A Questionnaire Study of Cervical Cancer Screening Beliefs and Practices of Chinese and Caucasian Mother-Daughter Pairs Living in Canada

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Abstract

Objective: Papanicolaou (Pap) testing rates among Chinese women remain low compared with their Caucasian counterparts despite extensive efforts to raise awareness of the importance of regular screening. We examined three potential predictors of Pap testing behaviour in Chinese women: acculturation, cervical cancer screening belief accuracy, and intergenerational transmission.

Methods: Caucasian (n = 78) and Chinese (n = 93) female university students and their mothers completed questionnaires concerning acculturation, Pap testing beliefs, and behaviours.

Results: Ethnic group comparisons revealed that Chinese daughters and mothers had lower Pap testing rates and less accurate beliefs regarding cervical cancer screening. Among women who had had at least one Pap test, there was no ethnic difference in the proportion of women who adhered to the recommended screening frequency. Among the Chinese women, lower heritage acculturation was correlated with higher cancer screening belief accuracy in both the daughters and their mothers. Maternal Pap testing behaviour was predicted by level of cancer screening belief accuracy, whereas daughters' Pap testing behaviour was predicted by previous experience of sexual intercourse and heritage acculturation. No intergenerational transmission of Pap testing beliefs or behaviours was found.

Conclusion: The accuracy of cancer screening beliefs, level of acculturation and experience of sexual intercourse may be predictors of Pap testing behaviour in Chinese women. Contrary to our prediction, we found no support for intergenerational transmission, suggesting that Pap testing beliefs and behaviours of Chinese women are independent of the beliefs and behaviours of their mothers.

Key Words: Cervical cancer screening, acculturation, sexual health

Competing Interests: None declared.

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Résumé

Objectif : Les taux de test de Papanicolaou (Pap) chez les Chinoises demeurent faibles par comparaison avec leurs homologues de race blanche, et ce, malgré le déploiement d'efforts considérables en vue de les sensibiliser à l'importance d'un dépistage régulier. Nous nous sommes penchés sur trois facteurs prédictifs possibles du comportement des Chinoises envers le test de Pap : acculturation, précision des opinions quant au dépistage du cancer du col utérin et transmission intergénérationnelle.

Méthodes : Des étudiantes universitaires de race blanche (n = 78) et chinoises (n = 93) et leurs mères ont rempli des questionnaires traitant de l'acculturation, des opinions quant au test de Pap et des comportements.

Résultats : Les comparaisons entre les groupes ethniques ont révélé que les filles et les mères chinoises présentaient des taux de test de Pap inférieurs et des opinions moins précises quant au dépistage du cancer du col utérin. Chez les femmes qui avaient déjà subi au moins un test de Pap, aucune différence en fonction de l'ethnicité n'a été constatée en ce qui concerne la proportion de femmes s'étant conformées à la fréquence de dépistage recommandée. Chez les Chinoises, une faible acculturation patrimoniale était en corrélation avec des opinions plus précises quant au dépistage du cancer, et ce, tant chez les filles que chez les mères. Le comportement des mères envers le test de Pap était prédit par le niveau de précision de leurs opinions quant au dépistage du cancer, tandis que celui des filles était prédit par l'expérience préalable en matière de sexualité et l'acculturation patrimoniale. Aucune transmission intergénérationnelle des opinions ou des comportements envers le test de Pap n'a été constatée.

Conclusion : La précision des opinions quant au cancer, le niveau d'acculturation et l'expérience en matière de sexualité peuvent être des facteurs prédictifs en ce qui concerne les comportements envers le test de Pap chez les Chinoises. Contrairement à notre prédiction, rien ne nous a permis de soutenir un quelconque apport de la part de la transmission intergénérationnelle, ce qui semble indiquer que les opinions et les comportements des Chinoises envers le test de Pap sont indépendants des opinions et des comportements de leurs mères.

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INTRODUCTION

Cervical cancer continues to be a significant health threat to women. Worldwide, cervical cancer is currently the fifth most deadly cancer in women.[1] In 2009, an estimated 4070 new cases of cervical cancer and 380 deaths will occur in Canada.[2] An important safeguard against cervical cancer is the Pap test, which involves scraping cells from the cervix during a vaginal speculum examination. The steady decline in the incidence and mortality of cervical cancer in Canada for the past three decades is largely attributed to widespread Pap testing.[2]

Despite the benefits of the Pap test, it is significantly underutilized by Chinese women[3,4] Pap testing rates are lower among Chinese women than Caucasian women[4–7] even in the face of extensive health care changes.[3,8,9] Mortality from cervical cancer is significantly higher among Asian American women despite their having a lower incidence of cervical cancer.[10]

Although the lower Pap testing rate and the ensuing health repercussions among Chinese women is well characterized, the mechanisms underlying this phenomenon are not. Chinese people comprise one of the fastest growing minority groups in North America.[11,12] Insight into these mechanisms will be invaluable in the formulation of more effective initiatives for improving Pap testing rates. The primary aim of this study was to examine potential factors related to low Pap testing rates among Chinese women.

In this study, we assessed whether Pap testing behaviour was associated with acculturation. Examining acculturation allows for the measurement of sensitivity to noteworthy individual differences that exist within an ethnic group.[13] For example, past studies found that the extent of sexual experience and knowledge reported by Chinese-Canadian students was higher than that of Chinese students living in Hong Kong, but lower than that of Caucasian Canadian students.[14–16]

In Canada and the United States, women who previously had a Pap test were found to be more knowledgeable about cervical health and Pap tests than those who had not.[17,18] Studies that investigated Asian women living in Asia and North America noted similar findings.[3,19] We hypothesized that we would find the accuracy of cancer screening beliefs to be predictive of and positively associated with Pap testing behaviour among Chinese women, and that Chinese women who were more mainstream acculturated would have more accurate cancer screening beliefs.

We also predicted that Pap testing behaviour in Chinese women would vary with intergenerational influences. Through a process called observational learning in social cognitive theory, young people often evaluate and model their parents' behaviour, which is likely incorporated into their own range of behaviour.[20] The influence that parents have on their children seems to hold true across various behavioural domains, including diet,[21] physical exercise,[22] alcohol consumption,[7] smoking,[23] and recreational drug use.[24] Studies of the association between health beliefs and knowledge of parents and those of their children have identified a similar trend of intergenerational transmission.[21,25–28]

Cancer screening beliefs and behaviour may also be subject to intergenerational transmission, and this may partially explain ethnic differences in Pap testing rates. We hypothesized that maternal cancer screening beliefs would be associated with cancer screening beliefs in the daughters. Regarding Pap testing behaviour, mothers may be an important socializing agent for their daughters. Such behavioural transmission may also be possible by the daughters' acquisition of maternal patterns of health information use.[21,29] Daughters of mothers who are more resourceful in obtaining and using currently available cancer screening information may also be more resourceful. As a result of the better use of cancer screening information, both daughters and mothers may be more likely to seek Pap testing.[17,18] We therefore hypothesized that maternal Pap testing behaviour would be a significant predictor of daughters' Pap testing behaviour.

We administered questionnaires of acculturation, cancer screening beliefs, and Pap testing behaviour to female undergraduate students and their mothers, with the aim of exploring the accuracy of cancer screening beliefs and intergenerational influences. We predicted that greater mainstream acculturation and lower heritage acculturation would be associated with a higher likelihood of ever having had a Pap test and greater accuracy of cancer screening beliefs among Chinese undergraduate students and their mothers. We hypothesized that Caucasian women would have more cancer screening belief accuracy than Chinese women, and that higher cancer screening belief accuracy in Chinese women would be associated with a higher likelihood of ever having had a Pap test. We also expected to find significant intergenerational transmission of cancer screening belief accuracy and Pap testing behaviour.

ABBREVIATIONS

HBQ	Health Beliefs Questionnaire
Pap	Papanicolaou
UBC	University of British Columbia
VIA	Vancouver Index of Acculturation

METHODS

Female undergraduate students ("daughters") at UBC who were enrolled in psychology courses offering extra credit for research participation were eligible. In addition, a subset of the daughters' mothers were eligible to complete a similar set of questionnaires.

The study was publicized using UBC's online research participation management system. Daughters who were interested in participating completed a questionnaire package at home. All questionnaire packages contained an additional set of questionnaires for mothers to complete. Daughters whose mothers completed the mothers' questionnaires were entered into a draw for a $50 clothing gift certificate. Daughters returned their questionnaire packages to the research laboratory and received course credit for their participation.

The VIA[13] was used to assess the mainstream and heritage dimensions of acculturation separately. The VIA consists of 20 items, with one heritage and one mainstream item keyed to each of 10 domains, which include marriage partner, social activities, and entertainment. Higher scores on the mainstream dimension reflect greater westernization and higher scores on the heritage dimension reflect greater affiliation with the heritage culture. Both dimensions of the VIA were found to have good internal consistency in the Chinese validation sample (Cronbach $\alpha = 0.92$ for heritage acculturation and 0.85 for mainstream acculturation). This measure was included in both the daughters' and the mothers' questionnaire packages. VIA scores for Caucasian participants were not analyzed given that acculturation is a construct relevant only to ethnic minority/immigrant groups.

The HBQ[30] is an unpublished questionnaire developed for our research to assess cervical cancer screening practices and beliefs. At the time of this study, no published questionnaire assessing Pap testing beliefs and behaviours was available. Thus, we compiled a number of items to assess common preventive health behaviours, including the frequency of Pap testing and time elapsed since the last Pap test. To assess the accuracy of beliefs about Pap testing, we developed a series of questions in true/false format based on information that public health agencies attempt to convey to the public. A team of three investigators with expertise in ethnic disparities in cancer research and health behaviours was consulted before finalizing the list of items and refining the questioning. The HBQ was included in both the daughters' and mothers' questionnaire packages and is attached in the Appendix.

A questionnaire assessing general demographic characteristics and sexual and relationship functioning was also included in both the daughters' and mothers' questionnaire packages. Items included questions on ethnicity, place of birth, age, whether or not subjects were in a relationship, and whether subjects had ever engaged in sexual intercourse (the latter item was omitted from the mothers' questionnaire packages).

Ethnic group comparisons were performed using an independent samples *t* test for continuous variables and a chi-square test for proportions. Logistic regressions were performed using acculturation levels, reproductive health beliefs, and history of sexual intercourse. Pearson product moment correlations were performed to examine the relation between continuous variables.

All procedures were approved by the UBC Behavioural Research Ethics Board.

RESULTS

Out of 584 daughters who returned their questionnaire packages, 183 mothers returned their questionnaires. Among this group, 93 mother–daughter pairs identified as Chinese and 78 mother–daughter pairs identified as Caucasian. The remaining 12 mothers self-identified as other ethnic groups and were excluded from further analyses. Only data for the daughters whose mothers completed their questionnaires were included in the analyses for the current study.

The Caucasian daughters were significantly older ($t = 3.65$, $df = 169$, $P < 0.001$), more likely to be in a relationship ($\chi^2 = 9.61$, $df = 1$, $P < 0.01$) and more likely to have ever engaged in sexual intercourse ($\chi^2 = 21.40$, $df = 1$, $P < 0.001$) than the Chinese daughters (Table 1).

The Caucasian mothers were significantly older ($t = 3.33$, $df = 167$, $P < 0.01$) and had lived significantly longer in Canada ($t = 13.97$, $df = 169$, $P < 0.001$) than the Chinese mothers (Table 2). Among the Chinese women, daughters' heritage acculturation was significantly and positively correlated with mothers' heritage acculturation ($r = 0.23$, $df = 87$, $P < 0.05$) and daughters' mainstream acculturation was significantly and positively correlated with mothers' mainstream acculturation ($r = 0.25$, $df = 87$, $P < 0.05$).

The Caucasian daughters were more likely to have ever had a Pap test than the Chinese daughters ($\chi^2 = 54.47$, $df = 1$, $P < 0.001$), with 20.4% of the Chinese daughters having had at least one Pap test and 76.9% of the Caucasian daughters having had at least one Pap test. Among the mothers, 100% of the Caucasian mothers had ever had a Pap test whereas only 81.7% of the Chinese mothers had done so. It was not possible to conduct inferential statistics on this difference because of the ceiling effect on Pap testing among the Caucasian group. Among the mothers who had had at least one Pap test, there was no ethnic difference in the proportion of

mothers who had had a Pap test within the previous two years ($\chi^2 = 1.58$, $df = 1$, $P > 0.05$). There was also no ethnic difference in the proportion of mothers who presented for a Pap test at least once every two years ($\chi^2 = 0.01$, $df = 1$, $P > 0.05$).

Comparing the accuracy of cancer screening beliefs between the two ethnic groups, the Caucasian daughters and mothers scored higher on the HBQ compared with their Chinese counterparts ($t = 6.66$, $df = 153$, $P < 0.001$; and $t = 5.41$, $df = 156$, $P < 0.001$, respectively).

In both the Chinese mothers and daughters, heritage acculturation but not mainstream acculturation was significantly correlated with accuracy of cancer screening beliefs ($r = –0.28$, $df = 91$, $P < 0.01$; and $r = –0.25$, $df = 87$, $P < 0.05$, respectively), such that increasing heritage acculturation was linked to less accurate cancer screening beliefs. Chinese mothers who had had at least one Pap test scored higher on the HBQ than those who had never had a Pap test ($t = 2.38$, $df = 19$, $P < 0.05$).

Among the Chinese daughters, a logistic regression was conducted to examine whether acculturation, beliefs about cervical cancer screening and whether a woman had ever engaged in sexual intercourse could predict whether she had ever had a Pap test. The overall model was significant ($\chi^2 = 48.12$, $df = 4$, $P < 0.001$) and revealed that women with lower heritage acculturation and those who had engaged in sexual intercourse were more likely to have had a Pap test. Interestingly, neither mainstream acculturation nor accuracy of beliefs about cancer screening was linked to having had a Pap test (Table 3).

Among the Chinese mothers, a logistic regression was conducted to examine whether acculturation and beliefs about cervical cancer screening could predict whether they had ever had a Pap test. The overall model was found to be significant ($\chi^2 = 9.28$, $df = 3$, $P < 0.05$) and revealed that mothers who held more accurate cancer screening beliefs were more likely to have ever had a Pap test. On the other hand, neither heritage nor mainstream acculturation predicted Pap testing likelihood (Table 4).

A logistic regression was conducted to examine whether mothers' acculturation and Pap testing behaviour could predict whether daughters had ever had a Pap test. The overall model was found to be non-significant ($\chi^2 = 6.25$, $df = 3$, $P > 0.05$) and revealed that heritage acculturation, mainstream acculturation, and mothers' Pap testing behaviour were not predictive of daughters' likelihood of Pap testing (Table 5).

Among the Chinese mother-daughter dyads, mothers' accuracy of cancer screening beliefs was not correlated with

Table 1. Demographic variables in Chinese and Caucasian daughters

Variable	Chinese (n = 93)	Caucasian (n = 78)
Age, years, mean (SD)***	22.46 (2.29)	23.94 (2.98)
Place of birth (% of each group)***		
Canada or US	48.4	91.0
China/Hong Kong/Taiwan	47.3	0
Southeast Asia	3.2	0
Europe	0	5.0
Other	1.1	4.0
Education, years, mean (SD)	14.80 (1.70)	15.15 (1.46)
Currently in a relationship, %**	48.4	71.8
Have ever had sexual intercourse, %***	34.1	70.3
Marital status, %		
Unmarried	98.9	91.0
Married	1.1	7.7
Divorced	0	1.3
VIA, mean (SD)†		
Mainstream	69.55 (9.93)	
Heritage	69.36 (11.08)	

Significant group differences at $^{**}P < 0.01$. $^{***}P < 0.001$.
†Scale range for each dimension 10–90.

Table 2. Demographic variables in Chinese and Caucasian mothers

Variable	Chinese (n = 93)	Caucasian (n = 78)
Age, years, mean (SD)**	49.78 (4.78)	52.26 (4.85)
Place of birth (% of each group)***		
Canada or US	2.2	88.2
China/Hong Kong/Taiwan	83.5	0
Southeast Asia	11.0	0
Europe	0	10.5
Other	3.3	1.3
Years of residency in Canada, mean (SD)***	18.98 (10.96)	45.67 (14.00)
Marital status, %		
Unmarried	1.1	3.8
Married	95.7	82.0
Divorced	2.2	9.0
Widowed	1	2.6
Common-law	0	2.6
Acculturation Score, mean (SD)		
Mainstream	52.80 (16.44)	
Heritage	77.07 (11.01)	

Significant group differences at $^{**}P < 0.01$. $^{***}P < 0.001$

daughters' cancer screening belief accuracy ($r = 0.30$, $df = 91$, $P > 0.05$).

DISCUSSION

In ethnic group comparisons of Pap testing behaviour, we found that the Caucasian daughters were more likely to have ever had a Pap test than the Chinese daughters. This finding corresponds to the well-documented trend of lower Pap testing rates among Chinese women, and suggests that this applies not only to older women but also to younger and more acculturated women. Among mothers who had had at least one Pap test, there was no ethnic difference in either the proportion of women who had had a Pap test within the previous two years or in the proportion of women who underwent a Pap test at least once every two years; these findings correspond to those of Brotto et al.[31] This suggests that once Chinese women undergo a Pap test, they do not differ from Caucasian women in complying with recommendations on Pap testing frequency.[1,32] This finding suggests that efforts towards increasing Pap testing among Chinese women may be most effective when they are focused on helping Chinese women overcome the barriers to their first Pap test, after which they may be more likely to obtain regular screenings and thereby reduce their vulnerability to cervical cancer.

Our hypothesis that Chinese women would have less accurate cancer screening beliefs was supported by the present findings. Specifically, both Caucasian daughters and mothers were found to possess more accurate beliefs than their Chinese counterparts. This finding in the current study is congruent with the findings of a previous study that also employed the HBQ.[33] In this previous study, the Caucasian women in the sample were significantly more likely to correctly endorse items on the HBQ, including "A woman needs to continue having Pap tests after menopause" and "Pap tests are necessary even if a woman has no symptoms."

In Chinese daughters, low adherence to the heritage culture and having engaged in sexual intercourse predicted a higher likelihood of ever having had a Pap test, but in Chinese mothers only accuracy of cancer screening beliefs predicted the likelihood of ever having had a Pap test. Predictors of Pap testing in Chinese women thus may be partially dependent on marital status, consistent with the perception of the need for Pap testing in Chinese culture. Chinese culture views Pap tests as unnecessary prior to marriage, as sexual activity supposedly occurs exclusively within the marital relationship.[34] Thus, adherence to the heritage culture in this regard would be an impediment to Pap testing only for never-married Chinese women, which in the present sample consist of the daughters. To Chinese daughters that strongly uphold their heritage culture, undergoing a Pap test may be a sign that they are engaging in premarital sexual activity and thus they may avoid it for fear of social denunciation. Conversely, adherence to the heritage culture would not provide the same barrier to Pap testing for the Chinese mothers.

The accuracy of cancer screening beliefs was not a significant predictor of Pap testing behaviour in the Chinese daughters after controlling for previous intercourse experience. This suggests that accuracy of cancer screening beliefs alone does not uniquely predict Pap testing behaviours in daughters, but may simply be a covariant of previous sexual intercourse experience. The finding that the accuracy of cancer screening beliefs was only predictive of Pap testing

Table 3. Odds of ever having had a Pap test: Chinese daughters

Variable	OR (95% CI)
Whether or not daughter had ever engaged in intercourse*** (Reference group = "yes")	0.01 (0.001 to 0.09)
Heritage acculturation*	0.91 (0.84 to 0.98)
Mainstream acculturation	1.00 (0.93 to 1.08)
Accuracy of cancer screening beliefs (HBQ score)	0.71 (0.27 to 1.88)

Significant group differences at *$P < 0.05$, ***$P < 0.001$.

Table 4. Odds of ever having had a Pap test: Chinese mothers

Variable	OR (95% CI)
Heritage acculturation	1.01 (0.95 to 1.07)
Mainstream acculturation	0.98 (0.94 to 1.01)
Accuracy of cancer screening beliefs (HBQ score)*	0.59 (0.38 to 0.92)

Significant group differences at *$P < 0.05$.

Table 5. Odds of ever having had a Pap test: Chinese daughters

Variable	OR (95% CI)
Mothers' heritage acculturation	1.02 (0.96 to 1.07)
Mothers' mainstream acculturation	0.97 (0.94 to 1.00)
Whether or not mother had ever had a Pap test (Reference group = "yes")	0.31 (0.06 to 1.63)

behaviour only in the mothers is surprising, as it was hypothesized to predict Pap testing behaviour for mothers and daughters. There may be a stronger relationship between health knowledge and corresponding health behaviour among older adults. Among the daughters, it may be that accurate knowledge combined with appropriate motivation as well as self-efficacy (i.e., the belief that one is capable of carrying out a certain behaviour) are necessary predictors of Pap testing. Indeed, research on Fisher's Information-Motivation-Self-Efficacy model has shown that each of these three components is necessary for the execution of reproductive health behaviours,[35] and the current data support the assertion that examining self-efficacy may be especially important for understanding reproductive health practices among younger women.

We found that Chinese mothers' accuracy of cancer screening beliefs was not significantly correlated with that of their daughters. Therefore, unlike health knowledge and beliefs regarding nutrition, exercise, and smoking[21–23] cervical cancer screening beliefs do not appear to be intergenerationally transmitted. A possible reason for this is that beliefs about Pap testing are related to sexuality, which is considered a taboo conversation topic in most Chinese families.[36] Knowing that a discussion on Pap testing would likely involve mentioning genitalia and sexual activity, Chinese mothers may feel too uncomfortable or embarrassed and thus avoid the topic altogether. Given that Chinese culture views Pap tests as unnecessary prior to marriage, as premarital sex is forbidden,[34] Chinese mothers may also believe that information regarding Pap tests is highly inappropriate for sharing with their unmarried daughters.

The Pap testing behaviours of the mothers did not predict those of their daughters, indicating that there was also no intergenerational transmission of behaviour. Unlike other health behaviours that have been documented to undergo intergenerational transmission, such as physical exercise[22] and smoking,[23] maternal Pap testing behaviour cannot be easily observed and imitated by daughters because of its private nature. Unfortunately, the same reasons that may restrict Chinese mothers from dispensing Pap test information to their daughters are likely to impede them from discussing their own Pap testing behaviours.

In addition to observational learning, transmission of maternal Pap testing behaviours to daughters is also possible through the acquisition of maternal patterns of cancer screening information use.[21,29,37] However, since the present study did not find the accuracy of cancer screening beliefs to be a predictor of Pap testing behaviour in daughters, this explanation is unlikely to hold.

Another possible reason that the present study found no intergenerational transmission of Pap testing behaviour may be the usage of the mothers' self-reports of Pap testing behaviour, instead of the daughters' perception of maternal Pap testing behaviour. A large number of studies have found intergenerational transmission of physical activity by using children's perception of parental activity,[38–40] but a recent study used actual parental reports and found only weak or no relationships between the physical activity of parents and their children.[41] Future studies should include measures of both daughters' and mothers' Pap testing behaviour in order to understand this relationship better.

This study has limitations that may constrain the generalizability of the findings. The daughters in the present study consisted of university students who were younger, more fluent in English, more educated, and had higher socioeconomic status than Chinese women from the general population. These factors have all been found to predict Pap testing rates among Chinese women.[42] Further, given that the mothers completed their questionnaires in English and have daughters attending university, they were also likely to have a higher level of English fluency and socioeconomic status than Chinese women from the general population. Moreover, the use of an unvalidated questionnaire[30] to assess Pap testing behaviours and cancer screening beliefs is another limitation of this study. This measure was employed because validated questionnaires assessing beliefs about Pap testing were not available at the time that this study was conducted. The strength of the HBQ is that true/false items refer specifically, and separately, to behaviours that may be related to cancer screening and sexual behaviour. Although the HBQ was unvalidated, it has been used in a previous study of Pap testing behaviours in Chinese and Caucasian women.[33] In that study, the results of the analyses involving the HBQ were consistent with prior research findings on the accuracy of preventive health knowledge in Chinese and Caucasian individuals.

Our finding that the accuracy of cancer screening beliefs was a predictor of Pap testing behaviour among the Chinese mothers underscores the importance of educating Chinese women about screening, even among those who are older and have had children. Future initiatives in promoting Pap testing among Chinese women may be more successful if they include disseminating information about Pap testing as their first step. Because of culturally prescribed embarrassment about sexuality and reproductive health issues, health professionals may need to be pro-active in methods of dissemination to Chinese women rather than waiting for prompting from the patient.

We found no ethnic difference in the proportion of women who had had a Pap test at least once in every two years. This suggests that efforts from health workers and policy planners towards increasing Pap testing among Chinese women

should be directed towards aiding them to overcome the hurdles to their first Pap test. Their efforts may be most effective if they are especially directed towards women with high heritage acculturation. Physicians may want to devote extra attention to women who are recent immigrants or who hold more strongly to heritage values and customs, and public notices about Pap testing should include Chinese versions. When talking to older or married women about Pap testing, discussion should focus on teaching facts about Pap testing. In younger and unmarried women, physicians should stress the social acceptability of undergoing Pap testing.

CONCLUSION

Chinese women remain reluctant to undergo Pap test screening. However, among women who have undergone at least one Pap test, there was no ethnic difference in the proportion of women meeting the recommended Pap test frequency. Once Chinese women have overcome the hurdles to obtaining their first Pap test, they are likely to adhere to a regular screening schedule.

We found that stronger adherence to the heritage culture correlated with lower accuracy of cancer screening beliefs in both daughters and mothers and predicted a lower likelihood of the daughters ever having had a Pap test. We also found that accuracy of screening beliefs was a significant predictor of maternal Pap testing behaviour. Intergenerational transmission of the accuracy of cervical cancer screening beliefs and Pap testing behaviour did not appear to be occurring, although past research indicates that the daughters' perception of maternal Pap testing behaviours, rather than the mothers' own reports, may be a predictor of the daughters' Pap testing behaviours. Future research utilizing reports of maternal Pap testing behaviours from both daughters and mothers can test this possibility.

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Appendix

The following questions are focused on some of your behaviours. Please answer each of the following questions by circling the answer which best describes you. Your responses will be kept in the utmost confidence. There are no right or wrong answers.

1. Have you ever had a Pap test? A Pap test is a genital (pelvic) examination performed by a physician.

   Yes No

   If you answered NO, skip to question 4. If you answered YES, proceed to question 2.

2. When was the last time that you had a Pap test?

   a. In the last 12 months

   b. In the last 18 months

   c. In the last 2 years

   d. More than 2 years ago

3. How often do you have Pap tests?

   a. Every 12 months

   b. Every 18 months

   c. Every 2 years

   d. Less frequently than every 2 years

4. Have you ever performed a breast self-examination? Breast self-examination is the use of your hands to examine your breasts for lumps or other abnormal tissue.

   Yes No

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If you answered NO, skip to question 7. If you answered YES, proceed to question 5.

5. When was the last time that you performed a breast self-examination?
   a. In the last month
   b. In the last 2 months
   c. In the last 3 months
   d. More than 3 months ago
6. How often do you perform a breast self-examination?
   a. Every month
   b. Every 2 months
   c. Every 3 months
   d. Less frequently than every 3 months

Below are some statements concerning general information about cancer screening. Please read each statement carefully. Once you have read it, indicate whether you agree or disagree with the statement by circling TRUE for those you agree with, and FALSE for those you disagree with.

7. Healthy adult women should have Pap tests every two years.
   True False
8. Pap tests are not important for a woman at my age.
   True False
9. Only women who have had many sexual partners need to have Pap tests.
   True False
10. The purpose of Pap tests is to detect early signs of cervical cancer.
    True False
11. Pap tests are necessary even if there is no family history of cancer.
    True False
12. The purpose of regular breast self-examinations is to detect potentially cancerous breast lumps.
    True False
13. Healthy breasts should have no lumps in them at all.
    True False
14. Breast examinations by a doctor are unnecessary if I am performing breast self-examinations regularly.
    True False