

Beliefs about Causes of Colon Cancer by English-as-a-Second-Language Chinese Immigrant Women to Canada

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Abstract Colon cancer is the second leading cause of cancer death for Canadians. Immigrants underutilize screening and may be at greater risk of late stage diagnosis and death from the disease. This mixed-methods study investigated the self-reported causes of colon cancer by 66 English-as-a-Second-Language Chinese immigrant women to Canada after reading a fact sheet which listed two causes of colon cancer (polyps and cause unknown) and six ways to help prevent colon cancer (lifestyle, diet, weight, smoking, alcohol, and screening). Women correctly named or described both causes (6.1%) or one cause (22.7%), could not name or describe either cause (19.7%), or named or described causes not included on the fact sheet (54.5%). The most common causes reported by participants were “risk factors”: diet (53.0%), family history (28.8%), and lifestyle (22.7%). Women confused cause with risk factor and infrequently mentioned screening. Possible reasons for their reported beliefs are discussed.

Keywords Colon cancer · Cancer beliefs · Immigrants

Introduction

Colon cancer is the second leading cause of cancer death in Canada [1]. For women, in 2011, the incidence is 40 per 100,000. One in 16 women will develop colorectal cancer in her lifetime and 1 in 32 will die from it [1]. Although there are no Canadian statistics on colon cancer incidence for Chinese immigrant women, Chinese Americans have

higher death rates from colon cancer than non-Hispanic Caucasians [2] and are more likely to be diagnosed with late stage disease [3]. Chinese women in the USA and Canada also underutilize colon cancer screening [4, 5].

Individuals possess multifaceted cognitive representations of disease including cancer [6]. These “illness representations” consist of various beliefs, including causal attributions for the disease, and are thought to motivate and shape health-related behavior [6–9]. Sullivan et al. [9] found that prevention representations were associated with the use of colon cancer screening, smoking status, and sunscreen use. Respondents who had recently screened for colon cancer listed more primary prevention behaviors than those who never screened. People believing that there is not much one can do to prevent cancer (i.e., fatalism) engaged in less physical activity and less vegetable consumption [10].

The representations of cancer prevention and the causal attributions individuals differ cross-culturally [11]. Among Chinese and other Asian cultures, cancer is often viewed as unpreventable and fatal [12, 13]. Some older Chinese women believe that thoughts about cancer may eventually cause disease [14, 15] and that cancer is contagious [16]. Nonetheless, environment and diet were also commonly identified as causes [16].

There is limited research about Chinese immigrant women’s beliefs about the causes of colon cancer and whether they view the causes as modifiable or fixed or if there are cultural differences between their beliefs and the beliefs of the general population. Understanding what individuals believe about the causes, and controllability, of cancer (their “illness representations”) is critical for developing effective cancer education messages. We conducted a mixed-methods—qualitative and quantitative—analysis of interviews with Chinese immigrant women to

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Canada to identify the beliefs these women have about the cause(s) of colon cancer. We anticipated that English-as-a-Second-Language (ESL) Chinese immigrant women would hold traditional “Eastern” beliefs about disease causation, even after having read a “fact sheet” describing causes and risk factors for colon cancer.

Methods

Participants ($n=66$) were part of a larger study examining cancer screening utilization and comprehension of colon cancer information [17]. Participants were recruited from two Ontario communities between October 2009 and February 2010. Eligible participants were: (1) female, (2) 50 years or older, (3) immigrants to Canada, (4) Cantonese or Mandarin speakers (first language), (5) able to read in English, and (6) willing to complete an English language interview to explain their understanding of colon cancer. Participants were recruited from organizations and venues that provide recreation and entertainment to Chinese older adults. The research was approved by the university ethics review board and an informed consent was obtained.

Eligible women attended a 90-min testing session (conducted in English) that involved completing a series of questionnaires, a reading exercise, and the interview. The women read a short (two-page) consumer colon cancer fact sheet in English available from Cancer Care Ontario (CCO), a provincial agency responsible for improving cancer services for the population. Following the reading exercise, women were asked about what they thought caused colon cancer (“Can you tell me what causes colon cancer?”; “What do you think causes colon cancer?”). A trilingual (English, Mandarin, and Cantonese) research assistant/translator was present at all testing sessions. Each participant received an honorarium of \$30 in appreciation of her time.

Data were analyzed for frequency and descriptive statistics (means, standard deviations) using SPSS software (Version 19.0; SPSS Inc. Chicago). A content analysis of participant responses regarding the causes of colon cancer was conducted using NVivo (Version 8; QSR International Pty Ltd. Australia). Transcripts were read initially to familiarize the coders with their content and then re-read at least twice more while coding was conducted line-by-line. An initial data-driven code list of the reported causes of colon cancer was developed. New codes were added as they emerged from the interview transcripts; the coding schema and the coding of earlier interview transcripts were revised accordingly. The final cause-related coding schema included: non-modifiable causes (age and family history); modifiable causes (“lifestyle,” diet, alcohol, smoking, exercise, and body weight); holistic (stress, mood, and sleep); polyps; digestive (constipation, regularity, and

cleansing); environmental (toxins and pollutants); unknown (cause unknown and participant does not know); secondary prevention (screening); and “other”.

A random sample of 20 interviews was first coded independently by the researchers. Consensus, measured as the number of agreements divided by the number of observations, was excellent with 92% agreement for cause-related coding categories. Differences in coding between researchers were discussed until consensus was reached; the results of the discussion were used to inform the remaining coding of the interviews.

Results

Sample Characteristics

Women ranged in age from 49 to 78 years, with a mean (\pm SD) age of 60.9 ± 7.1 years. Most women were married (74.2%), primarily homemakers (59.1%), had post-secondary education (72.7%) and had incomes above the Government of Canada low-income threshold for a two adult household ($56.1\% > \$20,000$) [18]. Participants were residents of Canada for 3 to 51 years with a mean of 28.0 ± 13.5 years. Women spoke Mandarin (25%) or Cantonese (70.3%) or both (4.7%) languages. Women reported their ability to speak English as moderate (68.2%) or excellent (18.2%) and their ability to read English as moderate (69.7%) or excellent (21.2%).

Accuracy of Causes

Table 1 shows the information provided to the women from the CCO fact sheet on colon cancer. The CCO fact sheet specifically describes two “causes”: (1) cause is difficult to pinpoint and (2) the role of polyps. Few women correctly reported on causes mentioned in the fact sheet. Only 6.1% of women correctly named or described both causes, 22.7% named or described one cause, and 19.7% could not name or describe any cause as given in the CCO fact sheet. In contrast, 34 of the women (51.5%) named or described the causes of colon cancer not indicated on the CCO fact sheet, and 3.0% indicated a combination of causes (both on and not on the CCO fact sheet).

Reported Causes

Women were specifically asked: what causes colon cancer? The frequency of causes reported by participants during the interview is outlined in Table 2. Examples are given below as exact quotes from the transcribed interviews to maintain authenticity.

The most common causes reported were: diet (53.0%), family history (28.8%), “lifestyle” (22.7%), and polyps

Table 1 Cancer Care Ontario English language colon cancer printed fact sheet

Heading	Information provided
What causes colon cancer?	The exact cause is hard to pinpoint. However, it is known that tiny growths called polyps sometimes form on the inner surface of your colon or rectum. Polyps are not cancerous to start with and some may never become cancer. But over time, the slow growing polyps can become a cancerous tumor
How do I protect myself from getting colon cancer?	You will reduce your risk of getting colon cancer, as well as many other diseases, if you lead a healthy lifestyle, including a diet filled with lots of fruits, vegetables and whole grains. It will also help if you watch your weight, don't smoke, and don't drink alcohol excessively. It is also very important to be screened regularly for colon cancer
When should I start screening for colon cancer?	It's recommended that if you are 50 years of age or older, without a family history of colon cancer, you should be screened for the disease using an easy-to-use Fecal Occult Blood Test (FOBT) every two years
What do I do if I have a family history of colon cancer?	You have an increased risk of developing colon cancer if you have a family history of the disease in a first degree family member (parent, sibling, child). It is recommended that you get screened using colonoscopy at age 50 or 10 years earlier than the age of the diagnosis of your parent or sibling

Only sections of the CCO Colon Cancer Check Fact sheet relevant to this study are shown here. (Full fact sheet: <http://coloncancercheck.ca/factsheets.html>. Accessed 21 July 2009)

(22.7%). Of these, only “polyps” was listed as an actual cause of colon cancer on the CCO fact sheet, while diet, family history, and “lifestyle” were listed as risk factors. It appears that many women described risk factors as causal factors for colon cancer.

Table 2 Causes of colon cancer reported by participants

Cause	Number and percentage (%) of participants reporting cause	Total number of times cause was reported
Non-modifiable causes		
Age	7 (10.6%)	9
Family history	19 (28.8%)	21
Modifiable causes		
“Lifestyle”	15 (22.7%)	17
Diet	35 (53.0%)	64
Alcohol	7 (10.6%)	8
Smoking	11 (16.7%)	13
Exercise	10 (15.2%)	10
Weight	2 (3.0%)	2
Holistic (e.g., stress, mood, and sleep)	7 (10.6%)	11
Polyps ^a	15 (22.7%)	21
Digestive (e.g., constipation, regularity, and cleansing)	9 (13.6%)	9
Environmental	4 (6.1%)	5
Unknown		
Unknown/difficult to pinpoint ^a	13 (19.7%)	16
Participant does not know	7 (10.6%)	7
Secondary prevention (screening)	1 (1.5%)	1
Other	4 (6.1%)	4

Total number of women participating in the study was 66

^a Causes listed on Cancer Care Ontario fact sheet (full fact sheet: <http://coloncancercheck.ca/factsheets.html>. Accessed 21 July 2009)

Age and Family History Causes

The women reported family history (“If you have, most people have the family, have family history”; “I think family genes is very important”) more commonly than age (e.g., “because you getting older”; “I think at the age of, you know, cells become old”) as causes of colon cancer. Both of these are non-modifiable risk factors rather than specific causes of colon cancer.

Lifestyle Causes

Overall, 65.2% of the women considered dietary factors, alcohol consumption, smoking, exercise, body weight, or more broadly “lifestyle” as causal in colon cancer. Diet was described by women as important in causation (“I think it's from the diet or the food we eat.”; “The eating behavior. Yeah, it's very important.”). Diet-related causes were typically reported more than once by each participant or they would report multiple dietary causes. Women referred to “diet” broadly (“I think bad eating habit”; “eating is not healthy”) and as well to the specific components of the diet (“like mostly fat or no vegetable, no fruit, something like that”; “eat lots of vegetable and fruit and whole grain”). Diet was also emphasized as having greater importance than other factors in colon cancer causation: “The diet is the most important I think.” and “the diet, mostly.” Participants mentioned fruits, vegetables, and whole grains as constituting a healthy diet (“I think not enough fruits or vegetables”; “they don't eat fruit and vegetable”). Some women (12.1%) described meat and fat content of the diet as the causes of colon cancer: “If you eat too much meat.”; “frying the food more often [...] that can cause it.” Lack of water consumption (“don't drink enough water”; “drink two cup of water in the morning. Warm water”) and consumption of unhealthy foods (“maybe they eat lots of junk food”; “And not too much junk food.”) were also

mentioned as the dietary causes. One participant described spicy food as a cause of colon cancer (“the spicy food will, will hurt you a lot”).

“Lifestyle” was the second most common “cause” mentioned by participants. Although diet, alcohol, smoking, and exercise are components of a healthy lifestyle, 22.7% of the women specifically mentioned the term “lifestyle.” Examples included: “I think it’s the lifestyle”; and “I still think it’s the lifestyle of people, right from the beginning when they were very young.”

Alcohol consumption, smoking, exercise, and body weight were mentioned, though less frequently, than diet: “Drink and smoking, that maybe cause it”; “the cigarette habit, it may cause cancer”; “drinking too much alcohol”; and “not exercising.” Maintaining a healthy body weight (“And also, if you’re overweight, not exercising”) was described infrequently (<3.0% of women).

Holistic Causes

Holistic causes were also mentioned by the women during the interviews. The holistic causes of colon cancer included mood, stress, and sleep: “Or sometimes you have depression, you’re too nervous, you’re too serious to everything, you’re easy to get anger. Yeah. I think the whole thing.”; “I would say it is stress”; and “not enough rest” and “don’t sleep good.”

Polyps as Cause

Just less than one quarter of the participants mentioned polyps as causal for colon cancer. Examples of how the women described the links between polyps and colon cancer are illustrated by the following: “That’s because of the polyp in your big intestine.”; “I think at the beginning it’s just a little something, on the intestine, the large intestine. And then over the years, over time, it becomes maybe bigger and then may turn to be cancerous.”

Digestive Causes

Some participants reported digestive system-related causes for colon cancer, suggesting a lack of regular bowel movements would fail to cleanse the body in a way necessary to prevent cancer development: “Clean your body, make the toxic out of your body”; “Maybe people got irregularity or they don’t go normally and then something stuck inside.”

Environmental Causes

Environment was reported by the women as causal despite the fact that it was not mentioned on the CCO fact sheet.

Examples of references to the environment included: “Some pollutions [...] chemical in the food, and something happen”; “mainly the contamination of the environment”; and “I prefer to buy organic.”

Cause Unknown

This had two sub-categories: the cause of colon cancer is unknown or difficult to pinpoint (as indicated on the CCO fact sheet) or the participant herself did not know, or cannot remember, the cause. Examples of the former, reported by about one fifth of the women, included: “It’s very difficult to say. Nobody can know”; “Colon cancer, I guess the cause is unknown.” An example of the latter, reported less often, was: “I have no idea.”; “Don’t know”; and “I want to know so I can prevent colon cancer.”

Lack of Secondary Prevention as Cause

Not being screened was reported as a cause of colon cancer by only one participant: “the examination by the doctor is also important.”

Other Causes

Four participants (6.1%) reported “other” causes. These included germs, blood, and hemorrhoids: “you have hemorrhoid, it’s cause, usually cause”; “the germ take along into the shell of fish, and they might easy to, if they have a germ inside or what you call those, the, the things that happen into the shell fish, they will keep it inside of the body, especially in the colon area”; “the germs might be inside the body developing into other things.”

Discussion

Little is known about the beliefs of Chinese immigrant women regarding the causes of colon cancer. Women in our study reported the causes of colon cancer to be diet, lifestyle, family history, and polyps (only the latter was listed on the fact sheet that was read prior to the interview). It appears that women may interpret ways to protect oneself from developing colon cancer (risk factors) as actual causes of colon cancer.

Although there is no one cause of colon cancer, polyps have been causally linked to colon cancer development [19]. There are also several factors that increase risk including older age, physical inactivity, and alcohol consumption [20]. Cause is linked to outcome, whereas risk is an association. It is not uncommon for the public to have difficulty understanding risk information [21–23].

Moreover, people with cancer commonly report lifestyle factors and the environment as the causes of cancer when indeed these are actually risk factors [24, 25]. The findings from this study also point to confusion by ESL immigrants about the concepts of cause–effect and risk association.

In contrast to previous reports [26, 27], the women did not voice a traditional Eastern view of colon cancer causes. Rather, they reported allopathic Western causes (such as diet). This finding is consistent with USA population surveys indicating that 70% of respondents report that good nutrition can prevent cancer [28]. Sullivan et al. [9] found that American adults identified that colon cancer can be prevented by healthy behaviors (diet, exercise, alcohol consumption, and smoking), though they also found screening was reported as an important preventative behavior. Our results also support studies showing that diet, lifestyle, environment, and genetic/family history were commonly believed to be “the” causes of cancer among Chinese immigrants in the USA [16]. Some research demonstrates Chinese Americans hold both traditional Eastern views, linking positive energy and spirit to colon cancer, while simultaneously citing diet and exercise as important [26]. Our findings do not provide insight to why participants reported allopathic “Western” rather than traditional “Eastern” causes of colon cancer. It is important to note that the women lived in Canada on average for almost three decades and they were well educated. Whether these factors (education or residency in Canada) increased uptake about Western views about the causes of illness is not clear. However, Chinese American women with lower educational levels were more likely to have an Eastern view of care and were less likely to adhere to colon cancer screening guidelines than Chinese women with post-secondary education [29]. Thus, given the educated sample in our study, it is not surprising that the immigrant women had Western explanatory causes for colon cancer.

Interestingly, the women placed a greater emphasis on primary prevention (especially diet) rather than secondary prevention (early detection of disease), a finding that has been reported elsewhere [26]. Lifestyle risk factors were commonly identified as the causes of colon cancer. This suggests that the emphasis on modifiable “causes” underscores that the immigrant women in our study did not express fatalistic views of colon cancer. Lifestyle causal attributions have also been found to be common for cancer survivors [24, 25]. Fatalistic views about cancer are more common among those with lower levels of education [30–32]. Again, higher levels of education among the women may have contributed to the absence of cancer fatalism.

This study had several limitations. First, participants were drawn as a convenience sample. They were well educated and had lived in Canada for 28 years on average. Thus, our sample of older ESL Chinese immigrant women may not be

generalizable to other ESL (including Chinese) groups with respect to either less education or recent immigration. It has been shown that the longer immigrants are resident in the “host” country, the more likely they are to assimilate mainstream cultural beliefs about disease causation [33, 34]. Second, women were specifically asked during the interview about the causes of colon cancer; however, they were not probed about what prevented colon cancer. Probing for causes vs. prevention may have helped to “mentally” separate these concepts for participants. Third, the women were asked about the causes of colon cancer after having read an official cancer “fact sheet” and their responses may reflect carry-over bias. It is possible that their answers about the causes may have been different had they been asked about them prior to reading the fact sheet.

This research provides insights into beliefs about the causes and prevention of colon cancer by older Chinese immigrant women in Canada. The focus on modifiable factors, such as diet and lifestyle, indicate that the women have clear beliefs about cause and make “controllable” attributions regarding colon cancer. In contrast, secondary prevention (screening) does not appear to be part of the cause attributions of these women. As such, there is an important role for cancer educators to inform immigrant women about the causes of colon cancer and the role of preventative screening. Finally, it will be important as cancer educators to help the public, including ESL immigrants, distinguish between cause–effect and risk factors for colon cancer. Believing that possessing a risk factor will in turn cause the disease could lead to unnecessary fear or fatalistic views, particularly in the case of non-modifiable risk factors (e.g., family history). Understanding that adenomatous polyps give rise to colon cancer, and that they can be detected and removed by screening (i.e., colonoscopy), may encourage greater use of screening towards cancer detection and prevention. Accurate understanding of the causes and risks may help ensure optimal decisions about health behaviors and cancer screening.

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