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Role of demographic characteristics in attitude towards cancer prevention some measures in Hail region, Saudi Arabia

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The recent increase in cancer epidemiology in Saudi Arabia might be due to the lack of health education and cancer awareness towards cancer prevention measures. Therefore, the present study aimed to assess demographic characteristics in attitude towards cancer prevention some measures in the Hail region, Saudi Arabia. This is a descriptive cross-sectional study conducted in Hail Region, Northern Saudi Arabia, during the period from June 2020 to December 2020. Out of focus on population, 420 individuals have responded. The respondents were included in the study regardless of their age, sex, or other demographical characteristics. For the question "Cancer is a malignant tissue swelling only, not any lesion," 397(94.5%) responded, "Yes." For the question "Any tissue lesion in the body is cancer," 32(7.6%) answered "Yes," included 23/323(7.1%) were males, and 9/97(9.3%) were females. Most participants got their information about cancer from "social media" followed by "When a relative diagnosed with cancer" and Awareness campaign, representing 166/420(39.5%), 142/420(33.8%), and 58/420(13.8%), respectively. For the question "Some food can prevent cancer, and others increase the risk," 201(47.9%) responded "Yes," including 151/323(46.7%) males and 50/97(51.5%) females. About 125(30%) of the participants believe that tobacco smoking cannot cause cancer, including 90/323(27.9%) males and 35/97(36%) females. Conclusion: The Northern Saudi population's demographical characteristics have a strong influence on an individual's attitude towards cancer prevention and control measures. Increased age and education level have a positive impact on a better attitude towards cancer prevention measures.

Keywords: Cancer, attitude, prevention, Saudi Arabia

INTRODUCTION

Cancer is a global health problem with an estimated more than 18 million new cases and 9.6 million death. Lung cancer represents the

comments cancer with an incidence of 11.6% with an 18.4% death rate, followed by breast cancer 11.6%, prostate cancer 7.1%, colorectal, etc. [1].

According to the Saudi Cancer Registry

(SCR), cancer epidemiology in Saudi Arabia exhibited substantial disparities parallel to the demographical characteristics in various regions of the country [2]. Recent years witnessed a dramatic increase in the incidence rates of several cancers, including thyroid cancer (26-fold); breast, colorectal, bladder, and uterine cancers (10-fold); prostate (8-fold); renal (5-fold); pancreatic and ovarian cancer (4-fold); lung cancer (3.5-fold); liver cancer (3-fold); and leukemia, lymphoma, and stomach cancers (2-fold). These increased cancer incidence rates are accompanied by an increase in the proportions of mortality [3]. The recent rise in the epidemiology of cancer in Saudi Arabia might be due to the shifting in the Saudi population lifestyle, which espousing Western nations model, besides lack of health education & cancer awareness towards cancer prevention measures, lack of screening for early detection of some cancers, and social barriers concerning cancer investigations. Other factors such as tobacco use infections, iodine & Vitamin D deficiency, obesity, sedentary lifestyle, and genetic susceptibility are the most evident risk factors in Saudi Arabia [4].

However, evaluating the community attitude toward cancer prevention and early detection is crucial for cancer control. Therefore, the present study aimed to assess demographic characteristics in attitude towards cancer prevention some measures in the Hail region, Saudi Arabia.

MATERIALS AND METHODS

This is a descriptive cross-sectional study conducted in Hail Region, Northern Saudi Arabia, during the period from June 2020 to December 2020. Out of focus on population, 420 individuals have responded. The respondents were included in the study regardless of their age, sex, or other demographical characteristics.

A purposeful questionnaire was designed to obtain data regarding community knowledge and attitude towards cancer prevention associated measures. Beside demographical characteristics, information about cancer measures included: *Cancer is a malignant tissue swelling only not any lesion; Any tissue lesion in the body is cancer; I got information about cancer form; Some food can prevent from cancer and others increase the risk; Tobacco smoking can cause cancer; Insecticides/pesticides exposure is a cancer risk; Obesity/overweight is a cancer risk; Physical activity can reduce cancer risk.*

The obtained data were analyzed using Statistical Package for Social Science (SPSS) software to get frequencies, cross-tabulations, and percentages.

Each participant has consented before inclusion in the study. Moreover, the study was approved by the Ethical Committee at the College of Medicine, University of Ha'il, Saudi Arabia.

RESULTS

The present study included 420 Saudi volunteers, 323(70%) males, and 97 (30%) females. As indicated in Table 1, Fig 1, most participants aged 21-30 years 198/420(47%), with predominantly university-educated 295/420(70%), and most of them categorized with students' job 124/420(29.5%).

Table 2, Fig2, summarized the distribution of the study subjects by gender and some cancer measures. For the question "*Cancer is a malignant tissue swelling only, not any lesion,*" 397(94.5%) responded, "Yes." For the question "*Any tissue lesion in the body is cancer,*" 32(7.6%) answered "Yes," included 23/323(7.1%) were males, and 9/97(9.3%) were females. Most participants got their information about cancer from "social media" followed by "When a relative diagnosed with cancer" and Awareness campaign, representing 166/420(39.5%), 142/420(33.8%), and 58/420(13.8%), respectively. For the question "Some food can prevent cancer, and others increase the risk," 201(47.9%) responded "Yes," including 151/323(46.7%) males and 50/97(51.5%) females. About 125(30%) of the participants believe that tobacco smoking cannot cause cancer, including 90/323(27.9%) males and 35/97(36%) females.

For the question "Insecticides/pesticides exposure is a cancer risk," 172(41%) answered "Yes," including 134/323(41.5%) males and 38/97(39.2%) females. About 171(40.7%) participants believed that obesity/overweight is not a cancer risk, including 125/323(38.7%) males and 46/97(47.4%) females. Around 196(46.7%) believe that physical activity can reduce cancer risk, including 155/323(48%) males and 41/97(42.2%) females.

The study subjects' distribution by age, and some cancer measures were summarized in Table 3, Fig 3. The overall knowledge towards cancer-related measures was relatively increasing with the increase of age $P < 0.06$. Some variables were showing unpredictability with different age ranges.

Table 1: distribution of the study subjects by demographical characteristics

Category	Variable	Males	Females	Total
<i>Age</i>				
	≤20 years	27	12	39
	21-30	153	45	198
	31-40	48	16	64
	41-50	38	8	46
	>50	57	16	73
	Total	323	97	420
<i>Education</i>				
	Primary education	56	24	80
	University	231	64	295
	Postgraduate	36	9	45
	Total	323	97	420
<i>Job</i>				
	Employees	78	20	98
	Students	94	30	124
	Jobless	94	24	118
	Self-employed	57	23	80
	Total	323	97	420

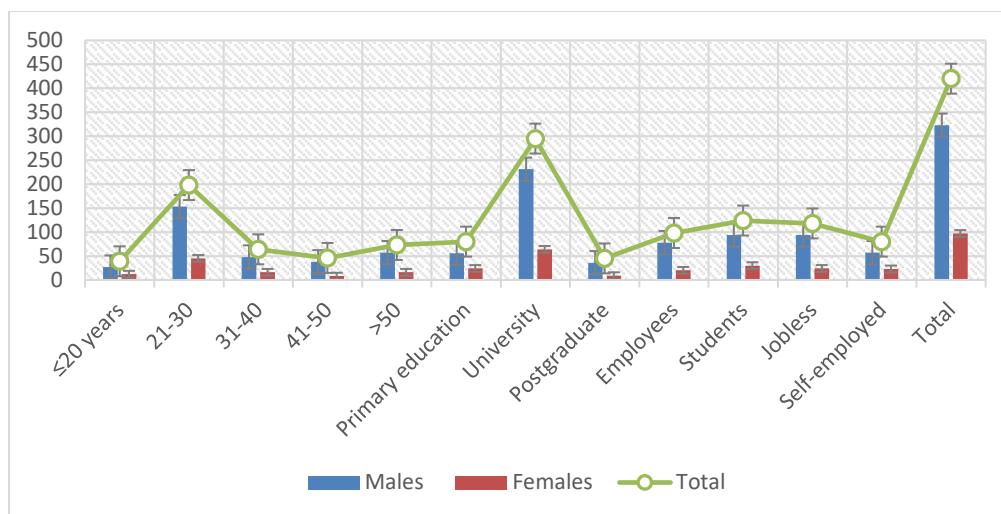
**Figure 1: Description of the study subjects by demographical characteristics.**

Table 2: distribution of the study subjects by gender and some cancer measures.

Category	Variable	Males (n=323)	Females (n=97)	Total (n=420)
<i>Cancer is a malignant tissue swelling only, not any lesion.</i>				
	Yes	305	92	397
	No	18	5	23
<i>Any tissue lesion in the body is a cancer</i>				
	Yes	23	9	32
	No	300	88	388
<i>I got information about cancer form</i>				
	When a relative diagnosed with cancer	113	29	142
	Social Media	121	45	166
	Awareness campaign	46	12	58
	Others	43	11	54
<i>Some food can prevent cancer, and others increase the risk</i>				
	Yes	151	50	201
	No	172	47	219
<i>Tobacco smoking can cause cancer</i>				
	Yes	233	62	295
	No	90	35	125
<i>Insecticides/pesticides exposure is a cancer risk</i>				
	Yes	134	38	172
	No	189	59	248
<i>Obesity/overweight is a cancer risk</i>				
	Yes	198	51	249
	No	125	46	171
<i>Physical activity can reduce cancer risk</i>				
	Yes	155	41	196
	No	168	56	224

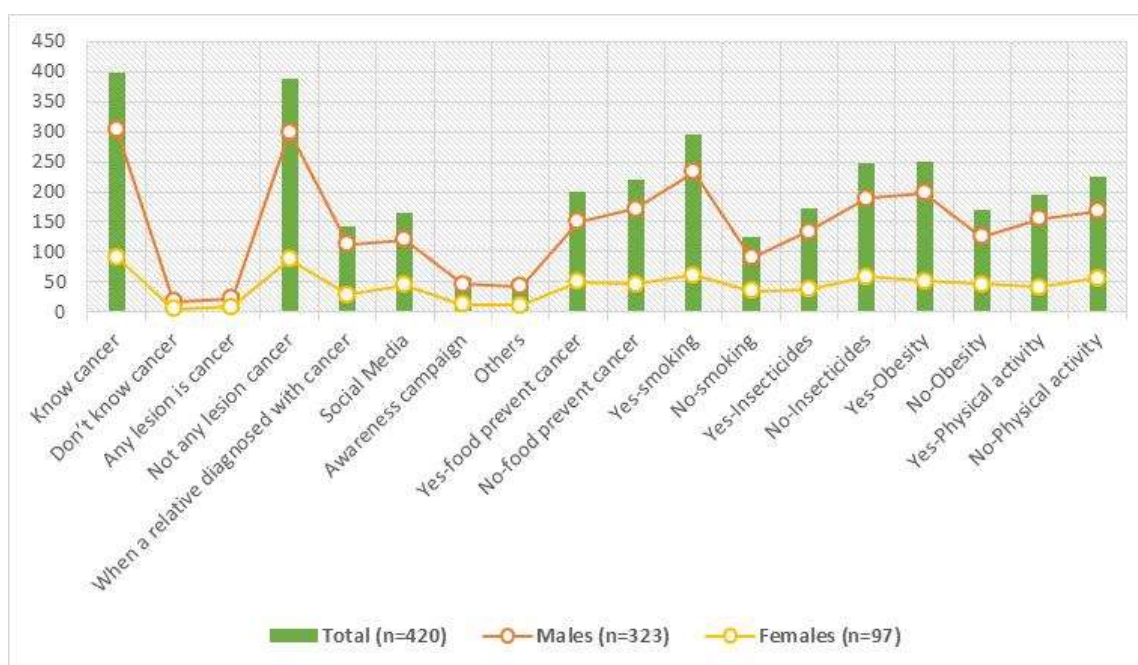


Figure 2: Description of the study subjects by gender and some cancer measures.

Table 3: distribution of the study subjects by age and some cancer measures.

Category	Variable	≤20 years	21-30	31-40	41-50	>50	Total
<i>Cancer is a malignant tissue swelling only, not any lesion</i>							
	Yes	38	186	60	41	72	397
	No	1	12	4	5	1	23
	Total	39	198	64	46	73	420
<i>Any tissue lesion in the body is a cancer</i>							
	Yes	5	21	2	3	1	32
	No	5	21	2	3	1	32
<i>I got information about cancer form</i>							
	When a relative diagnosed with cancer	13	59	25	17	28	142
	Social Media	12	77	23	20	34	166
	Awareness campaign	7	33	8	4	6	58
	Others	7	29	8	5	5	54
<i>Some food can prevent cancer, and others increase the risk</i>							
	Yes	15	80	34	25	47	201
	No	24	118	30	21	26	219
<i>Tobacco smoking can cause cancer</i>							
	Yes	34	153	45	26	37	295
	No	5	45	19	20	36	125
<i>Insecticides/pesticides exposure is a cancer risk</i>							
	Yes	13	80	19	20	40	172
	No	26	118	45	26	33	248
<i>Obesity/overweight is a cancer risk</i>							
	Yes	22	124	28	25	50	249
	No	17	74	36	21	23	171
<i>Physical activity can reduce cancer risk</i>							
	Yes	17	98	22	16	43	196
	No	22	100	42	30	30	224

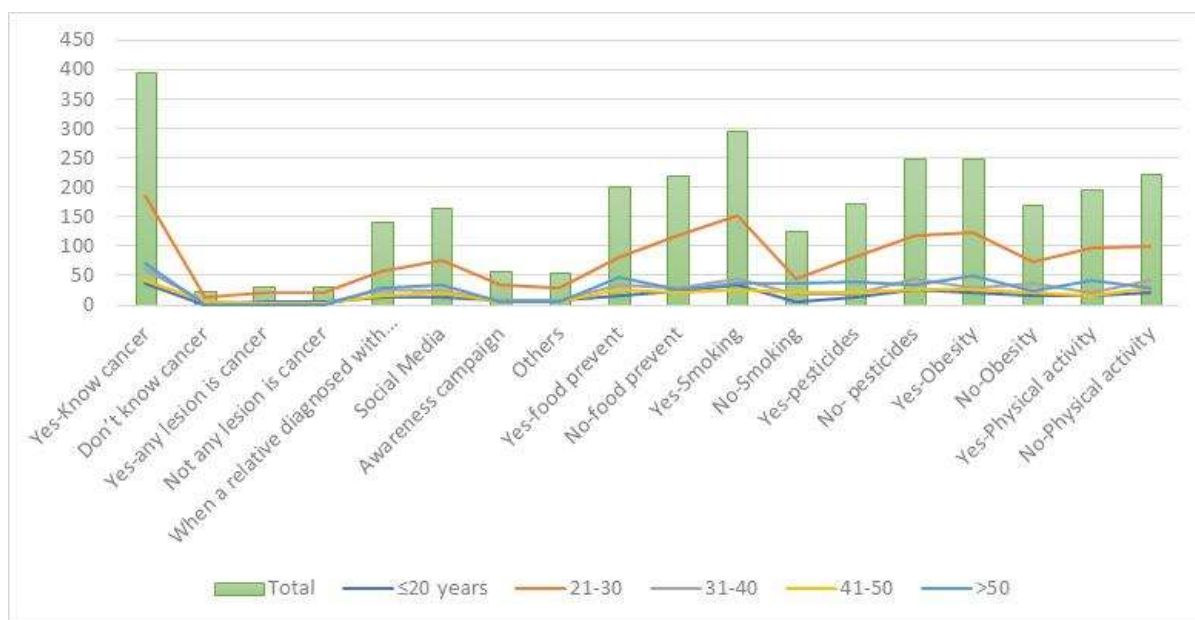
**Figure 3: Description of the study subjects by age and some cancer measures.**

Table 4: distribution of the study subjects by education and some cancer measures.

Category	Variable	Primary	University	Postgraduate	Total
<i>Cancer is a malignant tissue swelling only, not any lesion</i>					
	Yes	73	281	43	397
	No	7	14	2	23
<i>Any tissue lesion in the body is a cancer</i>					
	Yes	9	22	1	32
	No	71	273	44	388
<i>I got information about cancer form</i>					
	When a relative diagnosed with cancer	29	92	21	142
	Social Media	36	120	10	166
	Awareness campaign	9	40	9	58
	Others	6	43	5	54
<i>Some food can prevent cancer, and others increase the risk</i>					
	Yes	37	139	25	201
	No	43	156	20	219
<i>Tobacco smoking can cause cancer</i>					
	Yes	64	207	24	295
	No	16	88	21	125
<i>Insecticides/pesticides exposure is a cancer risk</i>					
	Yes	31	119	22	172
	No	49	176	23	248
<i>Obesity/overweight is a cancer risk</i>					
	Yes	46	176	27	249
	No	34	119	18	171
<i>Physical activity can reduce cancer risk</i>					
	Yes	32	144	20	196
	No	48	151	25	224

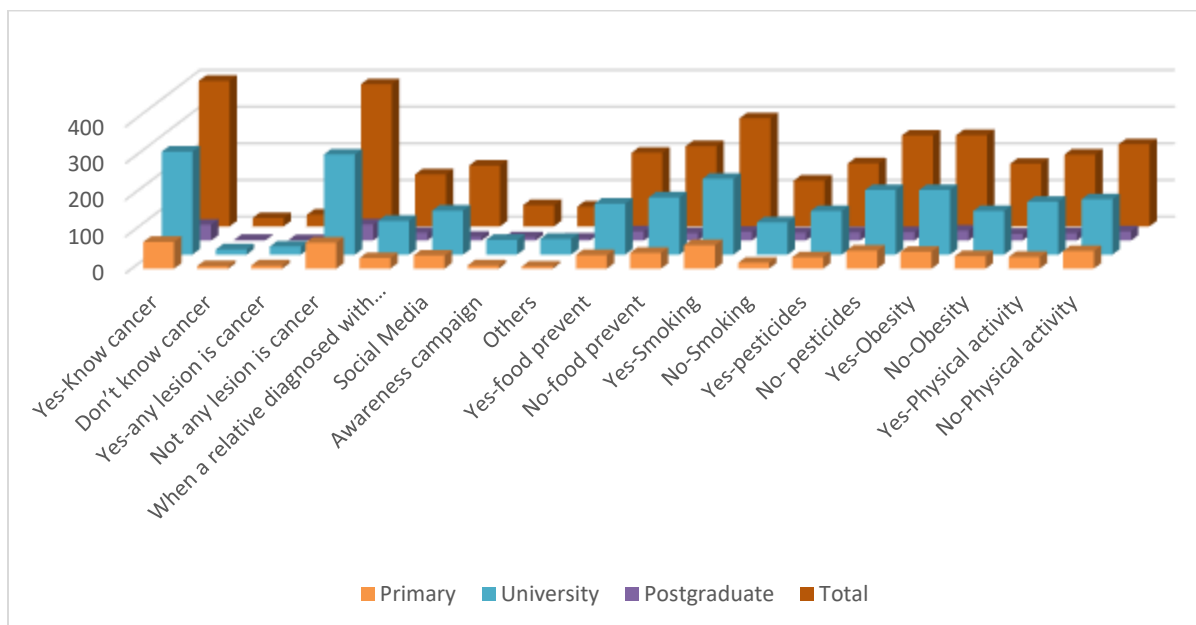
**Figure 4: Description of the study subjects by education and some cancer measures.**

Table 5: distribution of the study subjects by appointment and some cancer measures.

Category	Variable	Employees	Students	Jobless	Self-employed	Total
<i>Cancer is a malignant tissue swelling only, not any lesion</i>						
	Yes	7	2	7	7	23
	No	91	122	111	73	397
	Total	98	124	118	80	420
<i>Any tissue lesion in the body is a cancer</i>						
	Yes	8	14	7	3	32
	No	90	110	111	77	388
<i>I got information about cancer form</i>						
	When a relative diagnosed with cancer	35	37	44	26	142
	Social Media	37	41	52	36	166
	Awareness campaign	13	21	13	11	58
	Others	13	25	9	7	54
<i>Some food can prevent cancer, and others increase the risk</i>						
	Yes	56	47	53	45	201
	No	42	77	65	35	219
<i>Tobacco smoking can cause cancer</i>						
	Yes	68	105	86	36	295
	No	30	19	32	44	125
<i>Insecticides/pesticides exposure is a cancer risk</i>						
	Yes	32	47	60	33	172
	No	66	77	58	47	248
<i>Obesity/overweight is a cancer risk</i>						
	Yes	47	50	40	34	171
	No	51	74	78	46	249
<i>Physical activity can reduce cancer risk</i>						
	Yes	35	55	66	40	196
	No	63	69	52	40	224

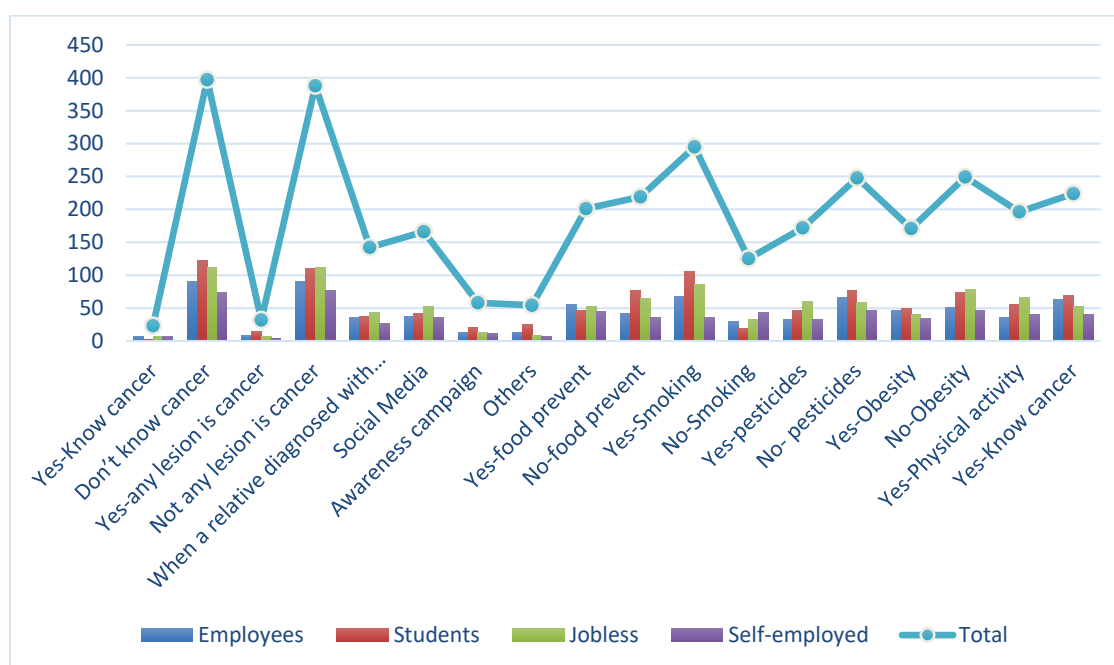


Figure 5: Description of the study subjects by job and some cancer measures.

Table 4, Fig 4, summarized the study subjects' distribution by education and some cancer measures. The overall knowledge towards cancer assessed measures was found to increase with the increase in education level $p < 0.05$.

Table 5, Fig 5, summarized the study subjects' distribution by job and some cancer measures. There was no clear statistical correlation between specific job and levels of knowledge towards cancer-related measures mentioned.

DISCUSSION

Saudi community still needs a sustainable cancer control program starting from prevention and early detection to genetic assessment to predict the entire mechanism behind the dramatic increase in the epidemiology of cancer. Consequently, the present study evaluated the role of demographic characteristics in cancer prevention measures in the Hail region, Saudi Arabia.

The present study's findings showed a high rate of awareness towards cancer, as 94.5% knew "*Cancer is a malignant tissue swelling only not any lesion,*" and only 7.6% believed that "*Any tissue lesion in the body is cancer.*" These findings are inconsistent with some studies from Saudi Arabia. Most reviews report low rates of awareness and a relatively negative attitude towards cancer prevention measures and screening programs for early cancer detection [7-9]. However, this present study included a study population with relatively higher education levels.

Although the response rate was higher among males than females in the present study, it seemed there were no approvable differences between the two groups. However, men seemed to have better knowledge and attitude. Such findings were previously reported in Saudi Arabia [10].

In the present study, most participants understood cancer from social media, followed by when a relative was diagnosed with cancer. Social media is an effective means of knowledge spread in Saudi Arabia, which can be utilized in health education and cancer awareness.

The present study's findings showed that the overall knowledge towards cancer-related measures was relatively increasing with the increase of age $P < 0.06$. Though humans learn by extension of time, attitudes needed to be changed by the intervention. Thus, implementing community-based sustainable cancer control

programs can make a real change over time.

Many of the current study participants were with high education levels. Consequently, the overall knowledge towards cancer assessed measures was found to increase with the increase in education level $p < 0.05$. Although general education is useful for enhancing individual attitude and practice towards a better quality of life, health education is essential for highly educated and less educated persons [11,12].

The present study presented useful information regarding future cancer prevention and control planning. However, it has some limitations, including its cross-sectional setting, low females' males' ratio, and inclusion of predominantly educated contributors, which might not display the entire community.

CONCLUSION

The Northern Saudi population's demographical characteristics have a strong influence on an individual's attitude towards cancer prevention and control measures. Increased age and education level have a positive impact on a better attitude towards cancer prevention measures.

CONFLICT OF INTEREST

The authors declared that present study was performed in absence of any conflict of interest.

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AUTHOR CONTRIBUTIONS

RF and NS were involved in the design of the study. FA contributed to the data collection for this study. sa wrote the first draft of the manuscript. HG did the statistical analysis, results and contributed to the final revision of the manuscript. SH and FG contributed to the final revision of the manuscript. All authors read and approved the final manuscript.

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