

## RESEARCH COMMUNICATION

# Parity and Illiteracy as Risk Factors of Cervical Cancers in Viet Nam

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### Abstract

The aim of the present study was to examine the risk of cervical cancers with reference to multiparity and illiteracy in Ho Chi Minh City where this neoplasm is a very serious problem but no reports have documented its risk factors. The 5,034 cervical cancer cases treated from 1989-94 in the Central Oncology Clinic of Ho Chi Minh City were derived from published sources. The observed number of children born and the education level among cervical cancer cases were compared with those in the reference group, the general population based on the results of the national census in 1989 and the inter-census in 1994. Among cervical cancer patients, the number of children born was in a wide range from 1-20 children with the mean number being 6.6 children per patient. Most of the patients finished primary or some primary school (54.9%), followed by the illiteracy group (30.0%). Multiparity was found to increase the risk of cervical cancer (RR = 1.31, 95% CI = 1.30-1.32). Illiteracy was also found to be associated with an elevated risk (RR = 3.43, 95% CI = 2.85-4.14). The significant increase in risk of cervical cancers linked to multiparity and illiteracy is a very important finding in the south of Viet Nam, where cancer is a very serious problem and there is a lack of information on which to base primary and secondary prevention efforts.

**Key words:** Viet Nam - cervical cancers - risk factors - less developed countries

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### Introduction

From 1956-70 among 6,668 female cancers, 3,023 cases (45% of female cancers) were cervical cancer reported by medical institutions in Ho Chi Minh City (HCM), south Viet Nam, (Hoanh et al., 1976). Thereafter, from 1976-81, a very high frequency of cervical cancer was also reported: 53% of the female cancer patients (3,602 of 6,757 cases) treated in the Central Oncology of Ho Chi Minh City, (Truong, 1986). Recent results from 1990-92 of the hospital-based cancer registry, revealed that the number of cervical cancers were 4,132 cases, which comprised 42% of female cancers or 27% of all male and female cancers combined, (Hung et al., 1993). These facts indicated that there has been a serious epidemic area of cervical cancers for a long time in south Viet Nam.

Recent results have shown cervical cancer incidences in the south of Viet Nam to be the most common among

Southeast Asia countries, followed by Chiang Mai, Thailand and Manila, Philippines (ASR 26.0, 25.6, and 21.6 per 100,000, respectively), (Parkin et al., 1997; Quoc et al., 1998). These alarming facts also confirmed that cervical cancers in south Viet Nam are a very important public health problem. However, risk of cervical cancer has not been investigated there. The aim of the present study was to examine the risk of cervical cancers with reference to such lifestyle and socioeconomic factors as parity and illiteracy in south Viet Nam.

### Materials and Methods

Data of cervical cancers for parity and education level among 5,034 cases treated in the Central Oncology of Ho Chi Minh City from Nov. 1989 to Nov. 1994 was derived from a published report, (Minh et al., 1997). The education level of cervical cancer patients (5,034) was compared with

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**Table 1. Number of Cervical Cancer Patients and Percentage by Age Group and Education Level in South Viet Nam from 1989-94\***

| Item   | Number of patients | Percent (%) |
|--|--------------------|-------------|
| <i>By age group</i>  |                    |             |
| 20-29  | 30                 | 0.6         |
| 30-39  | 563                | 11.2        |
| 40-49  | 1,389              | 27.6        |
| 50-59  | 1,824              | 36.2        |
| 60-69  | 973                | 19.3        |
| 70-79  | 234                | 4.6         |
| 80+  | 21                 | 0.4         |
| Total  | 5,034              | 100         |
| <i>By education level</i>  |                    |             |
| Illiteracy   | 1,510              | 30.0        |
| Finished primary or some of primary school                                   | 2,764              | 54.9        |
| Finished secondary school  | 508                | 10.1        |
| Finished upper secondary school or graduated vocational, college, university | 252                | 5.0         |
| Total  | 5,034              | 100         |

Source: \* (Minh et al., 1997)

a reference group by education level based on the general population nationwide in the same time period from 1989-94. According to the 1989 census and 1994 inter-census throughout the country, the average education level was illiteracy (14%), finished primary or some of primary school (58%), finished secondary school (20%), and finished upper secondary school or higher (8%), (Viet Nam Intercensal Demographic Survey 1994, 1995; Vietnam-Central-Census-Steering-Committee, 1991).

The observed number of children born of all cervical cancer patients was compared with the expected number of those in the general population nationwide in 1994, (Viet Nam Intercensal Demographic Survey 1994, 1995). The reference group was women aged 40-49 in 1994 (2,315 women participated). These women were randomly recruited from 7 regions throughout the country: northern uplands, Red River Delta, northern central, central coast, central highlands, southeast, and Mekong River Delta. The expected

number of children born was calculated by specific education level as mentioned above.

We estimated the relative risk and 95 % confident interval by comparing the observed and expected number of children born using the method of the estimation of confident interval for a population proportion, (Daniel, 1999). The relative risk and 95% confident interval of cervical cancers due to illiteracy was calculated using “EpiTab” provided by Stata Statistical Software, (STATA, 1999).

**Results**

Among the 5,034 cases treated in the Central Oncology of HCM City, 75.5% were from other provinces, 24.5% were citizens of HCM City. Regarding ethnic groups, 97.1% was Vietnamese, 1.85% Chinese, and 1.05% was made up of other ethnic groups. The occupation of cervical cancer patients was household (36.5%), farmer (34.0%), small

**Table 2. Observed and Expected Number of Children Born by Education Level, Relative Risk and 95% Confident Interval (RR, 95% CI)**

| Education level  | Mean number of children born # | Number of patients | Expected number of children born |
|--|--------------------------------|--------------------|----------------------------------|
| Illiteracy   | 5.83                           | 1,510              | 8,803                            |
| Finished primary or some of primary school                                   | 5.02                           | 2,764              | 13,875                           |
| Finished secondary school  | 3.88                           | 508                | 1,971                            |
| Finished upper secondary school or graduated vocational, college, university | 2.85                           | 252                | 718                              |
| Total  |                                | 5,034              | 25,368                           |

Observed number of children born: 5,034 \* 6.6 = 33,224, RR = 1.31, 95% = 1.30-1.32 # (Viet Nam Intercensal Demographic Survey 1994, 1995), for women 40-49 years of age in 1994.

**Table 3. Observed and Expected Number of Cervical Cancers by Education Level Among the 5,034 Cases in the Period from 1989-94, RR and 95% CI**

| Education level  | Observed number | Expected number | RR and 95% CI     |
|--|-----------------|-----------------|-------------------|
| Finished upper secondary school or graduated vocational, college, university | 252             | 408             | 1.00, (reference) |
| Finished secondary school  | 508             | 995             | 0.83, 0.68-1.00   |
| Finished primary or some of primary school                                   | 2,764           | 2,918           | 1.53, 1.30-1.81   |
| Illiteracy   | 1,510           | 713             | 3.43, 2.85-4.14   |

trader and retail trader (15.2%), and no statement of occupation (14.3%). Among these patients, the number of children born was widely ranged from 1-20 children with the mean number being 6.6 children per patient. No childbearing was reported for 69 patients. The most common cervical cancers were seen for the age group 50-59 (36.2% of cervical cancers). Very few patients were reported for the young age group 20-29 and the elderly age group 80+ (0.6% and 0.4% of cervical cancers, respectively). Regarding education level, most patients had finished primary or some of primary school (54.9%), followed by illiteracy (30.0%), (Table 1 and Table 2). Among 5,034 cervical cancer patients, 99.8% were married and the remainder was reported to be single.

The total number of children born was 25,368 children for 5,034 cervical cancer patients; the observed number was 33,224, RR = 2.31, 95% CI = 1.30-1.32, (Table 2). The education level group, that is, those who had finished upper secondary school or higher served as the reference group. Risk of cervical cancers was significantly increased due to illiteracy (RR = 3.43, 95% CI = 2.85-4.14) and among those who had finished primary or some of primary school (RR = 1.53, 95% CI = 1.30-1.81), (Table 3).

## Discussion

Most patients with cervical cancers in the present study were reported to belong to a low socioeconomic status, such as household, farmer, and small trader. A high proportion of all patients we seen to have a low education level, (Table 1). The present results regarding the socioeconomic status of cervical cancers were consistent with earlier results confirming that 85% of 3,023 cervical cancer patients came from the lower social classes with a very low income and poor living, hygienic, and nutritious conditions, (Hoanh et al., 1976).

The mean number of children born was reported to be 7 children per patient among 7,429 patients with cervical cancers in the early period from 1956-80, (Hung, 1982; Hung, 1986). The mean number of children born in the present study was 6.6, a slight decrease when compared to that in 1956-80. Multi parity was commonly observed among cervical cancer patients in Viet Nam. Risk of cervical cancers was significantly increased for patients with 14 or more pregnancies (RR = 5.1, 95% CI = 2.7-9.7), (Brinton et al.,

1989). An increased risk of cervical cancers was also seen for patients with 6 or more pregnancies (RR = 3.2, 95% CI = 2.0-5.0) and for patients with 6-7 pregnancies (RR = 5.0, 95% CI = 1.8-13.5), (Herrero et al., 1990; Williams et al., 1994). Our present findings in Viet Nam have confirmed that the risk of cervical cancers due to multi parity has greatly increased (RR = 1.31, 95% CI = 1.30-1.32).

As for education, the risk of cervical cancers has increased (RR = 2.5, 95% CI = 1.6-3.9) for patients with no schooling in Spain and Colombia, (Bosch et al., 1992b). A low education level increased the risk of invasive cervical cancers (RR = 2.7, 95% CI = 1.0-7.3), cervical cancer mortality (RR = 2.6, 95% CI = 1.1-6.3), (Becker et al., 1994; Fernandez & Borrell, 1999; Williams et al., 1994). Also a high education level reduced cervical cancer risk (RR = 0.7, 95% CI = 0.5-0.9), (La Vecchia et al., 1992). Our present findings have confirmed that illiteracy greatly increased the risk of cervical cancers in Viet Nam (RR = 3.43, 95% CI = 2.85-4.14).

Several previous reports have confirmed that HPV infection is a major cause of cervical cancer, (Bosch et al., 1992a; Chichareon et al., 1998; Ngelangel et al., 1998; Peng et al., 1991). Infection with HPV types 16 and 18 are carcinogenic to the cervical uterus in humans, (IARC, 1995). Previous results have also reported that there was an increased HPV prevalence among women with lower levels of education, (Bauer et al., 1993). And the number of pregnancies was positively associated with HPV prevalence, (Hildesheim et al., 1993). Among women who are HPV positive, the risk of cervical cancer among those who had 6 or more live births was found to be slightly increased in Thai women (RR = 4.4, 95% CI = 0.1-161.4) and significantly increased in Filipino women (RR = 115.1, 95% CI = 1.2). In both Thailand and the Philippines, also the risk of cervical cancers was slightly increased for women with no schooling (RR = 3.6, 95% CI = 0.3-46.3) and significantly increased for poor women (RR = 23.0, 95% CI = 1.4-392.0), (Chichareon et al., 1998; Ngelangel et al., 1998). These facts have indicated that less education and multi parity increase the risk of cervical cancers, even among women who are HPV positive. Also less education and multi parity was a high risk for HPV infection. In spite of the limitation of data source for the present study, significant increased risks of cervical cancers due to multi parity and illiteracy were very important findings that can provide useful information

in controlling this disease by primary and secondary prevention for women in the south of Viet Nam.

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