Is Pap Test Awareness Critical to Pap Test Uptake in Women Living in Rural Vietnam?

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Abstract

Introduction: Cervical cancer is the second leading cause of cancer death among Vietnamese females. By detecting precancerous cells, Pap test screening plays a critical role in the fight against cervical cancer. The present study aims to investigate health-related factors associated with receipt of Pap test among Vietnamese females living in rural Vietnam, particularly examining the correlation between awareness level of the Pap test and the receiving of Pap test. Methods: Anderson’s Behavioral Model of Health Services Use was utilized as the present study’s theoretical framework. A self-administrated questionnaire was completed among 193 females residing in Quantri City, Vietnam. Results: Only 15.5% (N=30) of participants in our sample have had a Pap test. Pap test awareness (OR = 18.38, p<.001) was a strong predictor of Pap test receipt. Participants who had heard about Pap test were 18.38 times more likely to take a Pap test compared to those who had no prior knowledge. Besides the awareness, variables including employment (OR = .18, p<.05), and health insurance coverage (OR = 10.75, p<.05) were significantly associated with Pap test uptake. Conclusion: Findings from the present study suggests interventions should be provided through public health efforts to enhance awareness of Pap test by aiming at increasing primary prevention of cervical cancer, especially among Vietnamese women living in rural areas, in order to reduce cancer health disparities.

Keywords: Pap test- Vietnamese women- Andersen Behavioral Model- cervical cancer screening- awareness

Asian Pac J Cancer Prev, 22 (3), 903-908
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Research Board (IRB) at the authors' university. This study was approved by the Institutional Services Task Force. Thus, 192 participants were used on the population recommendation of U.S. Preventive Services Task Force. A cross-sectional research design was adopted in 2017. A total of 192 Vietnamese women were analyzed in our study. Nearly half (49.5%) participants were aged 21-39 years, and the other half (50.5%) were aged 40-59 years. Participant Characteristics

Materials and Methods

Research Design and Data Collection

This study was part of a larger research program on the investigation of the prevention behaviors of different cancers, such as breast cancer, colorectal cancer, and cervical cancer in Vietnam. Collaborated with a local organization, a convenient sample of Vietnamese aged 18 or older were collected in rural areas in Quang Tri Province in 2017. A cross-sectional research design was adopted in this study. The self-administered questionnaire took 20-30 to complete. Before starting the questionnaire, informed consent was obtained from participants. A total of 193 Vietnamese women were recruited, and one participant aged over 65 year old was excluded from our study based on the population recommendation of U.S. Preventive Services Task Force. Thus, 192 participants were used for analysis. This study was approved by the Institutional Research Board (IRB) at the authors’ university.

Instrument

Dependent variable. The outcome variable of this study was the receipt of Pap test, which was measured by a dichotomous value (0=no, 1=yes).

Independent variables. We utilized Andersen Behavioral Model to categorize independent variables which were divided into predisposing, enabling, and need variables.

Predisposing variables. Age, marital status, employment, and education level were selected as predisposing variables. Age was a continuous variable in our study. Dichotomous values were used for marital status (0=others, 1=married or partnered), employment (0=no, 1=yes), and education (0=<Bachelor’s degree, 1=≥Bachelor’s degree).

Enabling variables. Health insurance coverage, cervical cancer literacy, having usual medical care place, Pap test awareness were entered to enabling variable category. Yes/no questions (0=no, 1=yes) were conducted to measure whether having health insurance coverage, having usual medical care place, and having Pap test awareness. Cervical cancer literacy was measured by a 5-item scale. Each of the items was a true/false question (0=false, 1=true), and the number of correct answers was the cervical cancer literacy score, which was treated as a continuous variable (0-5).

Need variables. Need variables included family cancer history, personal cancer history, and self-rated health status. Personal cancer history and family cancer history were dichotomized (0=no, 1=yes). A 5-point Likert scale was used to measure self-rated health status and the self-rated health score was regarded as a continuous variable (0-4) in our study.

Data Analysis

Univariate analysis was used to examine sociodemographic characteristics (age, marital status, employment, and education level), health accessibility (health insurance coverage, and having usual medical care place), health history information (family cancer history, personal cancer history, and self-rated health score) and health literacy information (Pap test awareness, and cervical cancer literacy). Bivariate analysis was conducted to test the relationship between these variables and the receipt of Pap test. Chi-square test was used for categorical variables, such as marital status, employment, education level, health insurance coverage, having usual medical care place, family cancer history, personal cancer history, and Pap test awareness. T-test was performed for continuous variables, such as age, self-rated health score and cervical cancer literacy. Logistic regression analysis predicting Pap test receipt was conducted with predisposing, enabling, and need variables. All analysis of this study was conducted using SPSS 25.0.

Results

Participant Characteristics

A total of 192 Vietnamese women were analyzed in our study. Nearly half (49.5%) participants were aged 21-39 years, and the other half (50.5%) were aged 40-59 years.
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Pap Test Uptake in Vietnam

As Table 1 indicates, among those who received Pap test, significant differences were found in education ($\chi^2 = 6.512, p < .05$), health insurance coverage ($\chi^2 = 5.293, p < 0.05$), and Pap test awareness ($\chi^2 = 33.724, p < 0.001$). There were no significant differences in age, marital status, employment, having usual medical care place, personal cancer history and family cancer history. In addition, no significant differences were found in self-rated health score and cervical cancer literacy.

Table 1. Sociodemographic Characteristics of the Sample (N=192)

| Characteristic                  | n  | %   | Received Pap Test | n  | %   |
|--------------------------------|----|-----|-------------------|----|-----|
| Age (M=40.70, SD=5.357)        |    |     |                   |    |     |
| 21-39 years                    | 95 | 49.5| 17                | 17 | 17.9|
| 40-59 years                    | 97 | 50.5| 13                | 13 | 13.4|
| Marital Status                 |    |     |                   |    |     |
| Married or partnered           | 176| 91.7| 27                | 27 | 15.3|
| Other                          | 16 | 8.3 | 3                 | 3  | 18.8|
| Employed                       |    |     |                   |    |     |
| Yes                            | 171| 89.1| 26                | 26 | 15.2|
| No                             | 21 | 10.9| 4                 | 4  | 19  |
| Education Level                |    |     |                   |    |     |
| <Bachelor’s degree             | 159| 82.8| 20                | 20 | 12.6|
| Bachelor’s degree              | 33 | 17.2| 10                | 10 | 30.3|
| Health insurance coverage      |    |     |                   |    |     |
| Yes                            | 157| 81.8| 29                | 29 | 18.5|
| No                             | 35 | 18.2| 1                 | 1  | 2.9 |
| Having usual medical care place|    |     |                   |    |     |
| Yes                            | 125| 65.1| 21                | 21 | 16.8|
| No                             | 67 | 34.9| 9                 | 9  | 13.4|
| Family cancer history          |    |     |                   |    |     |
| Yes                            | 49 | 25.5| 9                 | 9  | 18.4|
| No                             | 143| 74.5| 21                | 21 | 14.7|
| Personal cancer history        |    |     |                   |    |     |
| Yes                            | 10 | 5.2 | 1                 | 1  | 10  |
| No                             | 182| 94.8| 29                | 29 | 15.9|
| Pap test awareness             |    |     |                   |    |     |
| Yes                            | 70 | 36.5| 25                | 25 | 15.7|
| No                             | 122| 63.5| 5                 | 5  | 4.1 |

Table 2. Receipt of Pap Test by Age and Time Frame (N=192)

| Time               | 21-39 (n=92) |        | 40-59 (n=82) |        | Total |
|--------------------|--------------|--------|--------------|--------|-------|
|                     | n  | %   | Age          | n  | %   | Cum. | n  | %   | Cum. |
| Ever had            | 17 | 17.9| 13           | 13  | 13.4|      | 30 | 15.5|     |
| 1 year              | 5  | 5.3 | 5            | 3   | 3.1 | 3.1  | 8  | 4.1 | 4.1  |
| 1, 2 years          | 5  | 5.3 | 10.6         | 3   | 3.1 | 6.2  | 8  | 4.1 | 8.2  |
| 2, 3 years          | 2  | 2.1 | 12.7         | 2   | 2.1 | 8.3  | 4  | 2.1 | 10.3 |
| 3 years             | 5  | 5.3 | 17.9         | 5   | 5.2 | 13.4 | 10 | 5.2 | 15.5 |

Discussion

The present study investigated the level of Pap test uptake among Vietnamese females guided by Andersen’s Behavioral Model of Health Services. This study provided the first empirical evidence about the low level of Pap test uptake among females in Vietnam. Approximately 16% of participants had a Pap test in their lifetime, among which 17.9% (N=17) were aged 21-39 years and 13.4% (N=13) were aged 40-59 years. About 13% of participants aged from 21-39 years (N=12) and 3% of participants in 40-59 years group (N=8) had Pap test within 3 years. Moreover, only 4% of all participants had Pap test within a year in the present study. Approximately 5% of participants in 21-39 years (N=5) and 40-59 years (N=5) took Pap test more than 3 years ago, respectively.

Logistic Regression Analysis on Pap Test Receipt

Among the predisposing variables, only employed (OR = .184, p<0.05) were significantly associated with Pap test receipt. Participant who were employed showed significantly lower likelihood of uptake Pap test in the present study. As for the enabling factors, health insurance coverage (OR = 10.749, p<0.05) was significant. Those who had health insurance coverage were 10.75 times that of those who do not have insurance to take Pap tests. Pap test awareness (OR = 18.377, p<0.001) was a strong significant predictor. Participants who were aware of Pap test were 18.38 times that of those who were not aware of it to take Pap test. All of the need variables were not significantly associated with receipt of Pap tests.

The majority of the women (91.7%) were married or partnered and employed (89.1%). Only 17.2% women held bachelors’ degree or higher. With regard to health access, 81.8% of our participants were covered by health insurance, 65.1% had a usual medical care place. For health information, about 5.2% had personal cancer history, 25.5% had family cancer history and only 36.5% had ever heard about Pap test.

As Table 1 indicates, among those who received Pap test, significant differences were found in education ($\chi^2 = 6.512, p< .05$), health insurance coverage ($\chi^2 = 5.293, p< 0.05$), and Pap test awareness ($\chi^2 = 33.724, p<0.001$). There were no significant differences in age, marital status, employment, having usual medical care place, personal cancer history and family cancer history. In addition, no significant differences were found in self-rated health score and cervical cancer literacy.

Receipt of Pap Test by age and Time Frame

As shown in Table 2, 15.5% (N=30) participants in our samples had a Pap test in their life time, among which 17.9% (N=17) were aged 21-39 years and 13.4% (N=13) were aged 40-59 years. About 13% of participants aged from 21-39 years (N=12) and 3% of participants in 40-59 years group (N=8) had Pap test within 3 years. Moreover, only 4% of all participants had Pap test within in a year in the present study. Approximately 5% of participants in 21-39 years (N=5) and 40-59 yeas (N=5) took Pap test more than 3 years ago, respectively.

| Time               | 21-39 (n=92) |        | 40-59 (n=82) |        | Total |
|--------------------|--------------|--------|--------------|--------|-------|
|                     | n  | %   | Age          | n  | %   | Cum. | n  | %   | Cum. |
| Ever had            | 17 | 17.9| 13           | 13  | 13.4|      | 30 | 15.5|     |
| 1 year              | 5  | 5.3 | 5            | 3   | 3.1 | 3.1  | 8  | 4.1 | 4.1  |
| 1, 2 years          | 5  | 5.3 | 10.6         | 3   | 3.1 | 6.2  | 8  | 4.1 | 8.2  |
| 2, 3 years          | 2  | 2.1 | 12.7         | 2   | 2.1 | 8.3  | 4  | 2.1 | 10.3 |
| 3 years             | 5  | 5.3 | 17.9         | 5   | 5.2 | 13.4 | 10 | 5.2 | 15.5 |

* p < 0.05, ** p < 0.001
present study. Vietnamese female participants who were employed showed a significantly lower level of Pap test receipt, which was consistent with the literature (Maxwell et al., 2000). This finding revealed that demographic characteristics are also important aspects to investigate and understand Vietnamese females who have not gotten the Pap test. One plausible explanation is that Vietnamese females who are employed tend to be occupied by their work and have less opportunities to receive cancer screenings than those who were unemployed. This result indicated that cancer prevention programs should target both employed and unemployed females to increase Pap test receipt.

Among enabling factors, participants who had health insurance revealed 10 times higher likelihood to receive a Pap test than those who were not insured among Vietnamese females in the present study, which has mirrored previous studies (Do, 2015; Yi et al., 2013). This result indicates essential implications in increasing the coverage of health insurance, thus improving cancer preventive behaviors and reducing health disparities in Vietnam.

More importantly, Vietnamese female participants who had heard of Pap tests or were aware of the Pap test was the strongest factor associated with the receipt of Pap tests which is in line with prior studies (Lam et al., 2003; Nguyen et al., 2012). Vietnamese females who have heard of Pap test were 18 times more likely to receive a Pap test compared to those who have never heard of one. This finding indicates that Pap test awareness is crucial for improving the Pap test receipt among females in Vietnam.

**Implications for Nursing Practice and Research**

Despite the limitations of the present study, a number of significant implications for nursing and health care practice and policy surfaced. The findings highlighted the importance of studying Vietnamese females, as well as studying their cultural and contextual factors related to health and cancer preventive behaviors. The present study identified two significant modifiable barriers to Pap test receipt in Vietnam, (1) the awareness of Pap test and (2) owning health insurance, which have fundamental implications for health practice and policy.

First, a lack of awareness or knowledge of the Pap test is the most critical barrier of getting a Pap test in Vietnam (Lam et al., 2003; Nguyen et al., 2012). Community-based educational programs could be essential to increase the Pap test receipt. Health message delivery through media campaigns and social network sites (e.g., Facebook or twitters) offer an innovative future intervention to increase the awareness of cervical cancer and the Pap test in Vietnamese communities. More importantly, future studies and practice should also pay attention on how to transfer the awareness of cervical cancer screening to an actual Pap test receipt in Vietnam (Fang et al., 2011). Second, having health insurance could promote Pap test receipts among Vietnamese females. The present findings suggest that expanding health insurance coverage and increasing the financial accessibility of the Pap test is essential for Vietnamese females (Do, 2015). Finally, the findings presented in the current study provide the opportunity for nurses and health care professionals to explore and implement strategies to close the health disparity gap among adult women living in rural Vietnam.

**Limitations**

Although the present study provides valuable insight into health-related factors associated with receiving Pap tests among Vietnamese females, several limitations should be considered. First, the present study was a cross-
sectional study which did not reveal causal relationships between factors and Pap test receipt. Next, the present study employed a small sample size of females in Vietnam. Therefore, the findings of this study need to be cautious when generalizing to Vietnamese females in Vietnam. However, the small sample size might not be a significant limitation due to the present results being consistent with previous studies. Future longitudinal studies would be needed to examine the causal relationships between health-related factors and the Pap test receipt among Vietnamese females and other Asian females.

In Conclusion, cervical cancer is the most common cancer among females in Vietnam which should be addressed by public health policies. Public health-related policies should advocate the screening for early detection, develop new techniques for cervical cancer diagnosis, and form a national medical network for cervical cancer prevention in Vietnam (Domingo et al., 2008). Literature supports that many women may be ignoring the importance of Pap testing, which additionally emphasizes the need for educational programs (Hsu et al., 2011). This study provides a step toward a better understanding of the barriers to Pap test receipts in Vietnam. The present study highlights the significant role of Pap test awareness. It is necessary and urgent for public health efforts to be focused on increasing the primary prevention of cervical cancer. This can be achieved by focusing on increasing the awareness of Pap tests in communities in order to reduce cervical cancer screening disparities in Vietnam (Domingo et al., 2008; Fang et al., 2011).

Author Contribution Statement

None.

Acknowledgements

This study has been approved by the University of Minnesota Institutional Review Board (IRB #: 1604E87149) and the National Medical Center South Korea Institutional Review Board (IRB #: H-1610-071-001). This work has been supported by the Yonsei University College of Medicine grant fund (6-2014-0054) and Endowed Academic Chair Research Fund by the University of Alabama School of Social Work. This is not part of an approved thesis and no conflicts of interest.

Conflicts of Interest

The authors have no conflicts of interest relevant to this article to disclose.

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