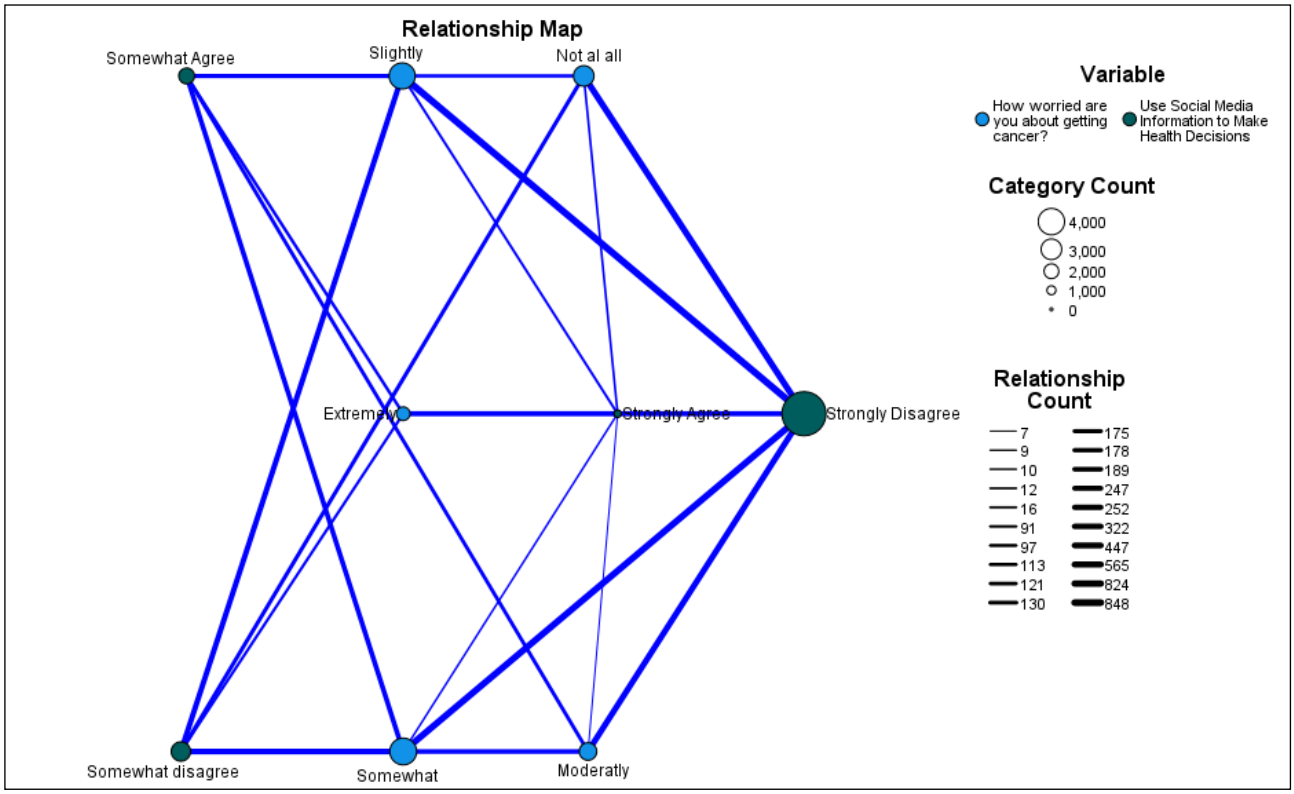


Figure 2. Cancer Perception and Genetic Testing

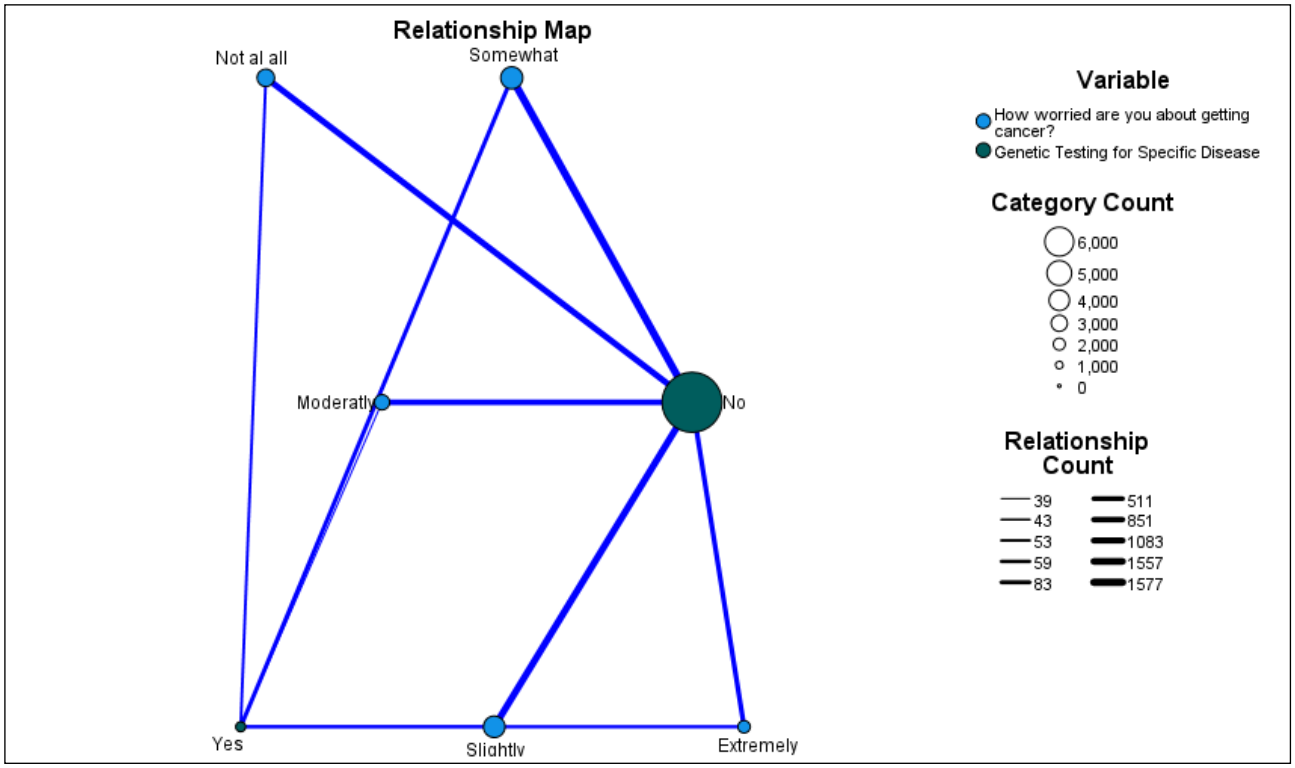
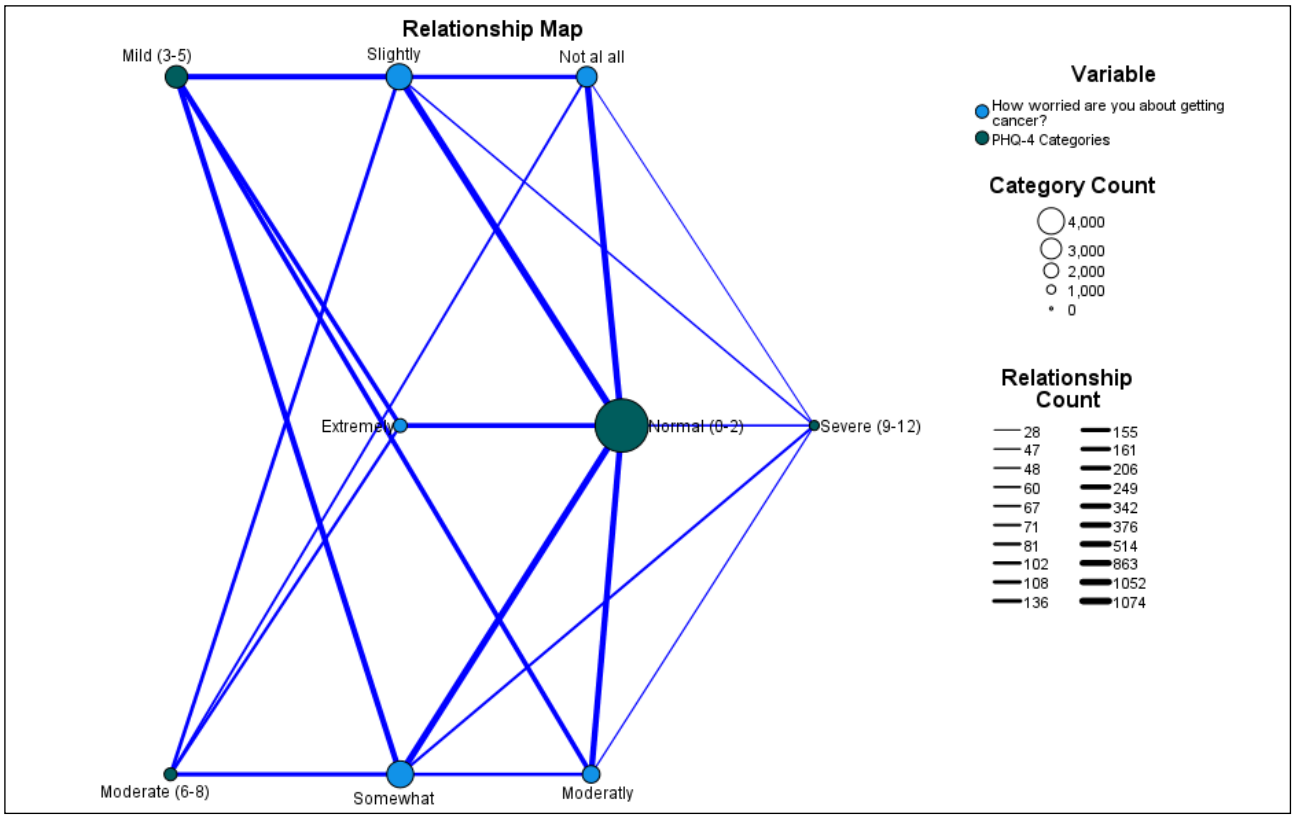


Figure 3: Cancer Perception and Psychological Distress



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The logistic regression analysis (Table 6) investigates factors influencing individuals' likelihood of being "Extremely" worried about getting cancer, using "Not at all worried" as the reference category. The results (Table 7) reveal several significant predictors, with race/ethnicity, education, gender, smoking status, attitudes toward health information, genetic testing, and psychological distress playing key roles in determining extreme worry levels.

Table 6. Logistic Regression - Model Fitting Information

Model	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 Log Likelihood	Chi-Square	df	Significance
Intercept Only	8730.827			
Final	8305.805	425.023	88	<.001

Pseudo R-Square

Cox and Snell	0.093
Nagelkerke	0.098
McFadden	0.032

Likelihood Ratio Tests

Effect	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 Log Likelihood of Reduced Model	Chi-Square	Degrees of Freedom	Significance
Intercept	8305.805[a]	0.000	0	.
Race/Ethnicity	8401.129	95.324	16	<.001
Education	8375.916	70.111	16	<.001
Gender	8315.405	9.600	4	0.048
Smoking Status	8319.101	13.296	8	0.102
Age Group	8329.058	23.253	16	0.107
Use Social Media Information to Make Health Decisions	8337.372	31.567	12	0.002
Genetic Testing for Specific Disease	8326.559	20.755	4	<.001
PHQ-4 Scores	8421.731	115.926	12	<.001

Table 7. Parameter Estimates

		Parameter Estimate	Std. Error	Wald	Degrees of Freedom	Sig.	Odds Ratio	95% Confidence Interval for Odds Ratio	
								Lower Bound	Upper Bound
Variable	**Intercept**	-1.021	0.530	3.716	1	0.054			
Race/ Ethnicity	**non-Hispanic White**	0.800	0.373	4.588	1	0.032	2.225	1.070	4.625
	non-Hispanic Black or African American	0.261	0.394	0.437	1	0.509	1.298	0.599	2.809
	Hispanic	1.431	0.384	13.886	1	<.001	4.182	1.970	8.877
	non-Hispanic Asian	1.341	0.456	8.667	1	0.003	3.823	1.566	9.337
	non-Hispanic Others (Comparison Category)								
Education	**Less than High School**	-0.071	0.292	0.060	1	0.807	0.931	0.526	1.649
	High School Graduate	-0.415	0.225	3.420	1	0.064	0.660	0.425	1.025
	Some College	-0.533	0.203	6.883	1	0.009	0.587	0.394	0.874
	Bachelor's Degree	-0.257	0.204	1.578	1	0.209	0.774	0.518	1.155
	Post-Baccalaureate Degree (Reference Category)								
Gender	**Male**	-0.368	0.136	7.332	1	0.007	0.692	0.530	0.903
	Female (Reference Category)								
Smoking Status	**Current**	0.581	0.215	7.313	1	0.007	1.788	1.173	2.724
	Former	0.279	0.162	2.970	1	0.085	1.321	0.962	1.814
	Never (Reference Category)								
Age	**18-34**	-0.210	0.295	0.506	1	0.477	0.810	0.454	1.446
	35-49	0.350	0.275	1.612	1	0.204	1.419	0.827	2.434
	50-64	0.192	0.266	0.524	1	0.469	1.212	0.720	2.041
	65-74	0.277	0.276	1.008	1	0.315	1.320	0.768	2.268
	75+ (Reference Category)								

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		Parameter Estimate	Std. Error	Wald	Degrees of Freedom	Sig.	Odds Ratio	95% Confidence Interval for Odds Ratio	
								Lower Bound	Upper Bound
Use Social Media Information to Make Health	**Strongly Agree**	0.173	0.497	0.121	1	0.728	1.189	0.449	3.149
	Somewhat Agree	0.413	0.174	5.640	1	0.018	1.511	1.075	2.125
	Somewhat disagree	0.390	0.169	5.343	1	0.021	1.478	1.061	2.058
	Strongly Disagree (Reference Category)								
Took Genetic Testing for Specific Disease Ever had cancer	**No**	-1.014	0.270	14.137	1	<.001	0.363	0.214	0.616
	Yes (Reference Category)								
PHQ-4	**Severe**	1.865	0.310	36.282	1	<.001	6.455	3.518	11.841
	Moderate	1.320	0.216	37.219	1	<.001	3.745	2.450	5.724
	Mild	1.176	0.160	53.748	1	<.001	3.241	2.367	4.438
	Normal (Reference Category)								

Race/ethnicity emerges as a strong predictor of extreme worry about cancer. Hispanic individuals exhibit the greatest concern, being over four times more likely to be extremely worried compared to the reference group (non-Hispanic others) (Odds Ratio = 4.182, p < .001). Similarly, non-Hispanic Asians display significantly increased worry (Odds Ratio = 3.823, p = .003), suggesting heightened cancer-related anxiety within these populations. Non-Hispanic Whites also have higher odds of extreme worry (Odds Ratio = 2.225, p = .032), though to a lesser extent than Hispanics and Asians.

Education appears to serve as a protective factor against extreme worry. Individuals with "Some College" education are significantly less likely to be extremely worried (Odds Ratio = 0.587, p = .009), and "High School Graduates" also exhibit reduced odds of worry (Odds Ratio = 0.660, p = .064), though this finding is only marginally significant. However, individuals with less than a high school education or a bachelor's degree do not show significant differences in extreme worry levels. These results suggest that while some higher education is beneficial in lowering anxiety about cancer, the effects may not be uniform across all educational levels.

Gender also plays a notable role in predicting extreme worry. Males are significantly less likely to be extremely worried compared to females (Odds Ratio = 0.692, p = .007), indicating that women tend to experience greater cancer-related anxiety. This aligns with prior research showing that women, in general, report higher levels of health-related concerns than men.

Smoking behavior is another significant factor influencing extreme worry about cancer. Current smokers have 1.79 times higher odds of extreme worry (Odds Ratio = 1.788, p = .007), suggesting that individuals who actively smoke may perceive themselves at a heightened cancer risk.

Interestingly, age does not emerge as a significant predictor of extreme worry. None of the age groups (18-34, 35-49, 50-64, 65-74) show a significant difference compared to the 75+ reference group. This finding suggests that age alone does not substantially impact cancer-related anxiety, counter to the expectation that older individuals might be more worried due to increased health risks. Although age was not a consistent predictor of extreme cancer worry, older adults were less likely to rely on social media for health decisions, suggesting that age-related

differences in worry may be mediated by variation in digital information exposure rather than age itself."

Attitudes toward using social media for health-related decisions are linked to extreme worry about cancer. Those who "Somewhat Agree" that they rely on social media for health decisions are significantly more likely to be extremely worried (Odds Ratio = 1.511, p = .018). Similarly, those who "Somewhat Disagree" with using social media for health decisions also show elevated worry levels (Odds Ratio = 1.478, p = .021). However, those who "Strongly Agree" or "Strongly Disagree" do not show statistically significant differences, indicating that moderate reliance on social media for health information may be associated with heightened cancer concerns.

Genetic testing status is also a significant factor. Individuals who have not undergone genetic testing for cancer-related diseases are significantly less likely to be extremely worried (Odds Ratio = 0.363, p < .001). This suggests that those who undergo genetic testing may become more aware of their cancer risk, leading to heightened anxiety, while those who remain untested may experience lower levels of concern.

Among all predictors, psychological distress (PHQ-4 scores) emerges as the strongest determinant of extreme worry about cancer. Individuals experiencing severe psychological distress are 6.45 times more likely to be extremely worried (Odds Ratio = 6.455, p < .001), making this the most pronounced effect in the model. This finding highlights the critical role of mental health in shaping cancer-related concerns. The strongest predictors of extreme worry about cancer include psychological distress, race/ethnicity, smoking behavior, social media reliance for health decisions, and genetic testing status (Figure 4).

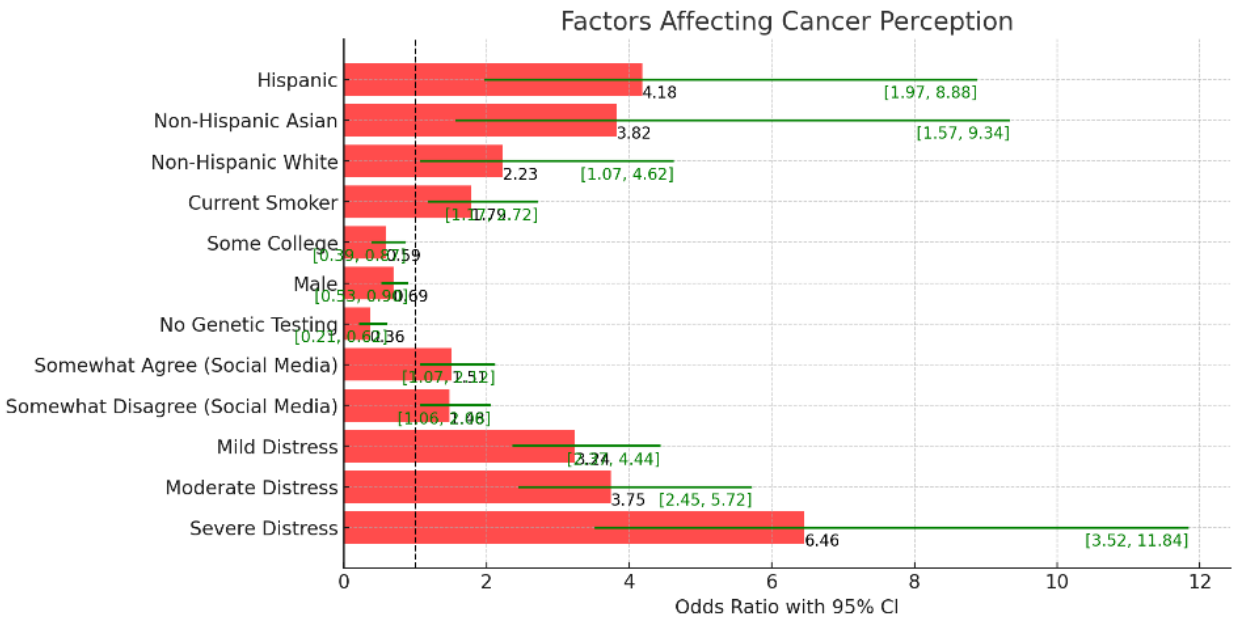
DISCUSSION

The findings from this study reveal critical insights into the psychological and behavioral factors

influencing extreme worry about cancer, with significant public health implications. High levels of worry, particularly among certain racial/ethnic groups, smokers, and individuals experiencing psychological distress, may contribute to heightened health anxieties, increased healthcare utilization, and potential mental health burdens. The strong association between psychological distress and extreme worry suggests that cancer-related anxiety is not merely a response to medical risk but is also deeply intertwined with broader mental health concerns. This heightened worry may lead to increased demand for cancer screenings and medical consultations, potentially overwhelming healthcare resources, particularly in communities where health literacy is lower. On the other hand, excessive worry could also have a paralyzing effect, where individuals avoid seeking medical care due to fear of a cancer diagnosis, delaying early detection and worsening health outcomes. Addressing these disparities and anxiety levels is crucial to improving public health messaging, early detection, and mental health support systems.

Given that psychological distress is the strongest predictor of extreme worry about cancer, integrating mental health interventions into cancer prevention programs is essential. From a public health perspective, this emphasizes the need for integrating mental health support into cancer awareness campaigns and screenings. Future interventions should focus on stress reduction techniques, cognitive behavioral therapy (CBT), and accurate cancer risk

Figure 4. Odds Ratio with Confidence Intervals for Factors Affecting Cancer Perception



communication to ensure that psychological distress does not disproportionately heighten cancer-related fear. Routine mental health screenings in primary care settings, stress management programs, and counseling services should be incorporated into cancer awareness and screening campaigns to ensure individuals receive holistic care that addresses both physical and mental health concerns. Additionally, targeted health education programs should be developed for Hispanic and Asian populations, who were found to have the highest levels of cancer-related anxiety.

Another key prevention strategy is addressing misinformation on social media, given that individuals who rely on social media for health decisions were significantly more likely to experience extreme worry. This finding underscores the importance of improving the quality of health information on social media. Public health agencies should strengthen their presence on social media platforms to combat misinformation and ensure that individuals are exposed to accurate and reassuring health messages about cancer risks, prevention, and treatment options.

For smokers, particularly current smokers who showed significantly higher odds of extreme worry, integrating smoking cessation programs with cancer awareness campaigns can serve a dual purpose, reducing both tobacco-related cancer risks and the psychological distress associated with fear of developing cancer. Tailored messages that highlight the benefits of quitting smoking while reducing health anxiety could improve both cessation rates and mental well-being in this group. This study did not include alcohol use in the final models due to limitations in the available measures, including insufficient detail on consumption patterns, which may have constrained our ability to assess combined behavioral risks; future research should examine how alcohol use, alone and in combination with smoking, shapes cancer risk perception and worry.

CONCLUSION

This study underscores the need for multifaceted public health approaches that integrate mental health support, targeted education, smoking cessation interventions, and digital health literacy programs to mitigate excessive worry about cancer. By addressing the psychological and behavioral factors that contribute to extreme worry, public health agencies can create more effective, evidence-based strategies to improve cancer awareness, reduce anxiety, and promote healthier behaviors across diverse populations.

This study reveals that extreme worry about cancer is strongly associated with psychological distress, racial/ethnic background, smoking status, and reliance on social media for health information. Psychological distress emerged as the most significant predictor of cancer-related anxiety, suggesting that extreme worry is not solely based on perceived cancer risk but is closely tied to broader mental health concerns. These findings have important implications for public health, as excessive worry can both increase healthcare utilization and, paradoxically, delay care-seeking due to fear. The study highlights the urgent need to integrate mental health support into cancer prevention strategies.

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