

BMJ Open Awareness of cervical cancer prevention among mothers of adolescent daughters in Korea: qualitative research

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ABSTRACT

Objectives: Korean adolescent girls are unprepared for cervical cancer prevention due to the lack of a mandatory policy regarding human papilloma virus (HPV) vaccination and school health education regarding cervical cancer. The aim of this study was to determine how aware mothers are about cervical cancer prevention in their adolescent daughters, with a view to developing strategies for expanding primary cervical cancer prevention for adolescent girls through the mothers' involvement.

Design: A qualitative design was employed. Nine mothers with adolescent daughters participated in this study and were interviewed using open-ended questions. The themes were extracted by content analysis.

Setting: A general living area in Seoul, South Korea.

Participants: The snowball method was used to select mothers.

Results: Five themes emerged. In general, the mothers' awareness of cervical cancer was not clear, and they exhibited a lack of awareness of the importance of having a regular Papanicolaou screening test. The mothers recognised that they were role models for their daughters, and realised and accepted the necessity of educating their daughters regarding cervical cancer; however, they perceived barriers related to the prevention of cervical cancer in their daughters. The mothers recommended enforcing sex education in schools and the provision of financial support for HPV vaccination.

Conclusions: The mothers' awareness and preparedness with respect to the prevention of cervical cancer in their adolescent daughters were low and inadequate. Mothers should be informed and motivated to play a role in the education of their daughters regarding cervical cancer prevention. Strategies for disseminating information regarding early cervical cancer prevention for adolescent girls are recommended by communicating with both the girls and their mothers and providing them with education regarding cervical cancer prevention.

INTRODUCTION

The Asia Oceania region bears 51.6% of the worldwide cervical cancer burden, and prevention of cervical cancer in most of the women living in these regions, including Korea, could be achieved by combining two approaches:

Strengths and limitations of this study

- This was the first study to explore the awareness of Korean mothers regarding cervical cancer prevention in their daughters.
- It is necessary to enhance mothers' awareness and improve the communication between mothers and their daughters regarding cervical cancer prevention.
- This study included only a small number of participants; they were from the general population, and none of them had cervical cancer, which limits the generalisability of the reported findings.

human papilloma virus (HPV) vaccination and Papanicolaou (Pap) screening.¹ To perform these approaches successfully, especially for adolescent girls, mutual interplay is necessary among the policies, public concern and parents' (usually mothers) involvement. To date, with regard to cervical cancer prevention in adolescent girls, we did not observe significant changes or active participation of the governmental policy and the school sex education in Korea. Following on from this we need to publicise the issue of cervical cancer prevention in adolescent girls in the Korean community and in families, in order to increase awareness in mothers.

In 2011, the incidence of cervical cancer (calculated using age-standardised data) was 10.1 (per 100 000 persons) in Korea, 10.9 in Japan and 5.2 in the UK, and cervical cancer (5.4) was the seventh most prevalent cancer in Korean women and the third most prevalent in Korean women aged 15–34 years, after thyroid cancer (65.1) and breast cancer (11.0).² Recent studies have found that only 9.9–16.5% of female university students were vaccinated against HPV and only 4.8% were receiving regular Pap tests.^{3 4} These low rates of vaccination and testing were attributed to the lack of a mandatory school vaccine programme against HPV in Korea. Korean

women younger than 30 years were not considered a target group in the national cervical cancer prevention programme, and even formal sex education for the prevention of cervical cancer is not applied in Korean schools.^{3–6} Therefore, it is necessary to establish an effective plan regarding cervical cancer prevention for adolescent girls beyond the governmental vaccination policy or formal sex educational curriculum in Korea. Towards that end, it is necessary to first focus on the role of mothers with adolescent daughters in preventing cervical cancer.

Currently, the role of mothers of adolescent daughters with respect to cervical cancer prevention primarily involves making their daughters aware of HPV and acceptance of the HPV vaccination.^{7–9} It has been demonstrated that in developing countries a mother's awareness of HPV and cervical cancer is inadequate; therefore, mothers should be educated regarding cervical cancer and encouraged to communicate with their daughters about the topic of cervical cancer.^{8, 10} Meanwhile, although the screening rate for cervical cancer (ie, uptake of the Pap test) among Korean women is reportedly 67.9%, the rate of repeated Pap testing is low, at 23.5%, most likely because they perceive that they are healthy following the receipt of a negative result from their first test.^{11, 12} It is reported that the passive attitude or negative feelings of young women towards the Pap screening test is associated with the perceived physical discomfort and embarrassment during the Pap test.^{4, 13} Therefore, the mothers' perception and attitude towards the Pap test for their daughters relative to their own experiences are worthy of exploration.

The purpose of this study was to determine the understanding of cervical cancer prevention for adolescent girls among Korean mothers. In this qualitative study, we will explore their general awareness of cervical cancer and its prevention, experience and attitudes towards the Pap test, and perceived role, limitations and recommendations with regard to the prevention of cervical cancer in their daughters. The results of this study could help in the understanding of the mothers' preparedness and difficulties regarding cervical cancer prevention for adolescent girls, and could be applied to the development of strategies to expand primary cervical cancer prevention for adolescent girls in Korea.

METHODS

Sampling and data collection

The participants comprised nine mothers of adolescent girls. Convenience sampling was employed to select participants from the community and churches. The research topic was sensitive and personal; thus, accurate information from the participants could be collected via the snowball method based on their interest or willingness. Seven participants were recruited from the two churches and their phone numbers were gathered by a

friend of the researcher. Two participants were also recruited by the community leader in the same manner.

The two mediators received an information sheet from the researcher for this study and they identified the qualification and interest of the possible participants. Finally, 10 participants were selected by the mediators and recommended to the research team. Before interview commencement, we contacted the 10 participants with a phone call to confirm their willingness and prepare their response during the interview. After that, a research assistant contacted each participant and planned the interview schedule as they wanted.

Interviews were conducted by a research assistant at the participant's home or in a quiet, relaxing place at a church or coffee shop. Each interview was performed in depth and it lasted until it reached a natural conclusion, generally in about 1.5–2 h. Open-ended questions were posed during the interview; these questions had been decided by consensus among the research team (DHK and HWK) after prior testing involving three mothers. The audio data from the interviews were recorded and transcribed verbatim.

Of the nine participants, five were college and university graduates (A, B, C, G, I), three were high-school graduates (E, F, H) and one was a middle-school graduate (D); four were housewives (A, C, G, H), one was a school teacher (I), two were working full time for an insurance company (B, F) and two were working part time (D, E). The monthly income of the participants' households varied from US\$ 1600 to US\$ 4000 ($n=7$; this information was missing for two of the participants). Seven of the participants believed in Christianity (A, B, C, D, E, F, G) and the remaining two believed in Buddhism (H, I). One participant had two daughters (E), aged 13 and 16 years, and the other eight had one daughter each aged 14–18 years. Two of the 10 daughters had been vaccinated against HPV (H, I), while none of the mothers had ever been either vaccinated against HPV or diagnosed with cervical cancer. Throughout the data collection, one participant dropped out during the initial time of interview due to an unexpected personal affair. There was no mother refused or dropped out during the interview.

Data analysis

Contents analysis was utilised for the qualitative data yielded in this study, to develop a basic understanding of the participants' health-related experience.¹⁴ This method enabled determination of the perceptions and understanding of the Korean mothers regarding cervical cancer prevention in their daughters, which have not been previously established in this population.

The transcribed data were coded on a line-by-line basis and sorted into themes and subcategories according to differences in the codes and relatedness of statements with those codes. The trustworthiness of the analysis was established by applying a rich presentation of the findings with appropriate quotations, and a discussion of the

interpretation and reflections.¹⁵ Finally, all themes and related statements were translated into English to enable its publication and wide dissemination.

Ethical considerations

The research ethics committee of the College of Nursing, Seoul National University approved this study protocol (IRB approval number: 2013-35). Prior to being interviewed, the participants were informed of the study aims and methods, the confidentiality of their private information and that they could withdraw from the study at any time during the interview. Each of the participants signed an informed consent document and received approximately US\$10 at the completion of the interview.

Rigour of this study

In order to confirm the rigour of the study, the credibility (internal validity), fittingness (external validity), reliability (audibility) and objectivity of this qualitative research were carefully examined. One member of the research team (DHK) has participated in several qualitative studies since completing her doctoral dissertation, and thus was engaged to guide the interview questions and train the interviewer for this study, and to code and analyse the data. One nurse who had worked for 12 months in an oncology ward at a general hospital interviewed all of the participants over a 2-month period. HWK participated in the data coding and analysis with DHK, and the entire research team participated in several discussions regarding the themes and subcategories relating to the mothers' perceptions and attitudes towards cervical cancer prevention for their adolescent daughters until a consensus was reached. The data were translated into English by HWK and a professional translator, after which the research team confirmed that the data contents of the Korean text and English text matched.

RESULTS

It was necessary to first determine the mothers' awareness of cervical cancer and its prevention (including behaviours), since that is likely to affect their thinking on this issue with respect to their daughters. In general, the mothers' awareness of cervical cancer was not clear, even though they had received information regarding cervical cancer from various sources. In addition, they were aware of preventive measures against cervical cancer in terms of sexual life, vaccination and hygiene. In relation to the Pap test, the mothers themselves had undergone Pap testing only irregularly and were ignorant of the importance of regular Pap screening, and thus inevitably were relatively disinclined to recommend the Pap test to their daughters.

With regard to the recognition that their daughters should be made aware of cervical cancer prevention, the mothers were questioned regarding role modelling as parents and their perceptions of the necessity to educate

their daughters about cervical cancer (including HPV vaccination). The mothers felt that there were two main barriers related to cervical cancer prevention for their daughters: their own lack of awareness of cervical cancer, and their unwillingness or taboos associated with talking about matters related to sex, including cervical cancer, in Korean culture. They were of the opinion that school sex education should be enforced, and that financial support should be provided to ensure that the HPV vaccine is fully disseminated. The conceptual framework of the mothers' recognition of the necessity for cervical cancer prevention for their daughters is explained in more detail below.

General awareness of cervical cancer

Causation and information sources

Most participants were unable to clearly explain the cause of cervical cancer, although they had heard through the mass media that it may be attributable to a promiscuous sex life, through an irregular lifestyle and poor hygiene, and via a reduction in immunity to the virus. They also thought that diverse surroundings gave them more exposure to cervical cancer. Some of the responses are listed below:

I heard that the flu is caused by a virus, so this cervical cancer is caused by a virus too. And I know if I don't have sex, I cannot be infected. Also, I heard that if the spouse has an irregular sex life, he can be infected. (participant B)

When I searched the Internet, I found that it is related to sex, hygiene, and also a virus. And so I think that children can be easily infected because of their poor hygiene and immunity. (participant F)

I heard about it through broadcasting, articles, peers of the same age as my mother, the Internet, and through wholesale advertisement in my company. (participant C)

I saw many advertisements from the Ministry of Health and Welfare on TV. This raised my attention to it and made me think about prevention. But I forgot when I was treated as a patient in the clinic. Anyway, I think TV advertisement has the biggest and greatest effect. (participant A)

Through meeting with their coworkers, mothers think about vaccination for their daughters to protect them against cervical cancer. (participant E)

Ways of preventing cervical cancer

Normal sex life through conjugal relations

Regarding the causes of cervical cancer, the participants said that it is important to have sex through normal conjugal relations and to avoid having sex at too young an age; they also mentioned that promiscuous sex with many persons is detrimental to disease prevention. Therefore, the consensus was that having no

promiscuous sex and only engaging in normal sexual relationships would help to protect against cervical cancer.

Despite not having promiscuous sex, I also think that having sex at too young an age and with many persons would have a bad effect, to have sex too early and to continue to have sex with many people if you are getting older. And is it true that not being promiscuous and just to having a normal sexual relationship, like with a spouse only, helps to prevent that disease? (participant H)

Protective inoculation

The mothers mentioned that a good way to prevent cervical cancer is by having the HPV vaccination, and that to maximise the protective effect it should be provided to teens who are sexually inexperienced. They also realised that nowadays many teenagers become sexually active much earlier than the older generation, and so it is important to promote the vaccination to prevent this disease.

I don't know whether it is right or not, I heard you should protect yourself against this disease through vaccination before your first sex relationship. (participant H)

I heard you should get this inoculation earlier for prevention, because these days, many teenagers may have their first sexual experience earlier than the older generations. (participant E)

Most mothers did not trust the vaccination, were worried about its side effects, and felt that it was expensive. One mother who had suggested the inoculation to her daughter said that even though she also had misgivings about it, she felt that as a parent she must trust the reported good preventive effect, and so she suggested it. However, she still worried that it might just be a sales gimmick to sell vaccinations.

Frankly, it is hard to suggest the vaccination because it is expensive and its effects uncertain. Also, it is hard to talk about it to a young child who actually doesn't yet recognize the sex culture. Actually, I don't have the time to talk in detail about it with my daughter, who is a sophomore in high school. If the clinical test performance shows good effects against cervical cancer and also no side effects, then I would suggest protective inoculation. (participant B)

Is it right that it has about a 70% preventive effect? If that is right, it is terrific, prevention is the most important to parents. But actually, I'm worried whether it is just a sales gimmick to sell vaccinations. Why do I think like this? I haven't exactly heard about its success in humans. (participant H)

Good hygiene

The mothers thought that good hygiene was important in the prevention of cervical cancer, especially so when actually having sex.

I don't know well, but cervical means entrance, right? Actually I'm married, and have experienced giving birth to children, so I know little about it, keeping the inside hygienic, which you can't see. You should keep clean that spot that I explained before, the front side. And surely it is important to take more care of each other's hygiene if you have sex with a partner? (participant H)

In fact, we generally think that it is okay that toilet tissue is cheap. Because of it, hygiene is rather important anyway. That's it. (participant F)

Awareness and experience of the Pap screening test

Recognition of Pap testing

Most participants had not heard of the Pap test. Furthermore, after the research assistant explained the test, they understood it poorly. They considered it to be the same as a simple vaginal inspection, which they had experienced previously. Only two persons mentioned the importance of checking regularly; thus, most of the mothers did not realise the importance of regular check-ups for the prevention of cervical cancer.

To prevent cervical cancer, I heard about that a good way is to have a vaginal examination and Pap testing at the clinic. (participant A)

Inoculation in obstetrics and gynecology, checkup once a year. (participant G)

Most mothers thought that if their daughters do not have a boyfriend or if they are a virgin, there is no need for a Pap test, or that the Pap test is only necessary for adult females. Some participants thought that their daughters needed to have a check-up at the clinic only when their menstrual period becomes irregular. However, the embarrassment factor is a relevant one for the mothers and their daughters, which makes it difficult for mothers to suggest this check-up to their daughters. Although a few mothers did mention that they were strongly inclined to suggest the Pap test for their daughters, if their daughters rejected the Pap test, their mothers said that they would not pressure them; they wanted their daughters to have it only when they were ready to do so.

I thought that the testing is only needed after they become adults. (participant D)

I think when they are at an awkward age, it is better to avoid the testing because of their embarrassment. (participant E)

Undergoing and acceptance of Pap testing

Most participants with gynaecological or related diseases already had a regular check-up around once a year. However, some participants did not know whether or not they had ever had a Pap test. Furthermore, some participants regularly forgot their follow-up schedule after their last check-up.

Hmm, I don't know what is it? Regularly? And in my case, last year, this year? (participant H)

(After explanation in detail) I see, I already have checked. (participant B)

I just check once a year. After I got breast cancer, I had a cyst on my breast so I did a checkup every 6 months, but now I have recovered completely, so I do just do one checkup every year. (participant D)

Most participants reportedly felt uncomfortable or embarrassed when undergoing Pap testing, but they endured those feelings for the sake of their health. In addition, one participant said that for the sake of her health, she should surely endure those feelings, and that she did not know why she felt uncomfortable.

I don't like to go to the obstetrics and gynecology clinic because I have to reveal my private parts. However, those parts are my weakest parts in my body, so I necessarily have a regular checkup. (participant G)

I think it is not a bad feeling. Because I should do it for my body, why is it a bad thing? It is just similar to obstetrics and gynecology, it is necessary for our health and we don't need to feel uncomfortable. (participant C)

Recognition of the mother's (parent's) role in the prevention of cervical cancer in their daughters

Being a role model as a parent: leading by example and showing concern

Most mothers considered that they had a very important role in their daughter's cervical cancer prevention. They also thought that they were the only people who could talk about sex and cervical cancer with their daughter. Also, as the mother, they knew that they needed to talk about it in advance, giving their daughters information, educating them regarding their safety and careful behaviour, and that parents are indispensable for all of these things. Moreover, they felt that for a harmonious family, it was necessary to provide their daughters with an example of a happy home and to talk with them frequently in order to instil correct values.

A mother's role is the most important because of the intimate relationship between mom and daughter. To keep a desirable family regarding sex, a role model like a happy family is necessary to help them to dream about their future married life. However, if there is no happy family, such as when there is frequent fighting between husband and wife, they will get a negative impression of marriage. (participant C)

Yet, I didn't do it. Although I couldn't talk about it with my daughter, I realize there is only myself who can talk about those sensitive subjects with my daughter because I'm her mother. (participant B)

I just say to be careful. When they come home late for studying in library, I always say to be careful. Is there

more? Just say good words like 'have a healthy relationship with your boyfriend, be careful with your behavior.' And as I said before, just show the positive side of family. It is about being careful. That's it. (participant F)

Most participants thought that fathers have little influence on this subject only because of differences in the gender roles between father and daughter. It is easy and natural for a mother to ask about sensitive issues, but not for a father. Furthermore, they thought that most fathers should show responsibility and trust their family, and that their children could gauge what is right and what is wrong by experiencing their parents' behaviour.

I think the father can't have any influence. A father needs to have responsibility as a father. Through showing this well, children can trust in their parents and can decide what they do or don't do. (participant B)

Just look like a father, just stay at the place, the mother's role, enough talking about concrete things, show their experiences, and help them to form good values. (participant E)

Educating about cervical cancer prevention

Mothers with adolescent daughters thought that they needed to convince their daughters about the importance of preventive education. They also thought that it is not a major topic about which they have to talk frequently with their daughter, but that they must offer information regarding cervical cancer prevention as soon as possible in order to alert them to this disease. However, some had other opinions, such as it being difficult to recognise that cervical cancer is important, or to have this as a major topic in a normal family.

I think it is necessary. When I see the notice, I can see that it says before the first sexual experience. So, at that time I understand that when they are young, as soon as possible, it is possible to protect their body. (participant A)

Actually I didn't try it. It is not easy to talk about this topic with my daughter; however, I absolutely think that the mother should be the first to talk about this topic with her daughter. Now suddenly I think that the mother should tell them in advance. (participant B)

Generally, how many mothers do tell their daughters about the importance of health and this situation? I still couldn't try talking about it. Teens feel it is not that important. Even if I do realize the importance, I won't explain it to my daughter because it is such a sensitive topic. (participant C)

Vaccinating daughters against cervical cancer

Most participants received information about the preventive vaccine through various media, while other mothers found out when they visited hospital, through advertisements. They recommend that the vaccine be given during adolescence but before their daughters

first have sex, because they have heard that this is the best time for effective prevention against cervical cancer. They had also heard that this inoculation could affect their daughters' whole life, and so they recommended it to their daughters.

I heard it has a good influence before having sex, so I suggested it to my daughters. As a measure of prevention, it is said to be good. Therefore I did it. Also, three vaccinations are needed, so I had them do it three times. (participant I)

I heard that it starts before first having sex, so I started early. (participant H)

Of course, because the research results said it has a good effect. Actually, the resulting numerical values were only recently unveiled, but anyway, as the medical evidence increases, we should check it carefully. If it is good for my daughter's health, I want to do everything for her as her mother. (participant G)

Recognition of the barriers to preventing cervical cancer in their daughters

Lack of knowledge

Most mothers thought that they did not know enough about the causes of, and preventive methods for, cervical cancer, and considered it difficult to talk to their daughters about topics that they do not know well. They acknowledged their lack of knowledge, but they did not make any efforts to find out more about cervical cancer. So their adolescent daughters relied only on sex education provided by schools, which in Korean schools relates only to the role and the recognition of sex.

I don't know it well; I know just simple things about it. Although I have talked with peers of the same age, I couldn't tell my daughters directly because of my lack of knowledge. I'm a normal mother and just a homemaker who can't concentrate on that education and have knowledge about it yet, so I said just 'Be careful with it! Be careful about it!' As I said, at my age, it is hard to talk about this topic. (participant I)

I didn't think about it seriously. I did think about the preventive vaccine before, but not deeply. It is a really sensitive topic to talk about with somebody. I just know that if you have a lot of sexual relationships, you are more likely to be infected. That's why I can't speak knowledgeably about it. (participant I)

The school teaches them in detail and sometimes they acknowledge it more from school than from me. (participant G)

They show a preventive video from fifth or sixth grade in elementary school, and also in middle school. So I didn't feel I needed to explain about it. The school teaches and tells them well, so I think that it is unnecessary. (participant C)

Passive attitudes towards, and avoidance of, sex-related talk (lack of initiative)

Most mothers thought that their daughters were too young to talk about sex, and they depended exclusively on sex education in school. They thought that they would have self-confidence to initiate and talk about this topic. However, most mothers stated that if their children asked them questions about it, they would somehow be able to talk to them. It was a very passive attitude, and it was clear that they did not want to take the lead in this situation.

Actually, many mothers' feelings toward their 18-year-old daughters are that they are just young girls. However, in society, at that age they start to study at university, and so I think it is necessary to talk about it. But I don't have any experiences to talk about this topic (sex topic). I still thought she is too young to talk about this topic. (participant B)

I know the school teaches well, and often the first menstruation is too late, but actually in the case of my daughter it wasn't. So I felt it is fortunate. Also she studied about it at school, and so she doesn't feel scared and fearful. Furthermore, of course she is aware about relationships with men. Because she coped with it well, I didn't talk about it with her in detail and also, the school teaches better than me, so I don't need to teach to her. (participant G)

Individually, the first sex education was in middle school; it is hard to talk deeply about it with her. I remember I just said to my daughter, 'when your menstruation is started, at that time you are qualified to be a mother, but you are still young, so be careful with your behavior!' At that time I could not talk about condoms, and just said it like that. (participant I)

Rather than talk directly about that topic, the mothers preferred to talk in a general way using articles about sex in the news and drama stories in the media, which is due to the mothers considering it too difficult to talk directly about this topic due to its sensitivity.

When we watch television, that time we talk a lot, when it comes to a relevant scene, we talk naturally. (participant A)

I have talked with my daughter about sex, like that if a young girl has a baby it means facing hardship, while watching TV. (participant B)

I sometimes said to my daughter, 'concentrate on bad news about sex'. (participant D)

If their daughters did not ask a question directly, the mothers took it to mean that they did not have any interest in the subject of sex. Since the mothers thought the subject of sex was very sensitive, they instead depended on school education to inform their daughters rather than talking to them directly about the topic. Some of

the participants considered that their daughters had few concerns about sex.

I still thought she is too young to talk. As a mother, who has lived more than my daughter, I can talk frankly all about it. (participant B)

My daughter and I talked only about menstruation, never about sexual relationships, so it seems she is not currently interested in sex. Someday, I am planning to tell her about sex naturally. (participant C)

The taboo culture of Korea: avoiding talking about sex

In Korea, talking about sex related topics is difficult for many persons, even between parents and their children. Similarly, from the mothers' perspectives, talking about this topic with their children is barely accepted. This is mainly due to sensitive topics such as sex being predominantly concealed in Korean culture.

Without reason, just saying nothing, concealing something is not good. I know it is important to consider partners and vaccination for prevention, but I think it is most important to obtain fundamental manners and relationships. However, I know our adults didn't do it well, we just conceal it now. (participant C)

We don't have any experience on what to do about prevention or education about sex. Generally, I think in Korea the culture just conceals those sensitive topics. (participant E)

Recommendations for preventing cervical cancer in adolescent daughters

Enforcement of school sex education

Many participants asserted that sex education in school should include information about cervical cancer. Furthermore, they perceived that it would be good for the school to offer this information, since parents do not know enough about it to explain it to their daughters themselves. If this is possible, when their daughters ask their mother about what they are learning in school, then the mothers indicated that they would try to obtain knowledge about it for themselves, even by searching the Internet and asking their friends.

I think that the school should tell them about sex culture before they face it. I expect furthermore that teachers should teach about responsibilities, the mobility of disease, and the way of prevention. (participant B)

I think this sensitive topic should be dealt with in school. Frankly speaking, to talk about sex is much easier than to speak about cervical cancer. I also actually don't know enough about how it occurs and progresses. (participant I)

I don't know whether the school gives them true information, although just having sex is not a bad thing, but if it goes wrong, it can be really harmful to their health and even ruin their life. Also, I already know that the school teaches about sex in fifth and sixth grades in

elementary school, but I wonder whether it is also taught in middle school. As I said before, the school's role in this issue is really important anyway. (participant C)

Some participants also wanted to expand the school education about cervical cancer prevention to students and parents, and suggested that education for parents through a school information network could have a positive effect on prevention.

I think it is necessary to educate parents. (participant E)

I think the school homepage should inform parents about it, educate them about the dangers of sex, and educate seriously about caution. (participant G)

Dissemination of the HPV vaccination through financial support

The participants said that although the preventive HPV vaccine is effective, it is too expensive and could represent a heavy financial burden on the average household. Therefore, some policies should be introduced, such as price rationalisation through governmental support. Since the definite effect of the vaccine on cervical cancer has yet to be established and many people do not know much about it, it would be difficult to effectively disseminate HPV vaccination at present.

Now many children go by the wayside. I think if it is prevented beforehand, it may have a quite good influence on the nation. How about giving more attention to this, changing the subject, curtailing the period for injection, lowering costs, and advertising so that a child who has received an inoculation can feel proud. There are so many ways to encourage them to take it. Thus, they might be vaccinated against cervical cancer. That's it. (participant H)

If the numerical data show definite efficacy, the mother's thinking will be changed. But now, we can't see effective data, and therefore they are indifferent to it, I think. In my case, luckily I already know about it through my job. However, general homemakers and mothers don't know how to use the Internet and even don't know about the existence of this vaccine. So, information about the vaccination would be spread more effectively by TV advertisements than via the Internet. Of course, it is important to have preventive education for the establishment of a sense of values about sexual behavior. Furthermore, I think we must not just trust the vaccine only, because the wrong sexual relationship causes not only cervical cancer but also other diseases. If we trust it completely, it can encourage hanky-panky by adolescents. So it is necessary to think about this from the various aspects, I think. That's it. (participant C)

DISCUSSION

The success of cervical cancer prevention for adolescent girls appears to be greatly influenced by their mothers. This study has explored the lack of awareness and

inactive attitudes of Korean mothers towards cervical cancer prevention among their daughters. The mothers' preparedness is poor and their related educational needs are high. Thus, this situation in Korea calls for the development of measures to encourage mothers to help prevent cervical cancer in their daughters.

Most of the mothers included in this study demonstrated insufficient knowledge about cervical cancer, so they need to be provided with a clear message that HPV is the cause of cervical cancer. The systematic education of mothers about methods of cervical cancer prevention should be conducted in various ways. The positive findings of this study are that the mothers were aware of the methods of cervical cancer prevention, such as not only regular screening behaviours but also maintaining a healthy sex life and hygiene based on the natural situation of a marital relationship. But above all, the present findings suggest that the mass media could greatly influence Korea mothers in this context. Despite some mothers mentioning that a virus is a causative factor of cervical cancer, which is associated with sexuality and immunity, none of them expressed that HPV itself is associated with cervical cancer during the interviews. It therefore seems that Korean mothers are insufficiently aware of HPV. Therefore, as suggested in previous studies, information about the link between HPV and cervical cancer needs to be disseminated among the general population in Korea.^{16 17} It is noteworthy that the majority of mothers had passive attitudes and therefore were simply lacking in confidence and reluctant to discuss this issue. It is thus necessary to establish an open environment in order to facilitate communication about the related issues.

In general, the mothers demonstrated a willingness to have their daughters vaccinated against HPV, accepted that the vaccination should be administered to their daughters when they were relatively young, prior to their first sex experience, and expressed worry regarding the safety of the vaccine. These findings are similar to those of a previous study⁵ with respect to the willingness of mothers to have their daughters vaccinated and their concern about the vaccine. Since the introduction of the HPV vaccination in 2009, no financial support has been provided for reducing its cost, and it is not as yet included in the school vaccination programme in Korea; the current HPV vaccination rate among Korean female adolescents was reported to be as low as 5.5% in 2011.¹⁸ These factors could have contributed to why the mothers included in the present study were relatively ambivalent regarding the promotion of HPV vaccination to their daughters, and why they perceived the same barriers as reported previously.⁵ However, the mothers' acceptance of the necessity for early vaccination was slightly improved in this study due to the recent promotion of the HPV vaccine in Korea. In this context, the mothers appeared to be somewhat suspicious regarding the publicity around the HPV vaccine, suggesting that the general population is sensitive to the effects of

media advertising regarding the HPV vaccine, and therefore balanced information regarding the HPV vaccine should be provided. This is consistent with a previous study finding that the mass media critically influences parental acceptance of the HPV vaccine.¹⁹ Therefore, health professionals should be vigilant to ensure that not only is the scientific evidence regarding the vaccine kept up to date, but also that they understand the diverse effects of the disseminated information from a layperson's perspective.

The most important finding of this study was that the mothers did not have a clear understanding of the Pap test, even though some of them had already had at least one such test themselves. Women, including mothers, should be assessed regarding their level of awareness of the Pap screen test and taught about the relevant terminology. The regularity with which the mothers in this study submitted to a Pap test varied widely. One study found a positive association between the regular practice of Pap screening among mothers and awareness of cervical cancer prevention for their daughters.²⁰ Therefore, the importance of regular Pap testing should be emphasised to Korean mothers. Some of the women in this study expressed negative feelings towards the Pap test, but they still appeared to exhibit passive acceptance of the test. This finding is consistent with a previous study which found that embarrassment and the perception of a shameful experience among Korean mothers interfered with Pap-screening behaviours.^{3 4} Moreover, it should be further clarified that a mother's negative emotion towards the Pap test can substantially influence whether or not she recommends that test to her daughter.

It was generally considered that communication between parents and their children is critically related to the establishment of sexual values and moral sexual behaviours among those children. However, many Korean family members are reluctant to talk about sexual matters due to the influence of related social taboos.²¹ The mothers in this study generally exhibited a stereotyped gender role regarding the recognition of preventing cervical cancer in their daughters. Although mothers perceived simultaneously the importance and toughness of educating their daughters regarding cervical cancer prevention, they also perceived that fathers do not have a role in providing education about such a sensitive matter, and that even their own actions were clumsy and awkward when communicating about sexual matters, including cervical cancer. The mothers wanted to show themselves as idealistic parents, but they were unable to instigate a natural or frank conversation about general sexuality. Koreans are still greatly influenced culturally by Confucian ideals, especially regarding sexuality, and these ideals have been embedded in Korean culture for a long time; they include the suppression of women's sexuality, and a double standard and chastity ideology of sexuality due to the more permissive attitude to men's sexuality that still exists in Korean society.^{21 22}

Given the predominant social norm, some Korean mothers encourage their daughters to maintain a traditional or the socially prescribed female role, which does not facilitate talking about sexuality related to cervical cancer; rather, the topic is largely avoided in mother–daughter relationships. The mothers included in this study expressed a low confidence in their ability to educate their daughters about this topic, and rather than changing their own role in the family, they expressed the need for more active school involvement or a strong mass-media role at the society level.

It is therefore necessary to alter attitudes towards women's sexuality so as to improve women's health (including that related to cervical cancer) by recognising that sexual concerns relevant to women are equal in importance to those of men. Changes in social norms could allow natural conversations between family members (either mother–daughter or father–daughter) with regard to preventing cervical cancer. Although exploration of the father's role was not a specific focus of this study, talking about topics related to sexuality (ie, cervical cancer) should be encouraged, given that parent–child communication is critical to protecting children from high-risk behaviours and to encouraging safer practices for preventing cervical cancer.^{10 23} Information about cervical cancer prevention and Pap testing for adolescents should be made available in different formats with a tailored approach according to the target audience, given that Korean women are strongly influenced by their surroundings (ie, the family and their intimate others).⁴

Needless to say, this study confirmed that schools and health teachers (most of whom are registered nurses in Korea) play a critical role in the prevention of cervical cancer in adolescents. On the basis of the mothers' demand in this study for improved school education in this matter, it is recommended that instruction about cervical cancer prevention, including information on HPV infection, should be introduced into school sex education curricula;⁶ currently there is no education about HPV or cancer prevention in school curricula in Korea. Schools could also provide information on their websites covering the contents of the sex education curriculum as part of the regular information regarding general school administration (ie, prevention of sexual harassment and vaccination tuition schedules). The health teacher, as a primary health professional, could open up the health education topic on the website or offer special lectures offline to provide information on how to prevent cervical cancer in both adolescent girls and their mothers.

The main recommendation of this study is that the governmental policy related to HPV vaccine should be changed to enable better dissemination of the HPV vaccine in Korea, including financial support through the national health insurance programme.

This study has limitations with respect to small sampling from the general population. Most mothers had a

same religion which could affect their awareness about the sex issue. It could interfere with a diverse understanding of mothers towards cervical cancer prevention for daughters. Despite the possibility of sampling bias, this study provides a momentum that mothers of adolescent could be considered as a target population in the primary cervical cancer prevention for daughters, appears to be the first qualitative research to explore Korean mothers' awareness on that. From the study results, it is clear that further studies are needed to identify the relationship between mothers' awareness and mothers' sociodemographic factors (including Pap screening behaviour) with a representative sample and to develop strategies to enhance Korean mothers' competency to expand primary cervical cancer prevention.

CONCLUSIONS

This study has found that Korean mothers have minimal and inadequate awareness about how to prevent their adolescent daughters from developing cervical cancer. Korean mothers need to be informed of the importance of early prevention of cervical cancer in order to enable them to adequately fulfil their vital role in protecting their adolescent daughters against this disease. Communication regarding cervical cancer and sexual matters needs to be improved in the family environment, and the mass media should impartially lead the way towards cervical cancer prevention. Moreover, the role of health teachers in cervical cancer prevention for both adolescent girls and their mothers should be increased.

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