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Health Sources of Cancer Screening Knowledge for Vietnamese Women

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Abstract

The study examined sources of health information among Vietnamese women and whether these sources were associated with cancer screening outcomes. One hundred eleven participants completed a questionnaire with measures of breast and cervical cancer screening attitudes, efficacy, and behavior. A factor analysis of items that measured sources for information on cancer screening produced three factors: English media sources, Vietnamese media sources, and informal sources. These sources were included along with demographic variables in regression analyses to predict cancer screening outcomes. Results indicated that using informal sources for breast screening information predicted positive attitudes toward breast cancer screening and efficacy for breast and cervical cancer screening. Reliance on Vietnamese media sources was associated with lower cervical screening efficacy. Being older, having health insurance, and a higher income were associated with favorable cancer screening outcomes. The findings suggest that cancer screening programs for Vietnamese women should take into consideration preferred mediums for receiving health information.

Keywords

Health sources; Cancer screening; Vietnamese women

Vietnamese women in the USA experience cervical cancer incidence rates that are twice as high as for White women [1]. Although Vietnamese women have lower incidences of breast cancer than their White counterparts (34.8 compared to 130.6 per 100,000) [2, 3], breast cancer risk increases among women who move from countries with low incidence rates to countries with high incidence rates [4]. Vietnamese women also have lower levels of cervical cancer screening than other racial or ethnic groups [5, 6].

The aim of this study was to examine sources of health information for Vietnamese women. We were specifically interested in whether reliance on different health sources was linked to cancer screening attitudes, efficacy beliefs, and behaviors. We recruited Vietnamese women

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from two local faith-based sites (Catholic and Buddhist) as part of a larger cancer screening intervention, *Suc Khoe La Quan Trong Hon Sac Dep! Health is More Important than Beauty!*

Health Communication

Communication of health information has typically focused on communication between the patient and the provider [7, 8]. In general, a positive communication style between patient and physician is linked to increased screening rates [9]. However, communication of health information between the patient and practitioner may work less effectively and/or be less relevant for the Vietnamese population [10]. The transmission of health information from physician to patient may be constrained by cultural barriers that limit discussion of topics considered taboo or private. For example, in the Vietnamese culture, a woman's body is considered private and some women may experience embarrassment when discussing topics such as breast and cervical examination [11].

The Role of Media in Disseminating Health Information

Other modes of health communication for messages on breast and cervical cancer can be found in the media. Mass media communication channels that relay health information include television, newspapers, magazines, and information in physician offices [12]. However, the Vietnamese population is less likely to be reached through popular media, especially when the media is a medium of the dominant culture. However, mass media campaigns can be particularly effective when the medium is offered in the Vietnamese language [13].

Ethnic minority populations are likely to rely on informal methods to access health-related information [14]. Research suggests that White Americans may rely on physicians, newspapers, and printed materials while ethnic minority individuals may heavily rely on family and friendship networks as sources of health information [15]. Thus, informal health messages may be transmitted in the context of family settings and within community settings such as faith-based institutions.

Health Communication in the Family and the Community

Research has examined the role of informal communication among family members on cancer topics. Jones et al. [16] examined the effects of family communication about cancer screening on screening behaviors among college and middle-aged females. Participants who discussed breast cancer topics with family members more strongly adhered to recommended screening practices than women who did not engage in family discussions.

Informal communication of health messages within ethnic minority population also occurs within religious or faith-based settings [17]. Woodall and colleagues [10] examined sources of health communication among Vietnamese men. They found that participants referenced Vietnamese and English newspapers, magazines, internet sources, radio sources, and television sources for health information. More than half of the participants reported that they also received health information from informal sources such as friends and family. More than 30% reported that they received health information from pagodas, temples, or

churches. These findings indicate that, outside of formal print sources, informal communication about health occurs in religious communities.

Informal and interpersonal sources for health communications found in faith-based communities could be particularly important for individuals with limited access to media resources. Informal sources may also be useful for those who are less likely to seek health information online, such as individuals with lower levels of education and income [18]. The present study examined whether health information sources were linked to cancer screening attitudes, efficacy, and behavior for Vietnamese women. To our knowledge, we are not aware of previous studies with a similar focus.

The study's hypotheses

1. Vietnamese women will rely on informal sources to receive health information.
2. Different sources of health information will be associated with breast and cervical cancer screening variables. Specifically, reliance on media sources and informal sources will be associated with more favorable cancer screening outcomes.

Method

Participants

Participants were recruited for a larger study that implemented and evaluated a cancer screening intervention. A convenience sample of 111 Vietnamese women from the Richmond metropolitan area was recruited from a Vietnamese Catholic church (57%) and a Vietnamese Buddhist temple (43%). The Catholic Church and Buddhist Temple were the two primary institutions where Vietnamese in this area gathered not only for religious and spiritual practices but for cultural, social, and educational activities. Their ages ranged from 18 to 70 (M=40.23, SD=14.23). For additional information on participants' demographics, refer to Table 1. Participants were 18 or older, female, and identified with a Vietnamese ethnic background. Women who reported a previous hysterectomy were eligible to participate, but their data were excluded from analyses that involved cervical cancer screening.

Measures

All measures and materials were provided in both Vietnamese and English.

Demographic Variables—Participants provided information on age, education, marital status, income, employment, health insurance status, and previous receipt of a hysterectomy.

Sources of Health Information—Respondents reported their sources of health information using items from Woodall and colleagues' [10] measure of health information sources with a Vietnamese population. Participants rated on a scale of 1 (*not used at all*) to 5 (*used very often*) how often they use specific sources for obtaining health information. Examples of sources include Vietnamese newspapers, friends, family members, and church or temple members.

Attitudes Towards Breast and Cervical Cancer Screening—Attitudes towards screening was measured using methods similar to that used by Marteau et al. [19] that assessed attitudes towards Pap testing among smokers and non-smokers. Cronbach's α for the overall scale was 0.79, 0.73 for the attitudes towards Pap testing subscale, and 0.82 for the attitudes towards clinical breast examination subscale.

Self-efficacy for Breast and Cervical Cancer Screening—The efficacy in screening measure was based on a measure used by Champion et al. [20]. Cronbach's α: Pap testing self-efficacy scale=0.84 and CBE self-efficacy scale=0.91.

Previous Receipt of a CBE or Pap Test—Participants were asked if they have ever received a Pap test or CBE (e.g., *Have you ever had a Pap test?* Yes=1 and No=0).

Procedure

Approval was obtained from the university's Institutional Review Board. Participants were recruited with the help of community liaisons at the Church or Temple using fliers, and bulletin and service announcements. Participants were also referred by community liaisons. Interested individuals contacted the investigator and were notified of the time and place of the session. Upon arrival, participants signed informed consent forms. Half of the women participated in a breast and cervical cancer screening intervention. These findings are not reported in this paper. Participants completed a questionnaire with study measures that were administered by either the investigator or by trained community members. The questionnaire took approximately 40 min to complete.

Data Analytic Plan

Descriptive statistics were calculated for study's variables. A factor analysis was computed to examine whether meaningful domains and factors emerged from items assessing sources of health information. We then assessed potential relationship between calculated factor scores and cancer screening variables using multiple linear regression and logistic regression analyses. Demographic variables were used as covariates in regression analyses.

Results

Preliminary Analyses

Sixty-six (60%) of the participants reported that they had a CBE in their lifetime. Sixty-two (62%) revealed that they had a Pap test in their lifetime.

Factor Analysis

Principal components factor analysis was employed to determine if health information items would emerge into meaningful factors. Using a varimax rotation, three factors were extracted based on information from scree plots and eigenvalues. The Kaiser–Meyer–Olkin measure of sampling adequacy was 0.77, and Bartlett's test of sphericity was significant, $\chi^2(78)=553.21$, $p<0.001$.Thecommunalities were all above 0.3, confirming items shared some common variance with other items. However, two items had similar high factor loadings on two factors. The first item was whether participants received health information by "talking

to doctors and/or nurses (or health care providers)," and had factor loadings of 0.48 and 0.49 on factors 1 and 2, respectively. The second item was whether participants received health information from "using leaflets, brochures, and/or pamphlets," and had factor loadings of 0.47 and 0.61 on factors 1 and 2, respectively. These two items were dropped for the next factor analysis.

A second factor analysis was conducted using identical procedures in the previous analysis, omitting the two items described above. Three factors were extracted. The Kaiser–Meyer–Olkin measure of sampling adequacy was 0.72, and Bartlett's test of sphericity was significant, χ^2 (55)=448.11, p<0.001. The communalities were all above 0.3. The initial eigenvalues showed that the first factor explained 29% of the variance, the second factor 23% of the variance, and a third factor 13% of the variance. Refer to Table 2 for items and factor loadings.

Factor 1 (Cronbach's α=0.83) had items related to media sources offered in the English language, so it was named the *English media sources*. Factor 2 (Cronbach's α=0.80) had items related to media sources in the Vietnamese language, so it was named the *Vietnamese media sources*. Factor 3 (Cronbach's α=0.71) had items related to informal sources of health information, so it was named *informal sources*. Eleven of the original 13 items comprised the three sub-scales.

Regression Analyses

Attitude Towards Breast Cancer Screening—A hierarchical multiple regression analysis was computed to predict scores in attitudes towards breast cancer screening. Age, household income, educational level, and health insurance status were controlled for and entered into the first step. Factor scores in English media, Vietnamese media, and informal sources of health information were entered into the second step. The model accounted for a significant amount of variance in attitudes towards breast cancer screening, F (7, 102)=2.18, p=0.04; R^2=0.13. The addition of factor scores in health information sources in model 2 significantly improved prediction (R^2 change=0.09; F=3.48, p=0.02).

Informal sources significantly predicted attitudes towards breast cancer screening, β=0.31, t(109)=3.20, p<0.001. Higher reliance on informal sources of health information was associated with more positive attitudes towards breast cancer screening.

Attitude Towards Cervical Cancer Screening—A hierarchical multiple regression analysis was conducted to predict scores in attitudes towards cervical cancer screening using identical previous blocking procedures. The model failed to account for a significant amount of variance in attitudes towards cervical cancer screening, F (7, 92)=0.96, p=0.47; R^2=0.07.

Self-efficacy for Breast Cancer Screening—A hierarchical multiple regression analysis was conducted to predict scores in self-efficacy for breast cancer screening using identical previous blocking procedures. The model accounted for a significant amount of variance in self-efficacy for breast cancer screening, F (7, 102)=5.98, p<0.001; R^2=0.29. The addition of health information sources in model 2 significantly improved prediction (R^2 change=0.06; F=2.93, p=0.04).

Having health insurance (β=0.32, t(109)=3.43, p<0.001) and higher reliance on informal sources of health information (β=0.25, t(109)=2.79, p=0.01) were both associated with higher levels of self-efficacy for breast cancer screening.

Self-efficacy for Cervical Cancer Screening—A hierarchical multiple regression analysis was conducted to predict scores in self-efficacy for cervical cancer screening using identical previous blocking procedures. The model accounted for a significant amount of variance in self-efficacy for cervical cancer screening, F(7, 92)=5.66, p<0.001; R^2=0.30. The addition of health information sources in model 2 significantly improved prediction (R^2 change=0.06; F=2.77, p=0.05).

Increasing age (β=0.22, t(101)=1.93, p=0.05), having health insurance (β=0.29, t(101)=3.04, p<0.001), and higher reliance on informal sources of health information (β=0.22, t(101)=2.44, p=0.02) were associated with higher levels of self-efficacy for cervical cancer screening. Higher reliance on Vietnamese media sources (β=−0.19, t(101)=−1.95, p=0.05) was associated with lower levels of self-efficacy for cervical cancer screening.

Receipt of a Clinical Breast Examination—A logistic regression analysis was conducted to predict whether or not participants had received a CBE in her lifetime (0=no, 1=yes). Using previous receipt of a CBE as the outcome, participants' age, educational level, household income, and health insurance status were controlled for and entered in the first step. Factor scores were entered into the second step.

Model 1 was significant, χ^2(4)=60.16, p<0.001.Themodel did not improve with the addition of factor scores. The Nagelkerke R^2 value=0.57, and the Cox and Snell R^2 value=0.42. The variables correctly predicted 84% of the cases. Hosmer and Lemeshow Test was non-significant, χ^2(8)=14.13, p=0.08, indicating that the model was a good fit.

Age significantly predicted receipt of a CBE, β=0.13, χ^2(1)=22.48, p<0.001. The change in odds associated with a 1-U change in age was 1.14, indicating that a 1-U change in age resulted in a participant being 1.14 times more likely to have had a CBE.

Receipt of a Pap Test—A logistic regression analysis was conducted to predict whether or not participants had received a Pap test in her lifetime (0=no, 1=yes) using the same procedures from the previous analysis.

Model 1 was significant, χ^2(4)=40.23, p<0.001. The model did not improve with the addition of factor scores. The Nagelkerke R^2 value=0.46, and the Cox and Snell R^2 value=0.33. The variables correctly predicted 83% of the cases. Hosmer and Lemeshow Test was non-significant, χ^2(8)=5.00, p=0.76, indicating that the model was a good fit.

Age significantly predicted receipt of a Pap test, β=0.06, χ^2(1)=7.99, p<0.001. change in odds associated with a 1-U change in age was 1.06. Household income also predicted receipt of a Pap test, β=0.69, χ^2(1)=11.25, $p\leq$0.001. The change in odds associated with a 1-U change in household income was 1.99.

Discussion

The goal of this study was to examine sources of health information for Vietnamese women and whether these sources were associated with cancer screening attitudes, efficacy, and behavior. We found low rates of cancer screening among our Vietnamese sample, replicating the results of an earlier study [21], suggesting the need for continued cancer screening interventions. Forty percent of the sample had never had a CBE and 38% had never had a Pap test. These screening rates fall well below that of women in other racial and ethnic groups.

Three health information sources were extracted from a factor analysis and included English media sources, Vietnamese media sources, and informal sources. These emergent factors are consistent with previous research. For example, research shows that media that is offered in the native language of an ethnic minority population may be particularly effective in conveying health messages [13]. In addition, research shows that ethnic minority populations rely on informal sources (e.g., friends or family members) when accessing health-related information [14].

Two items that were dropped because of poor factor loadings were items related to using leaflets and brochures, and talking to doctors/nurses. The lack of significance of these items in the final factors are not surprising as previous research shows that Vietnamese women are less likely to be reached via conventional sources of health information such as communication with health providers [10]. The transmission of health information from physician to patient may be constrained by cultural barriers that prevent the discussion of topics considered taboo or private with other people.

The primary finding of this study was that higher reliance on informal sources for health information was associated with positive attitudes towards breast cancer screening *and* higher levels of self-efficacy for both breast and cervical cancer screening. Informal sources of information from family and friends may be more influential than formal sources given the Vietnamese cultural values of communalism, and family and group solidarity. In addition, family members or peers that are more acculturated within the dominant society may act as “cultural brokers” and serve as cultural translators for family members, other adults, and their peers [22]. Cultural brokering can include a wide range of activities that include answering the telephone, explaining to parents what native speakers are communicating, and translating for younger siblings [23]. This ‘brokering’ can also span foreign health topics such as breast and cervical cancer and screening procedures.

The findings also indicated that higher reliance on Vietnamese media sources was associated with lower levels of self-efficacy for cervical cancer screening. This finding was unexpected given previous research shows that health information delivered via Vietnamese media is associated with cancer screening outcomes [13]. We can reconcile this discrepancy with two explanations. First, mass media interventions and campaigns that deliver health messages with the intention of improving health comprehension and outcomes for ethnic minority populations are standardized and validated. After validation, they are offered through mediums considered appropriate for the target population. However, in the current study, it

was not possible to know the types of media sources our participants were exposed to, nor was it possible to measure their attention to and retention of health messages. Second, in our sample, women who relied upon Vietnamese literature may have been less acculturated and thus more likely to ascribe to traditional norms regarding health and screening behaviors. Traditional Vietnamese medicine may not support cancer screening behaviors; for example, some traditional beliefs and practices for the prevention of cervical cancer include vaginal washing (*rua ray*) with salt or alum [24].

Several demographic variables were also associated with cancer screening outcomes. Older women were more likely than younger women to have high levels of self-efficacy for Pap testing and to have had a Pap test and a CBE. Having insurance was also a significant predictor for having high levels of self-efficacy for breast cancer screening. Having higher levels of household income predicted having had a Pap test. These findings have implications for whom to target in cancer screening programs and interventions.

Implications for Programming Efforts and Future Research

Although informal sources are utilized more often, the present study illustrated how the Vietnamese population also relies on media sources in obtaining health information. In our study, reliance on Vietnamese media sources was associated with decreased self-efficacy for screening. The findings from this study suggest that cancer screening programs and interventions should be tailored to effectively use preferred mediums. Health information exchanges that occur within informal communication channels may be especially effective for Vietnamese woman as information that is transmitted within culturally familiar and informal environments is accepted with more positive attitudes.

Access to health information does not guarantee that the intended recipients will comprehend or make use of the message. In order to successfully transmit health information, education strategies must be culturally appropriate to the receptive audience. One implication for programming efforts are that interventions could target Vietnamese women who can ‘culturally broker’ information learned through more formal education. For example, Vietnamese women trained in a cancer screening education program could be encouraged to share the information learned with ten other family members and friends.

Lastly, it is possible that acculturative status may moderate the relationship between health information seeking behaviors and cancer screening outcomes. For example, the positive relationship between reliance on informal health sources and attitudes towards cancer screening may be stronger for less acculturated Vietnamese women and less relevant for more acculturated women. Future studies should look at different mechanisms of health information seeking with special attention on issues surrounding acculturation and assimilation.

Limitations

There were some study limitations. We relied on self-report measures, and social desirability may have been a factor in the reporting of past CBEs and Pap tests. Future studies could provide incentives for participants for bringing documentation or proof of their screening. While the sample was adequate for testing hypotheses, the relatively small sample size is

another limitation. To improve external validity, future studies should strive to incorporate a larger sample size using random sampling methods. A final limitation is that we did not access the accuracy of the information that was obtained from informal sources. Evidence suggests that reliance on informal sources of health information may result in misinformation [25], and it is possible that while informal sources may bolster positive attitudes towards cancer screening, reliance can also lead to inaccurate perceptions of screening. Still, positive attitudes help to increase likelihood of health behaviors, and we believe this to be an important step towards health promotion. Future studies should examine the specific types of information that is transmitted within informal networks so that inaccurate perceptions or myths may be targeted in educational interventions.

Conclusions

This study examined outlets for health communication within a Vietnamese sample. The Vietnamese are more likely to rely on informal sources to acquire knowledge about cancer screening. The efficiency and impact of a health message may be lost when it is delivered through a potentially irrelevant or inappropriate medium. While our sample was Vietnamese, other racial and ethnic groups with cancer screening disparities may also benefit from screening efforts that use informal sources in which to deliver to screening messages. Future studies need to assess strategies that will optimize using existing social networks in transmitting health information to populations that are difficult to reach as well as populations with cancer screening disparities. These populations are likely to be ethnic and racial minority populations.

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Table 1

Participant demographics

Participant demographics	No.	Percent
Education		
Some high school	31	28
High school graduate/GED	29	26
Some college	20	18
College graduate	28	25
Post college graduate	3	3
Children		
Yes	80	72
No	31	28
Household income		
Less than $10,000	18	16
$10,000–15,000	15	15
$15,000–25,000	25	24
$25,000–50,000	23	21
$50,000–75,000	14	12
Over $75,000	16	14
Marital status		
Single	25	23
Married	75	68
Divorced	6	5
Widowed	4	4
Employed		
Yes	80	72
No	31	28
Do you have health insurance?		
Yes	77	69
No	34	31

Numbers may not always add up to 111 due to missing responses

Table 2

Factors and item loadings

Factors and item loadings	Factor loading
English media sources α=0.83	
Reading English language newspapers and/or magazines	0.84
Listening to English language radio programs	0.85
Watching English language television programs	0.84
Using the Internet	0.72
Vietnamese media sources α=0.80	
Reading Vietnamese language newspapers and/or magazines	0.80
Listening to Vietnamese language radio programs	0.86
Watching Vietnamese language television programs	0.82
Informal sources α=0.71	
Talking to friends	0.54
Talking to family members	0.65
Talking to people at pagodas, temples, or churches	0.85
Talking to people at community functions	0.82

N=111