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## Overcoming Barriers to Cervical Cancer Screening Among Asian American Women

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### Abstract

Significant disparities in cervical cancer incidence and mortality exist among ethnic minority women, and in particular, among Asian American women. These disparities have been attributed primarily to differences in screening rates across ethnic/racial groups. Asian American women have one of the lowest rates of screening compared to other ethnic/racial groups. Yet Asian Americans, who comprise one of the fastest growing populations in the United States, have received the least attention in cancer control research. Studies suggest that various factors, including lack of knowledge, psychosocial and cultural beliefs, and access barriers, are associated with cervical cancer screening behaviors among Asian American women. Indeed, the few interventions that have been developed for Asian American women demonstrate that targeting these factors can yield significant increases in screening rates. It is important to note, however, that the effectiveness of educational interventions is often attenuated if access barriers are not adequately addressed. Hence, interventions that include key essential components, such as the use of community individuals as lay health workers, culturally-tailored and linguistically-appropriate educational materials, and navigation assistance to overcome access barriers, are more likely to be successful in enhancing screening rates. As the benefits of community-based cervical cancer prevention programs become more apparent, it will be essential to identify effective approaches for disseminating such programs more broadly. In conclusion, community-based cervical cancer screening programs have demonstrated promise in addressing existing cervical cancer disparities by increasing awareness and knowledge and promoting recommended screening behaviors. These findings will be instrumental in guiding future community-based programs to reduce cervical cancer health disparities among Asian American women.

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## Keywords

cervical cancer; screening; Asian Americans; disparities; cancer prevention; community-based; psychosocial beliefs; access barriers

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Cervical cancer is the third most common cancer among women worldwide, with an estimated 530,000 new cases diagnosed each year.<sup>1</sup> In the United States (US), approximately 12,200 new cases of invasive cervical cancer were diagnosed in 2010.<sup>2</sup> Epidemiological studies have identified several risk factors for cervical cancer, with the primary risk factor being persistent infection with an oncogenic subtype of human papillomavirus (HPV).<sup>3-6</sup> However, the presence of HPV infection alone is not sufficient to cause cervical cancer.<sup>5, 7</sup> The cumulative lifetime probability of acquiring a cervical infection with at least one type of HPV is extremely high for sexually active women.<sup>8</sup> The finding that HPV infection is far more common than cervical neoplasia suggests that there may be cofactors for the progression to cervical cancer. Potential cofactors include cell-mediated immunity to HPV<sup>9-15</sup> and cigarette smoking.<sup>16-20</sup>

Over the past 30 years, there has been a steady decrease in cervical cancer incidence and mortality in the US<sup>21</sup> due to the development of the Papanicolaou test (also called the Pap test). The Pap test is an effective screening method for the early detection of pre-cancerous changes and cervical cancer. During a Pap test, cells are collected from the cervix and examined under a microscope for abnormalities. In the US, adult women are advised to undergo a Pap test at regular intervals (annually or every 2-3 years, depending on age, the type of test, and prior history).<sup>22</sup>

But despite the proven survival benefits associated with screening and the early detection of cervical cancer, utilization of the Pap test among Asian American women lags far behind that of the general US population.<sup>23-33</sup> As a result, significant disparities in cervical cancer incidence and mortality have been observed, with higher cervical cancer mortality rates reported among subgroups of Asian American women compared to non-Hispanic white women.<sup>34</sup> This is of direct public health concern given that the US Asian population experienced a 43% increase from 2000 to 2010, making Asians the fastest growing racial group over the past decade.<sup>35</sup> Specifically, the US Asian population now numbers approximately 14.7 million or about 5% of the US population. Among Asian Americans, Chinese were the largest group, representing approximately 24% of the US Asian population or over 1% of the total US population.<sup>35</sup> Asian Indians, Filipinos, Vietnamese, and Koreans represent the second-largest to fifth-largest groups, respectively, of US Asians. Together, these five Asian groups account for over 80% of the US Asian population or 9.7 million individuals.<sup>35</sup>

When cervical cancer outcomes are examined by specific Asian subgroup, data suggest that Vietnamese, Korean, and Chinese women experience higher rates of cervical cancer compared to other Asian and non-Asian populations, including Japanese, Filipino, and non-Hispanic white women in the US.<sup>36</sup> The relatively high incidence rates observed among Vietnamese, Korean, and Chinese American women has been attributed, in part, to low uptake of cervical cancer screening in these populations. A study of Vietnamese American women in the eastern region of the US revealed that over 33% had never had a Pap test and 35% were currently noncompliant with screening guidelines.<sup>37</sup> Korean American women also have been reported to have very low rates of cervical cancer screening.<sup>23, 29, 38-39</sup> Among Korean American women residing in California, 40% had never had a Pap test (compared to 8% of California's general female population who had never been screened). Another study of Korean American women in Chicago found that only 34% of respondents

reported having ever had a Pap test, and 26% had never heard of the test.<sup>24</sup> Among Chinese American women residing in Seattle, 19% had never received screening and 36% had not been screened in the past two years.<sup>40</sup> Similar low rates of cervical cancer screening were observed among Chinese immigrants living in Seattle<sup>41</sup> as well as among foreign-born Chinese women residing near Portland and the San Francisco Bay area.<sup>42,43</sup> Among Chinese American women in the eastern US, 28% reported never having received a Pap test.<sup>37</sup> Given these low rates of screening, the majority of studies have focused on understanding the factors associated with cervical cancer screening in these Asian subgroups.

## Factors Associated with Cervical Cancer Screening

A number of studies have examined potential factors associated with cervical cancer screening among Asian American women.<sup>23-24, 38, 44-45</sup> Factors found to be associated with screening behavior can be broadly grouped into the following categories: 1) Lack of knowledge or misinformation about cervical cancer; 2) Psychosocial beliefs about cervical cancer and perceived barriers to screening; and 3) Structural barriers to healthcare access.

### Lack of Knowledge of Cervical Cancer and Risk Factors

Knowledge of cervical cancer, screening guidelines, and cervical cancer risk factors is relatively low among Asian American women,<sup>46-49</sup> and a large amount of misinformation exists.<sup>38</sup> For example, many women expressed beliefs that cervical cancer is caused by health conditions (e.g., menopause), heredity, psychosocial factors (e.g., a pessimistic personality), or life events (e.g., having had multiple abortions or childbirths).<sup>38, 50</sup> In contrast, few women were aware that human papillomavirus (HPV) is a primary risk factor.<sup>47</sup> As a result, women believed that getting rest, eating healthfully, and avoiding stress could serve as preventive measures against cervical cancer.<sup>38</sup> More importantly, many Asian women did not know the recommended guidelines for cervical cancer screening, nor who should undergo screening.<sup>50</sup>

Lack of knowledge regarding cervical cancer and Pap tests has been repeatedly shown to be associated with non-adherence to screening.<sup>51-52</sup> For example, Korean American women with limited knowledge of cervical cancer had lower rates of screening,<sup>53</sup> whereas women who were familiar with screening guidelines were 3 times more likely to have had a Pap test.<sup>52</sup>

### Psychosocial and Cultural Beliefs about Cervical Cancer and Screening

Studies indicate that various psychosocial beliefs are often associated with cervical cancer screening among Asian American women.<sup>54</sup> For example, Asian American women tend to perceive themselves as being at low risk for cervical cancer,<sup>24</sup> which was reported to be a primary reason for not having a Pap test.<sup>51</sup> Indeed, women who obtained screening were more likely to report feeling vulnerable or susceptible to cervical cancer compared to women who did not undergo screening.<sup>38</sup>

Moreover, Asian American women who hold beliefs that staying healthy is due to luck<sup>54</sup> and that health care is a service that one seeks for specific, visible complaints and symptoms<sup>38, 52</sup> were less likely to have a Pap test.<sup>50</sup> In addition, women who held the belief that a Pap test was not necessary for sexually inactive women were less likely to be screened.<sup>42, 55</sup> These findings suggest that Asian American women may be uncertain or unaware of the benefits of screening and early detection.

Finally, many Asian American women have reported that they avoided the Pap test due to embarrassment and shyness.<sup>50</sup> Cultural beliefs about modesty are often negatively associated with screening, whereas women who reported less concern about embarrassment

were more likely to obtain screening.<sup>42, 55</sup> Empirical evidence supporting this association was also reported in a study of 206 Asian American college students in which openness about sexuality was a significant and positive predictor of having obtained a Pap test.<sup>56</sup>

### **Barriers to Screening**

Across the majority of studies, structural or access barriers to screening (e.g., cost, lack of insurance, language difficulties) were the most often cited factors influencing screening behavior.<sup>24, 38, 52</sup> Juon and colleagues reported that women who do not have health insurance are less likely than insured women to obtain a Pap test.<sup>57</sup> Other factors that have consistently been associated with poor uptake of screening include lack of a regular source of healthcare or a regular physician.<sup>52, 54, 58</sup> Another barrier to screening is limited English language proficiency. Studies have demonstrated that women who are unable to speak or read English have many difficulties in accessing health care services, scheduling appointments, and communicating with healthcare professionals.<sup>59</sup> Non-English speakers and immigrants are less likely to obtain screening tests than the general US population due to language and access barriers.<sup>40, 55, 60-61</sup> Despite the formidable challenges posed by language barriers, key services (such as providing medical translators) may help reduce or eliminate such obstacles. Indeed, among Asian American women with limited English proficiency, those who regularly used a medical interpreter were more likely to have received a Pap test compared to their counterparts who did not use an interpreter.<sup>62</sup> Therefore, the provision of essential navigation elements (such as translation services, enrollment assistance, transportation, etc.) may be effective in overcoming such barriers.<sup>63</sup>

### **Interventions to Enhance Cervical Cancer Screening among Asian American Women**

Despite the high incidence rates of cervical cancer and low screening prevalence among Asian American women, few programs to increase cervical cancer screening have been developed for these populations. Of the various programs that have been evaluated, the majority has been targeted toward Vietnamese American women<sup>64-69</sup> and is community-based. For example, using a two-community controlled design, an intervention comprised of lay health worker outreach, health fairs, and culturally-appropriate educational materials was evaluated in one community (San Francisco) relative to a comparison community (Sacramento).<sup>64, 67</sup> This program yielded promising results by demonstrating a 20% increase in Pap test screening rates in the intervention community.<sup>64, 67</sup>

To reach a larger number of individuals in the community, several programs have utilized media-based approaches. In one such study, a media-based community education program was launched to increase breast and cervical cancer screening among Vietnamese American women residing in specific counties in California.<sup>65</sup> At post-intervention, results suggested that the media campaign had significantly increased intention to undergo cervical cancer screening, but it did not result in meaningful differences in actual screening rates.

Hence, it has been proposed that a combined approach will yield greater impact on cervical cancer screening rates.<sup>66, 68-69</sup> Studies employing a combined approach have generally intermixed media campaigns with a lay health worker outreach program. Such combined interventions have been found to result in greater increases in uptake of Pap testing compared to media-based education only.<sup>68</sup> Taken together, these findings suggest that media campaigns can increase women's awareness of cervical cancer screening, but more intensive strategies (such as using lay health workers to encourage and assist women in obtaining screening) are needed to translate awareness into behavior.

Other studies are attempting to address the need for more intensive and effective strategies by partnering with community-based networks. Guided by the principles of community-based participatory research (CBPR),<sup>70</sup> Ma and colleagues are conducting a large-scale, community-based randomized intervention trial to increase cervical cancer screening and reduce health system access barriers among medically-underserved and low-income Vietnamese American women residing in the eastern region of the US. Although final outcome data are not yet available, preliminary analyses indicate a significant increase in Pap testing rates among non-compliant women in the intervention group compared to the control group at 12-months post-intervention. Further, two major lessons were learned from this research experience. First, efforts to reduce health disparities do not need to be limited to health professionals. Engaging community-based organizations within the targeted populations from program concept and development to implementation are critical elements in building the essential links, trust, and respect required for successful, long-term partnerships and high-quality research. Indeed, the engagement of community gatekeepers and organizations fostered broader community interest and enhanced participation in the resulting programs. Second, the input received from community partners resulted in the incorporation of comprehensive intervention strategies that were used to address a broad range of identified barriers and attitudinal beliefs at both the individual- and system-levels. This comprehensive approach, in turn, increased the community's utilization of the education and screening programs developed.

The programs described above were developed specifically for Vietnamese American women, but given empirical evidence that Chinese American women experience numerous and varied barriers to screening, there has also been significant interest in the development of interventions to address such barriers in this population. Along these lines, Taylor and colleagues conducted a randomized trial to evaluate the impact of a "high-intensity" outreach worker intervention.<sup>71</sup> Chinese American women who were randomized to the "high-intensity" intervention received Chinese language educational materials, tailored counseling delivered by a Chinese outreach worker during a home visit, and logistical assistance as needed (e.g., assistance with appointment scheduling, medical interpreter services during clinic visits, transportation assistance). A "low-intensity" intervention arm consisted of a direct mailing of the educational materials that were provided in the "high-intensity" intervention, and a third group of women were randomized to a control condition of usual care. Follow-up assessments indicated a modest increase in screening among all three study arms, but overall screening rates remained low.<sup>71</sup> Lack of access remained a significant barrier to screening in this population. Therefore, in addition to the logistical assistance offered by the outreach workers, there is a need for greater navigation services, particularly with respect to helping women identify state- or federally-funded programs that provide free or low-cost cancer screening and prevention services for underserved women.

The provision of navigation services, combined with community-based education, was evaluated in a study conducted by Ma and colleagues. In a study of Chinese American women residing in New York City,<sup>72</sup> women were randomized to either an intervention program designed to reduce access barriers or to a general health education comparison group. Women in the intervention group received bilingual group education, interaction with a Chinese physician, and navigation assistance, including help with identifying and accessing free or low-cost screening services. The comparison group received education delivered by Chinese community health educators and written materials on general wellness and cancer screening, including cervical cancer, the Pap test, and information about sites that provided free screening. At the 12-month post-intervention assessment, screening rates were significantly higher in the intervention group (70%) compared to the control group (11%).<sup>72</sup> Thus, a community-based program that provided both education and navigation

services can be effective in overcoming the extensive linguistic and access barriers to screening faced by Chinese American women.

Fang and colleagues used a similar “combined” approach, targeting both individual-level factors (e.g., beliefs about screening and cancer) and healthcare access barriers, to increase cervical cancer screening rates among Korean American women.<sup>73</sup> In this study, women recruited from community-based organizations received either a combined intervention or general health education. In the intervention condition, small-group education was delivered by bilingual community health educators using visual aids and materials in the Korean language. In addition, these educational workshops were combined with patient navigation assistance (e.g., language services, appointment scheduling, transportation assistance), referrals to Pap-test sites, and a 6-month reminder for screening. The intervention materials addressed key beliefs and perceptions such as perceived susceptibility to and perceived severity of cervical cancer, and the perceived benefits and barriers to screening. As such, the intervention program was designed not only to address group-specific health beliefs and psychosocial barriers to screening, but also adapted the patient navigator concept for preventive care. Results indicated that screening rates increased significantly among women in the intervention group compared to the control group.<sup>73</sup>

Other studies that have focused on enhancing cervical cancer screening among Korean American women have yielded somewhat mixed results.<sup>74-75</sup> For example, a 4-year community intervention was implemented to promote both breast and cervical cancer screening among Korean American women residing in California.<sup>74</sup> The intervention, which consisted of workshops, educational materials, and financial incentives for screening, did not enhance overall screening rates in the intervention community relative to the comparison community, but attendance at workshops was found to be associated with higher rates of cervical cancer screening.<sup>75</sup> These findings are consistent with prior studies that have reported that although educational workshops can lead to modest increases in screening, lack of access remains a significant barrier to screening in Asian American women.

In summary, a limited number of interventions to enhance cervical cancer screening have been developed and implemented among Vietnamese, Chinese, and Korean American women. Several of these have utilized media campaigns, either alone or in combination with a lay health worker outreach program. Though media campaigns may reach a larger number of individuals, the results suggest that media campaigns alone are not sufficient to increase cervical cancer screening rates. The majority of studies reviewed utilized some combination of lay health worker training, educational workshops, and culturally- and linguistically-appropriate materials. These programs tended to have greater success, although the observed increases in screening rates were modest if access barriers were not adequately addressed. Intervention programs that addressed access barriers directly (through provision of navigation services) demonstrated the largest increases in screening rates.

## Summary and Conclusions

This review article offers some insights regarding common shared strategies that may be effective in increasing cervical cancer screening among Asian American women. Interventions that included key essential components, such as the use of community individuals as lay health workers, culturally-tailored and linguistically-appropriate educational materials, and navigation assistance to overcome access barriers, were often effective in increasing screening rates. Indeed, the evidence to date suggests that although interventions that target women’s health beliefs can lead to increases in screening rates, the effectiveness of such interventions is likely to be attenuated if access barriers are not adequately addressed. Access barriers, including the cost of screening, lack of insurance,

and language difficulties, pose formidable challenges and are the most often cited factors influencing screening behavior.<sup>24, 38, 52</sup> It is well-established that women who do not have health insurance or lack a regular source of healthcare are less likely to receive a Pap test than women who have insurance or a primary care provider.<sup>52, 76</sup> Although there are a number of programs available that provide low-cost or free cancer screening services, Asian American women are often unaware of these services or face considerable barriers to accessing such programs. As a result, the importance of providing navigation assistance for screening/prevention services in this medically underserved population cannot be overstated.

These studies also highlight a number of challenges that remain. It is well-understood that access barriers are difficult to overcome, and interventions designed to address access barriers can be very labor-intensive to deliver. Community partnerships, however, can play a key role in providing the essential infrastructure and resources to facilitate the broad implementation of such programs. Further, for those community members who are not eligible to participate in available government-funded programs, obtaining sufficient support for medical assistance remains a constant challenge. Finally, due to the unique resources and needs of each subgroup, the programs that are developed may not be easily adaptable to other subgroups or communities. Consequently, it has been difficult for programs to be widely circulated or shared across subgroups or geographic regions.

As the benefits of community-based cervical cancer prevention programs become more apparent, it will be essential to identify the key components of such programs that contribute to efficacy. As present, the cost-effectiveness of implementing such programs in the community is not well-defined. Future studies may need to assess the cost-benefit ratio for delivering such programs over the long-term. In addition, to achieve maximal benefit, greater attention to the development of effective approaches for disseminating such programs is required. This may necessitate setting aside additional resources to help underserved communities obtain the recommended healthcare services or require changing current healthcare program guidelines, such as expanding the eligibility criteria for state- and/or federally-funded programs that provide low-cost cancer screening and prevention services for underserved women.

In conclusion, community-based cervical cancer screening programs have demonstrated promise in addressing existing cervical cancer disparities by increasing awareness and knowledge and promoting recommended screening behaviors. The lessons learned from this body of research will be instrumental in guiding future community-based programs to reduce cancer health disparities among Asian American women.

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