In Asian Americans, is Having a Family Member Diagnosed with Cancer Associated with Fatalistic Beliefs?

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Objective: Cancer can evoke long-held cultural beliefs which either facilitate or impede efforts to expand the health literacy of families. Among these beliefs is fatalism which holds that controlling one’s outcome is not possible, and that one’s outcome is predestined. Some fatalistic beliefs are broadly held within the Asian American (AA) community and may be challenged or reinforced by the experience of having a family member diagnosed with cancer. This study evaluated the relationship between having a family member diagnosed with cancer and selected demographics in AAs on fatalistic beliefs.

Methods: Data from 519 AA subjects from the Centers for Disease Control and Prevention Health Information Trends Survey were used to complete a secondary analysis. Descriptive statistics characterize fatalistic beliefs. Four models using four questions assessed fatalistic beliefs as dependent variables and independent variables of having or not having a family member diagnosed with cancer, completing college or not, sex, and age were assessed using ordinal regression.

Results: All of the fatalistic beliefs examined were endorsed by large portions of the subjects. When considering the role of being exposed to having a family member with cancer, it was associated with an increase in the likelihood in a belief that one is likely to get cancer, and everything can cause cancer. Being exposed to a family member diagnosed with cancer was not significantly associated with believing, there was little one could do to control their cancer risk. This belief was broadly rejected. While the belief that there are so many different recommendations about preventing cancer, it is hard to know what to do, was broadly endorsed and not associated with having a family member diagnosed with cancer.

Conclusions: The major practice implications within oncology nursing suggest the importance in assessing cancer health literacy and providing corrective knowledge in families with a member diagnosed with cancer. While recognizing the need for more knowledge, cancer diagnoses may represent a significant teachable moment for family members enhancing their health knowledge.

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and supporting behavioral change. Two beliefs were contradictory and broadly held with the AA community, thus support will be needed for further public health research.

**Key words:** Caregiver, fatalism, misperceptions

## Introduction

An individual’s diagnosis and treatment for cancer can have a broad impact on the immediate and extended family members’ view of the disease. Cancer can evoke long-held cultural beliefs which either facilitate or impede efforts to expand the health literacy of families. Among these beliefs is fatalism which holds that controlling ones’ outcome is not possible, and that ones’ outcome is predestined.[1] Fatalistic beliefs have been extensively studied in cancer survivors and the general population to characterize their sources and impact on screening and timing of care.[2,3]

Cancer is the leading cause of death for Asian Americans (AAs) with continued disparities in screening and prevention efforts.[4,5] The American Cancer Society recognizes significant differences within Asian subpopulations and reports select groups have higher cancer incidence rates compared to other races/ethnicities.[6] Advances in cancer diagnoses and treatment, along with an aging population, have expanded the number of survivors. Families exposed to the challenges of supporting a family member through diagnosis, treatment and time in survivorship support the significance of this study.[7]

Fatalistic views are broadly held with the AA community in heart disease and cancer but appear to differ from other racial/ethnic groups.[8] Fatalism has demonstrated significant impacts on cancer screening and care within this community, thus influencing screening uptake and delays in the start of cancer treatment.[3] Fatalism within breast cancer survivors in the AA community differed from other racial/ethnic groups as cancer was seen as preordained; however, some did seek treatments to impact their outcome.[8] Crawford *et al.* reported themes associated with screening among South Asian immigrants which included centrality of family, holistic healthcare, fatalism and screening as necessary, emotional filled perceptions, and gender differences in screening.[9] Similarly, Jun and Oh compared fatalistic views of colon cancer development among Asian and Hispanic Americans compared with non-Hispanic Whites.[10] Their findings indicated Asian and Hispanic groups were more likely to make fatalistic attributions toward the development of cancer and that fatalism was a significant predictor for not adhering to the colorectal and breast-screening guidelines.[10,11] These reports are consistent with fatalism being a broadly held cultural belief. These beliefs may be challenged or reinforced by the experience of having a family member diagnosed with cancer. To our knowledge this has not been previously explored.

Kobayashi and Smith reported on fatalistic beliefs acting as a partial mediator between health literacy and cancer information seeking in Americans.[12] The fatalism questions evaluated were from the National Cancer Institute’s (NCI) Health Information National Trends Survey (HINTS). Endorsement of the statement, “There’s not much you can do to lower your chances of getting cancer,” accounted for 14% of the relationship between health literacy and cancer information seeking. Having a family cancer history was also significantly associated with cancer information seeking. Significant associations between fatalistic beliefs and race (African American) sex, age, and low education were also reported; however, AAs were not a specified group in this report.[12] The impact between cancer information seeking and fatalism appears to differ from Niederdeppe and Levy's report, in which there are significant associations between fatalistic beliefs and cancer health-related behaviors (i.e., screenings).[13] The variable of level of education has been reported with fatalistic beliefs. In a retrospective study examining psychosocial determinants and follow-up mammography screening, women with less than a high school education had lower cancer fatalism scores compared to women who completed high school.[14] Education was also associated with fatalism in a study examining the Internet and health-related knowledge. The effect of the Internet on cancer fatalism was influenced by education and health knowledge. Fatalistic views were reduced among those with average and lower than average levels of education and health knowledge.[15] Education, fatalism, modesty, and marital status were correlated with cancer-screening in a group of Hmong-American immigrant women. The study examined factors associated with getting a Papnicolaou test with results suggesting health information and guidelines are needed to reduce cancer-screening disparities.[16] Significant levels of fatalism are associated with a reduction in health behaviors. Taken together, this supports the importance of exploring the association between exposure to a family member diagnosed with cancer, fatalistic beliefs, and potential confounding variables which include sex and education.

Cancer-screening and care outcomes are demonstrated in other racial/ethnic groups and are suggested by epidemiologic studies in AAs.[17] Noted are population projections and cancer epidemiological data which indicate the importance of developing targeted interventions to reduce sources of fatalism in the AA community. This study characterized the impact of having a family member diagnosed with cancer and
selected demographics in AAs on fatalistic beliefs. There is limited information about the impact of a cancer diagnosis on fatalism within AAs families. Several studies have reported on AA coming to cancer care late in the disease process which may change practice related to health beliefs.\[18\]

The experiences of the family member/caregiver have been examined but have focused on the role in supporting survivors or the impact of being a caregiver on their health.\[19,20\] Despite the increased recognition of the role of the family as caregiver and meeting the needs of survivors, there is a gap in our understanding of having a family member diagnosed with cancer and its association with the family members’ fatalistic beliefs in the AA community.

**Research questions**

Two research questions were addressed in this study:
1. Are specific fatalistic beliefs associated with exposure to a family member diagnosed with cancer, educational level, age, and sex in the AA community?
2. How broadly held are fatalistic beliefs in the AA community?

**Methods**

**Design**

A secondary analysis was conducted using data from the NCI’s HINTS. HINTS is a biennial, cross-sectional, nationally representative sample of adult Americans that explores the public’s access and the use of cancer-related information.\[21\] HINTS provides information on the needs and educational opportunities in health as trends change with regard to communication and practice. Several items on the survey focus specifically on cancer prevention and control. This communication addresses how information about cancer risks is perceived and accessed by citizens.\[21\] HINTS runs in cycles affording researchers the opportunity to examine constructs and trends over time.\[21\] For the purpose of this study, HINTS 4 with 4 cycles (2011, 2012, 2013, and 2014) was examined.

**Sample**

Five hundred and nineteen AAs were examined to address the study questions, of which ~78% of the subjects were born outside of the United States. The sample is an aggregation of AA statistics from the four waves of HINTS data in which there were consistent questions across waves. Table 1 provides the number of subjects from each of the 4 cycle years used in the aggregation.\[21\]

**Measures**

HINTS survey questions have been used in other NCI surveys that were developed and tested by NCI to ensure their validity.\[22\] Self-report Likert responses (phone and mailed survey) to the four questions within HINTS were used as outcome measures of fatalism. These four questions have been used in other fatalism reports in cancer behaviors and health literacy and were established to be predictive in health behaviors.\[12,13\] Prior psychometric analysis of these questions indicate that they should not be used to form a scale.\[13\]

Independent factors dichotomous of having a family member with/without cancer, having completed college, sex, and covariate of age, were used in the four models evaluating fatalistic responses. Education was transformed based on its distributional characteristics to a binary factor of completing college or not.

**Statistical analysis**

Descriptive analyses were used to characterize fatalistic beliefs in AAs. To address the primary research question, four ordinal regressions were used to evaluate the association between the dependent variable (one of the four fatalistic beliefs) and having a family member diagnosed with cancer versus not diagnosed with cancer, education, sex, and age. The link function used for each of the models was determined by the distribution of the dependent variable being analyzed. Ordinal regressions were used to evaluate the association between having and not having a family member diagnosed with cancer in the presence of other independent variables.

| Survey cycle | Percentage female (n) | Mean age (SD) | Percent completed college (n) | Percentage reporting a family member diagnosed with cancer | Percentage not born in the US |
|---------------|-----------------------|---------------|------------------------------|----------------------------------------------------------|-----------------------------|
| 2011          | 55.90 (95)            | 47.67 (15.12) | 62.10 (108)                  | 53.90 (83)                                               | 79.50 (140)                 |
| 2012          | 54.50 (55)            | 45.39 (14.70) | 64.10 (66)                   | 54.10 (53)                                               | 76.90 (80)                  |
| 2013          | 60.00 (69)            | 49.92 (16.11) | 64.90 (74)                   | 50.00 (47)                                               | 79.10 (91)                  |
| 2014          | 55.00 (71)            | 48.17 (15.97) | 66.70 (86)                   | 50.90 (59)                                               | 78.30 (101)                 |
| Total         | 56.30 (290)           | 48.83 (15.47) | 64.20 (334)                  | 52.40 (242)                                             | 78.60 (412)                 |

\[SD: Standard deviation\]
Results

Approximately half of the sample reported they were neither likely nor unlikely to get cancer in their lifetime [Table 2]. Their endorsement of fatalistic beliefs are presented in Table 3 and stratified by having or not having a family member diagnosed with cancer.

An ordinal regression using a logit link function was used to evaluate the association of the exposure to a family member diagnosed with cancer, education, sex, and age. The model was significant, $P < 0.05$, and met the assumptions of parallel proportional odds. The ordinal regression indicated that not having completed college increased the log odds of a subject reporting very unlikely or unlikely to get cancer ($\beta = -0.273$, Wald = 5.702, $P = 0.017$). Having a family member who had been diagnosed with cancer, increased the log odds of a subject reporting being likely or very likely ($\beta = 0.695$, Wald = 41.137, $P < 0.001$) to get cancer. There were no significant differences based on the sex of the subject, and age was dropped from the final model based on the results of a screening analysis.

The belief that everything causes cancer was endorsed (strongly agree and somewhat agree) by 55.5% (284) of the subjects. An ordinal regression using a negative log-log link function was used to evaluate the impact of the independent factors and age. The model was significant and met the assumptions of parallel proportional odds. The ordinal regression indicated not having completed college increased the log odds of a subject reporting they strongly agree or agree that everything causes cancer ($\beta = -0.123$, Wald = 7.887, $P = 0.005$) when holding the other independent variables constant. Similarly, having a family member who had been diagnosed with cancer increased the log odds of a subject reporting being likely or very likely ($\beta = 0.695$, Wald = 41.137, $P < 0.001$) to get cancer. There were no significant differences based on the sex of the subject, and age was dropped from the final model based on the results of a screening analysis.

### Table 2: Demographics stratified by having family member diagnosed with cancer

| Study demographics | Yes % ($n$) | No % ($n$) | Total % ($n$) |
|--------------------|-------------|------------|---------------|
| Have any of your family members ever had cancer? | 47.5 (218) | 52.5 (241) | 100 (459) |
| Education | | | |
| Did not complete college | 44.23 (69) | 55.77 (87) | 100 (156) |
| Completed college | 49.34 (150) | 50.66 (154) | 100 (304) |
| Total | 47.61 (219) | 52.39 (241) | 100 (460) |
| Sex | | | |
| Male | 43.43 (86) | 56.57 (112) | 100 (198) |
| Female | 50.58 (130) | 49.42 (127) | 100 (257) |
| Total | 47.47 (216) | 52.53 (239) | 100 (455) |
| Age, years | | | |
| Mean (SD) | 48.68 (15.28) | 46.54 (15.42) | |

### Table 3: Fatalistic beliefs stratified by having or not having a family member diagnosed with cancer

| Beliefs/stratification | Very unlikely | Unlikely | Neither unlikely nor likely | Likely | Very likely |
|------------------------|---------------|----------|-----------------------------|--------|-------------|
| How likely are you to get cancer in your lifetime? | Count | n % | Count | n % | Count | n % | Count | n % | Count | n % |
| Have any of your family members ever had cancer? | | | | | | | | | | | |
| Yes | 17 | 8.1 | 31 | 14.8 | 95 | 45.2 | 55 | 26.2 | 12 | 5.7 |
| No | 48 | 21.1 | 59 | 25.9 | 97 | 42.5 | 21 | 9.2 | 3 | 1.3 |
| Total | 65 | 14.84 | 90 | 20.55 | 192 | 43.84 | 76 | 17.35 | 15 | 3.42 |
| How much do you agree or disagree? It seems like everything causes cancer | | | | | | | | | | | |
| Have any of your family members ever had cancer? | | | | | | | | | | | |
| Yes | 38 | 17.4 | 93 | 42.5 | 52 | 23.7 | 36 | 16.4 |
| No | 29 | 12.3 | 87 | 36.9 | 64 | 27.1 | 56 | 23.7 |
| Total | 67 | 15 | 180 | 40 | 116 | 25 | 92 | 20 |
| How much do you agree or disagree? There is not much you can do to lower your chances of getting cancer | | | | | | | | | | | |
| Have any of your family members ever had cancer? | | | | | | | | | | | |
| Yes | 14 | 6.4 | 59 | 26.9 | 92 | 42.0 | 54 | 24.7 |
| No | 23 | 9.7 | 50 | 21.1 | 91 | 38.4 | 73 | 30.8 |
| Total | 37 | 8.1 | 109 | 23.9 | 183 | 40.1 | 127 | 27.9 |
| How much do you agree or disagree? There are so many different recommendations about preventing cancer; it is hard to know what to do. | | | | | | | | | | | |
| Have any of your family members ever had cancer? | | | | | | | | | | | |
| Yes | 40 | 18.3 | 113 | 51.6 | 52 | 23.7 | 14 | 6.4 |
| No | 46 | 19.4 | 122 | 51.5 | 44 | 18.6 | 25 | 10.5 |
| Total | 86 | 17.03 | 274 | 54.26 | 104 | 20.59 | 41 | 8.12 |
increased the log odds of a subject reporting they strongly agree or agree that everything causes cancer ($\beta = -0.267$, Wald = 4.04, $P = 0.017$). An increase for each year of age increased the log odds of disagreeing or strongly disagreeing ($\beta = 0.012$, Wald = 12.39, $P < 0.001$) that everything causes cancer. Being male increased the log odds of disagreeing or strongly disagreeing with the belief that everything causes cancer ($\beta = -0.11$, Wald = 4.04, $P < 0.001$).

The belief that there is not much you can do to lower one’s risk of cancer was assessed using an ordinal regression using a negative log-log link function similar to the previous model. Approximately one-third of the sample agreed or agreed strongly with this statement. The final model excluded age to achieve a significant fit and meet the assumptions of parallel proportional odds. Within the final model, only educational status was significantly associated with this belief. Not attending college increased a subject’s odds of strongly or somewhat agreeing that it is not possible to lower cancer risk ($\beta = -0.317$, Wald = 7.47, $P = 0.006$).

The belief that there are too many recommendations to know how to prevent cancer were not associated with the independent factors, and the covariate of age was not significant $P > 0.05$. Approximately 70% of the sample reported agreeing or strongly agreeing with the statement.

### Discussion

This study examined responses to four questions representing facets of fatalism related to cancer to understand the effects of having a family member diagnosed with cancer and other potentially important factors. The results provide differing relationships between having experienced a family member diagnosed with cancer and a specific fatalistic belief. This finding is consistent with the reported psychometrics for the questions used which represent four differing facets of fatalism.

The belief that one is likely to get cancer during their lifetime was less likely to be endorsed by those without a college education. Those having a family member with cancer were more likely to endorse they would likely get cancer during their lifetime. This finding suggests having a family member diagnosed with cancer increases a sense of vulnerability/fatalism which was independent of age and gender.

The belief that everything causes cancer was more likely endorsed by those who did not attend college, being female and having a family member who had been diagnosed with cancer, but this reduces as one ages. Age is well documented as the single largest risk for developing cancer which, on the surface makes this finding counterintuitive. Yet, age brings experience and likely greater levels of knowledge about cancer which may refute a belief that everything causes cancer. Having a family member with a cancer diagnosis was not significant in this belief, as such, does not appear to result in a more focused understanding of cancer risk. A potential explanation for this finding is that efforts to enhance the health literacy in caregivers and/or extended family member are either not addressing specific risks or not provided.

The belief that a person cannot control their cancer risk only differed in those without a college education who were more likely to endorse strongly or somewhat agree with this statement. Approximately 32% of the sample reported this fatalistic view. Having a family member diagnosed with cancer is not associated with this belief. A belief of having little control of cancer risk may reflect other cultural beliefs in portions of the Asian community and may represent a barrier to participation in prevention and screening efforts that others have reported.[9]

The belief that there are too many recommendations to be helpful to prevent cancer was not associated with any of the predictive factors or age. This finding suggests the variations in the endorsement of this belief are driven by variables outside of those examined. The lack of a significant association between having a family member diagnosed with cancer and this belief is similar to the one of feeling there is little that can be done to control one's cancer risk.

Having a family member with cancer within the AA community is associated with an increase in the likelihood of the belief that one is likely to get cancer. However, the belief that everything can cause cancer, that one cannot control cancer risks or select between preventive behavioral recommendations are not associated with having a family member diagnosed with cancer. The broad endorsement of there being so many cancer prevention recommendations it is hard to know what to do (~71%), and the broad rejection of the belief there is not much you can do to reduce your cancer risk (~68%) suggests a paradoxical view of cancer control within the AA community which is similar to prior reports.[12]

Where family exposure demonstrates a significant impact is in two fatalistic beliefs: Increasing concerns of developing cancer and everything causes cancer. The potential negative effects of fatalism are well documented and have been linked to reduced rates of screening, delays in diagnostic follow-up and initiation of treatment, and poor treatment outcomes.[23]

### Limitations

There are several limitations that impact the interpretation of the study’s results which include those common to secondary analyses using several years of data. Much of the literature describes the unique needs of AA subgroups; however, due to the small numbers they are often consolidated into a single group which may hide
clinically relevant differences. Additionally, there is significant variation in acculturation within and between AA subgroups which may impact fatalism and be lost in aggregation. Additionally, the sample had largely comprised persons born outside the US, which is an important consideration in viewing these results which merits further exploration.

Despite the NCI’s efforts in the development of valid survey questions, there may be major limitations in using these four questions to define fatalism in the AA community. Responding to questions about having a family member diagnosed with cancer does not allow for understanding the closeness of the respondent (ranging from direct caregiver to extended family member) to the person diagnosed, which is an important distinction and limitation in considering results.

Conclusion

Our findings suggest the stress of a cancer diagnosis for families is associated with increases in components of fatalism (changes of being diagnosed with cancer and everything causes cancer), which may affect their cancer prevention participation leading to early diagnosis and effective treatment in the AA community. Within the AA community, there exist contradictory beliefs that one can reduce cancer risk, but there are too many recommendations to know how to respond. The extensive public health messages and media coverage of cancer have been effective in bringing more individuals to screening but have had unintended effects including the misperception that everything causes cancer and there are too many recommendations to know what to do. The other findings from this study suggest a portion of AAs have fatalistic views which are barriers to responding to cancer risks independent of family exposure specifically those with lower levels of education.

Despite the limitations, the findings provide insights which merit further investigation to characterize similarities and differences within the groups which were aggregated as AA and caregivers versus extended family members. Bei et al.’s work underscores the importance of cancer health literacy for family members noting survivors have identified this as an important issue.

The major practice implication within oncology nursing suggests the importance in assessing cancer health literacy and providing corrective knowledge in families with a member diagnosed with cancer. While recognizing the need for more knowledge, cancer diagnoses may represent a significant teachable moment for family members enhancing their health knowledge and supporting behavioral change. Two of the fatalistic beliefs were contradictory and broadly held with the AA community, thus support will be needed for further public health research.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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