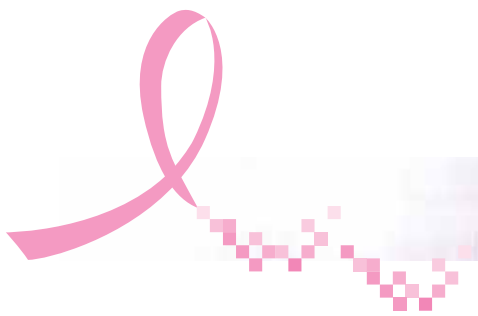




CHAPTER 1
PREVENTION AND
EARLY DETECTION
OF BREAST CANCER



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PREVENTION AND EARLY DETECTION OF BREAST CANCER

I. Introduction

1.1 It is well established that breast cancer is related to certain health factors and lifestyle behaviours. In this chapter, using the data collected on the demographics and socio-economic factors, lifestyle and health background from 16,743 Hong Kong

breast cancer patients, the distribution of these factors among patients in the local context is studied. Their breast screening habits, in particular, are also examined. These analyses aim to shed light on the causes of breast cancer in Hong Kong.

KEY FINDINGS

- ▶ The mean and median ages of the patients at diagnosis were 53.0 and 51.9 respectively.
- ▶ Around two-thirds (65.1%) of the patients were aged between 40 and 59.

Risk factors

- ▶ The 10 most common risk factors for developing breast cancer and the respective % of patients having each risk factor in the patient cohort:

| Risk factor | (%) |
|---|------|
| Lack of exercise (<3hrs / week) | 77.6 |
| No breastfeeding | 65.8 |
| Being overweight / obese | 38.4 |
| High levels of stress (>50% of time) | 37.1 |
| No childbirth / first live birth after age 35 | 26.4 |
| Family history of breast cancer | 14.6 |
| Diet rich in meat/ dairy products | 14.1 |
| Early menarche (<12 years old) | 13.9 |
| Habit of drinking alcohol | 5.0 |
| Use of hormone replacement therapy | 3.8 |

Screening habits

- ▶ The overall patients' breast screening habits were poor. Less than a quarter of patients underwent regular breast self-examination (20.3%), mammography screening (18.2%), or breast ultrasound screening (16.2%).
- ▶ Breast screening habits decreased with increasing age.
- ▶ Patients who attained lower education level or had lower household monthly income were less likely to conduct regular breast screening than those with higher educational levels or higher incomes.
- ▶ A higher proportion (63.3% to 84.9%) of the patients aged 40 or above have never undergone mammography screening prior to cancer diagnosis.

II. Demographics

A. Age at time of diagnosis

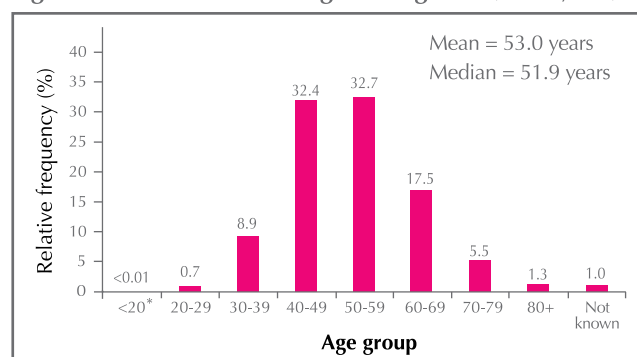
1.2 The chance of getting breast cancer generally increases with age.¹⁻² Table 1.1 shows the lifetime risk of developing breast cancer for women in different age groups.¹

Table 1.1: Lifetime risk of breast cancer of Hong Kong women (averaged data from 2010 to 2015)

| Age | Lifetime risk |
|-----------|---------------|
| Before 30 | 1 in 2,818 |
| Before 35 | 1 in 700 |
| Before 40 | 1 in 243 |
| Before 45 | 1 in 105 |
| Before 50 | 1 in 56 |
| Before 55 | 1 in 38 |
| Before 60 | 1 in 29 |
| Before 65 | 1 in 23 |
| Before 70 | 1 in 19 |
| Before 75 | 1 in 17 |

1.3 The age at diagnosis ranged from 18 to 101 with two-thirds (65.1%) of the patients aged between 40 and 59 (Figure 1.1), and the median being 51.9. It was found that patients in different age groups had different habits of breast screening (Section IV below).

Figure 1.1: Distribution of age at diagnosis (N=16,743)



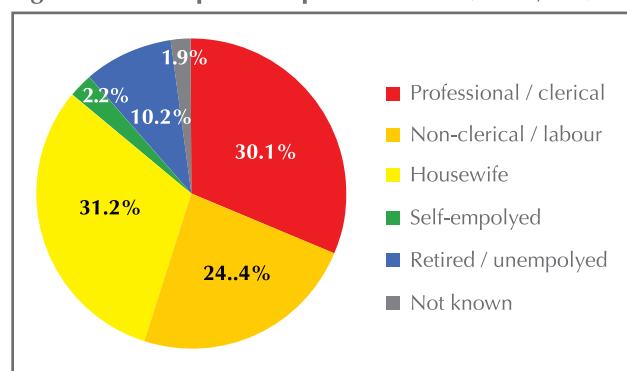
* Only one patient belonged to the <20 age group.

B. Occupation

1.4 Although international studies provided no evidence that occupation was related to breast cancer,³ some studies suggested that a certain degree of association existed between night shift and breast cancer.⁴ There were arguments that night shift work resulted in a disrupted circadian rhythm due to exposure to artificial light at night.⁴

1.5 A local study found that the average working hours among females in the general population was 43.2 hours per week.⁵ Slightly more than half (56.7%) of the patients registered with the Hong Kong Breast Cancer Registry (HKBCR) were working at the time of cancer diagnosis with the median working hours being 46.8 per week. Among them, 852 (9%) patients had night shift duties, and the median number of nights they worked in a year was 60.

Figure 1.2: Occupation of patient cohort (N=16,743)



C. Education level and household monthly income

- 1.6 There were studies which suggested that lower education level and household income were linked to lower level of breast cancer awareness and breast screening habits of women, even though they lived in the same city.^{6,7}
- 1.7 About two-thirds (69.9%) of the patient cohort attained secondary school level or above, and slightly less than a third (29.3%) had primary school level or below education (Figure 1.3). Patients who attained lower education levels were less likely to undergo regular breast screening than those with higher education levels (Section IV below).
- 1.8 In the patient cohort, 36.5% had a monthly household income of \$30,000 or more, while 18.5% had a monthly household income of less than \$10,000 (Figure 1.4). Patients who had a lower household monthly income were also less likely to undergo regular breast screening than those with higher incomes (Section IV below).

Figure 1.3: Education level of patient cohort (N=16,743)

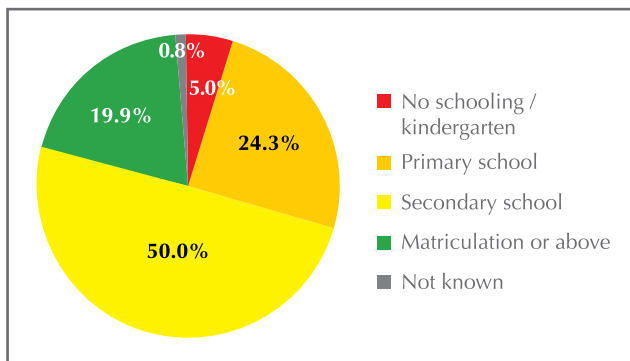
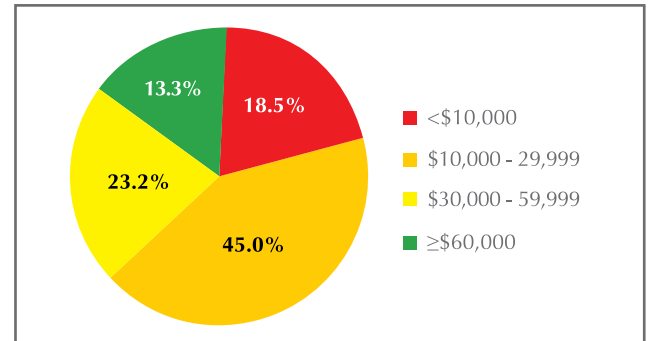


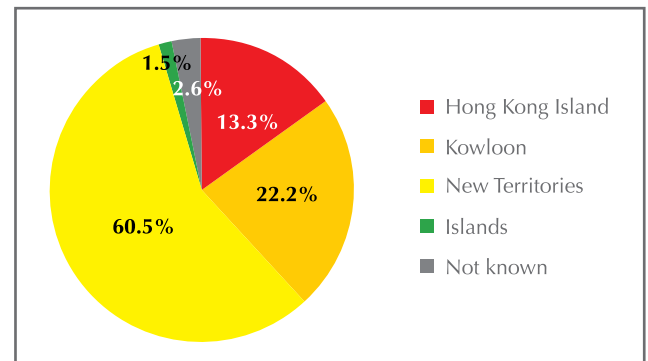
Figure 1.4: Monthly household income (HK\$) of patient cohort (N=9,487)



D. District of residence

- 1.9 At diagnosis, 60.5% of the patients resided in the New Territories, 22.2% resided in Kowloon and 13.3% resided on Hong Kong Island (Figure 1.5). Patients living in Kowloon or the New Territories had less regular breast screening than those living on Hong Kong Island (Section IV below).

Figure 1.5: District of residence of patient cohort (N=16,743)



E. Bra size and cup size

- 1.10 Some studies suggested that there was a certain degree of association between larger breast size and breast cancer.⁸⁻¹⁰ Such studies were mainly conducted on women in Western countries and such evidence is lacking in Hong Kong.
- 1.11 In the patient cohort, 61% had bra size of 34 inches or more while 17.5% had 38 inches or more (Figure 1.6). For breast cup size, half (49.8%) had cup B or smaller breasts while only a small proportion (4.2%) had cup D or above (Figure 1.7).

Figure 1.6: Bra size of patient cohort (N=16,743)

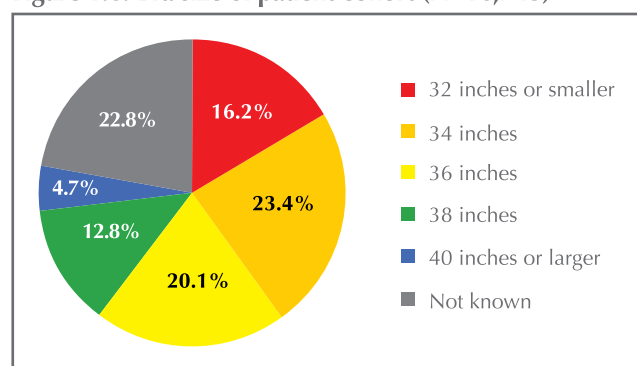
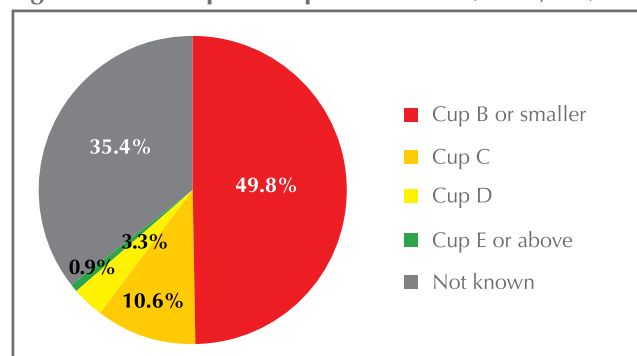


Figure 1.7: Bra cup size of patient cohort (N=16,743)



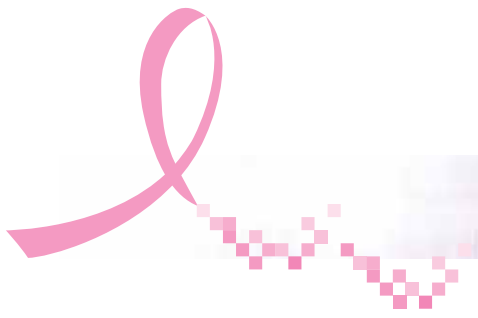
III. Risk factors and health background

A. Tobacco smoking

- 1.12 The International Agency for Research on Cancer (IARC) has classified tobacco smoking as a probable cause of breast cancer.⁴ A causal relationship between active or passive smoking and breast cancer, however, has yet to be established.¹¹ A study found that in 2016, 3.2% of Hong Kong women in the general population had daily smoking habit.¹²
- 1.13 In the cohort, 796 (4.8%) patients reported that they had smoked prior to cancer diagnosis and they had the habit for a mean duration of 18.8 years (range: one to 70 years). Among these smokers, 39.4% had quit smoking for a year or longer prior to cancer diagnosis, 4.5% had quit for less than a year, and 56.1% were still smoking at the time of cancer diagnosis. Among those who had quit smoking for less than a year or were still smoking, they consumed a mean of 3.6 packs of cigarette (range: 0.1 to 21 packs) per week in the preceding 12 months prior to cancer diagnosis.

B. Alcohol drinking

- 1.14 The World Health Organization (WHO) has classified alcohol consumption as Group 1 carcinogens for breast cancer for people of all ages.^{4,13} The risk of breast cancer increases with the amount of alcohol consumed: for every 10 g ethanol consumed each day (one standard drink, approximately equals to a 330 ml can of beer or a 100 ml glass of table wine or a 30 ml glass of high strength spirit), the risk of breast cancer is increased by 10%.¹³ A study found that in 2016, 10.4% of Hong Kong women in the general population drank alcoholic beverages at least once a week.¹⁴



- 1.15 Patients in the cohort were asked about their alcoholic drinking habits prior to cancer diagnosis. Patients who consumed alcoholic beverages rarely or occasionally (i.e. less than five alcoholic drinks in a 12-month period) were not considered as habitual alcohol consumers in this report.
- 1.16 Only 5% of the patients had been habitual alcohol consumers at some point in their life and they maintained this habit for a mean duration of 14.6 years (range: 0.3 to 63 years). Among these patients, 19.8% had stopped habitual alcohol consumption for a year or longer prior to cancer diagnosis, 4.5% had stopped for less than a year, and 75.7% were still habitual alcohol drinkers at the time of cancer diagnosis. Among those who had stopped drinking alcoholic beverages for less than a year or were still drinking alcohol habitually, they consumed a mean of 6.5 glasses (range: 0.3 to 73.5 glasses) per week in the preceding 12 months prior to cancer diagnosis. Commonly consumed alcoholic beverages were red wine (26.7%) and beer (20.6%).
- 1.18 Of the patients in the cohort, 68.8% had a balanced diet, while 14.1% ate a meat rich/dairy product rich diet. Nearly half (47.1%) of the patients never exercised, and only about one-fifth (21.7%) exercised three hours or more per week in the year prior to diagnosis (Table 1.2).
- 1.19 Current studies on stress as a risk factor for breast cancer are non-conclusive and the subject requires further investigation. Some researchers, however, suggested that people with prolonged stress exposure might also adopt other risky habits such as smoking or drinking alcohol, which might increase their risk of cancer. In the patient cohort, 37.1% said that they had experienced high levels of stress in the year prior to cancer diagnosis (Table 1.2).

C. Dietary and exercise habits and stress level

- 1.17 Most findings on the effect of dietary factors on breast cancer risk were inconclusive and inconsistent. However, a link between physical activity and prevention of postmenopausal breast cancer was found.¹³ Given that increase in body fat is also found to increase breast cancer risk in postmenopausal women, women are encouraged to reduce lifetime weight gain by limiting calories intakes and participate in regular physical exercise to maintain a healthy weight and level of body fat.

Table 1.2: Dietary habits, exercise habits and stress level at diagnosis (N=16,743)

| | Number | (%) |
|--------------------------------|--------|------|
| Dietary habit | | |
| Meat rich / dairy product rich | 2,366 | 14.1 |
| Vegetable rich /Vegetarian | 2,491 | 14.9 |
| Balanced diet | 11,517 | 68.8 |
| Not known | 369 | 2.2 |
| Exercise | | |
| Never | 7,885 | 47.1 |
| < 3 hours per week | 5,109 | 30.5 |
| ≥ 3 hours per week | 3,643 | 21.7 |
| Not known | 106 | 0.6 |
| Stress level | | |
| High level* | 6,214 | 37.1 |
| Moderate level** | 4,587 | 27.4 |
| Low level | 5,764 | 34.4 |
| Not known | 178 | 1.1 |

* High level: defined as more than 50% of the time

** Moderate level: defined as 25-50% of the time

D. Height, weight and body mass index

- 1.20 Body mass index (BMI) is a heuristic method of estimating human body fat based on an individual's height and weight. It is calculated by dividing weight in kilograms by height in metres squared (kg/m^2). Overweight and obesity for Asian women were defined as having BMI of 23 to 24.9 and 25 or over respectively. Obesity is considered a risk factor for breast cancer.¹⁵ A study found that in 2016, 16.3% and 14.2% of Hong Kong women in the general population were classified as overweight and obese respectively.¹⁶
- 1.21 The average height of the patient cohort was 157.8 cm with a standard deviation of 5.8 cm, while the average weight was 57.4 kg with a standard deviation of 9.3 kg. Of the patients in the cohort, 38.4% were overweight or obese at the time of cancer diagnosis (Table 1.3).

Table 1.3: Body mass index at diagnosis (N=16,743)

| BMI | Number | (%) |
|---------------------------|--------|------|
| ≥ 25.0 (Obese) | 3,599 | 21.5 |
| 23.0-24.9 (Overweight) | 2,827 | 16.9 |
| 18.5-22.9 (Normal weight) | 6,854 | 40.9 |
| < 18.5 (Underweight) | 1,095 | 6.5 |
| Not known | 2,368 | 14.1 |

E. Family history of breast cancer

- 1.22 Breast cancer risk is found to be higher among women who have one first-degree relative with breast cancer, when compared to women with no first-degree relatives with the disease. The risk is even higher among women having more first-degree relatives affected by breast cancer, or having relatives who are affected before the age of 50.^{17,18} In the patient cohort, 14.6% had family histories of breast cancer (Table 1.4).

Table 1.4: Family history of breast cancer at diagnosis (N=16,743)

| Family history of breast cancer | Number | (%) |
|---------------------------------|--------|------|
| No | 14,118 | 84.3 |
| Yes | | |
| First-degree relative(s) | 1,812 | 10.8 |
| Non first-degree relative(s) | 596 | 3.6 |
| Details not known | 32 | 0.2 |
| Family history not known | 185 | 1.1 |

F. Personal history of tumours

- 1.23 International studies found that breast cancer risk was higher in women with previous histories of certain types of cancer, including Hodgkin lymphoma, melanoma, lung adenocarcinoma, bowel cancer, uterus cancer, chronic lymphocytic leukaemia, or any type of cancer in childhood.¹⁹⁻²⁴ On the other hand, breast cancer risk was found to be lower in cervical squamous cell carcinoma survivors.^{23,24} Of the patients in the cohort, 1.7% suffered from other types of malignant tumours (Table 1.5) prior to breast cancer diagnosis. Among them, the most common tumour was thyroid cancer (Table 1.6).

Table 1.5: Personal histories of tumours of patient cohort at diagnosis (N=16,743)

| History of tumours | Number | (%) |
|--------------------------------------|--------|------|
| No | 13,674 | 81.7 |
| Benign tumour | 2,471 | 14.8 |
| Malignant tumour | 283 | 1.7 |
| Nature of previous tumours not known | 65 | 0.4 |
| History of tumours not known | 250 | 1.5 |

Table 1.6: Origins of malignant tumours reported by patients (N=283)

| Type of malignant tumours | Number | (%) |
|---------------------------|--------|------|
| Thyroid | 46 | 16.3 |
| Colorectum | 40 | 14.1 |
| Uterine | 39 | 13.8 |
| Cervix | 21 | 7.4 |
| Ovaries | 19 | 6.7 |
| Lung | 14 | 4.9 |
| Nasopharynx | 13 | 4.6 |
| Small intestines | 13 | 4.6 |
| Blood | 9 | 3.2 |
| Lymphomas | 8 | 2.8 |
| Liver | 6 | 2.1 |
| Bone | 5 | 1.8 |
| Esophagus | 4 | 1.4 |
| Skin | 4 | 1.4 |
| Stomach | 4 | 1.4 |
| Urological sites | 4 | 1.4 |
| Muscle | 3 | 1.1 |
| Brain | 2 | 0.7 |
| Tongue | 2 | 0.7 |
| Others* | 10 | 3.5 |
| Not known | 46 | 16.3 |

* Others include: fallopian tube, neck, oral cavity, salivary gland and parotid gland.

G. History of benign breast condition and precancerous breast lesion

1.24 Several studies found that women with some types of benign breast condition or precancerous breast lesion would have an increased risk of breast cancer. Benign breast condition can be classified into three categories: non-proliferative lesions,

proliferative lesions without atypia, and atypical hyperplasia. Non-proliferative lesions, such as fibroadenoma or other fibrocystic diseases, are generally not associated with increasing the risk of breast cancer.²⁵ On the other hand, proliferative lesions without atypia, such as papilloma or papillomatosis, and atypical ductal or lobular hyperplasia are linked to an increased risk of breast cancer.²⁵ Lobular carcinoma in situ (LCIS) is a form of precancerous breast lesion which also increases a woman's risk of breast cancer.

1.25 Of the patients in the cohort, 14.4% had previous history of benign breast disease and fibroadenoma, which does not increase the risk of breast cancer, is the most common (47.3%). The respective proportions of patient with papillomatosis and atypia ductal hyperplasia, which are linked with an increased risk of breast cancer, are 0.2% and 0.4% respectively. In addition, two patients suffered from LCIS prior to breast cancer diagnosis (Table 1.7).

Table 1.7: History of breast condition / disease at diagnosis

| | Number | (%) |
|--|--------------|-------------|
| History of previous breast disease | 2,417 | 14.4 |
| Type of previous breast disease | | |
| Fibroadenoma | 1,144 | 47.3 |
| Fibrocystic disease | 105 | 4.3 |
| Papilloma | 37 | 1.5 |
| Papillomatosis | 5 | 0.2 |
| Atypical ductal hyperplasia | 10 | 0.4 |
| Lobular carcinoma in situ | 2 | 0.1 |
| Others (Gynaecomastia, other benign tumours) | 927 | 38.4 |
| Not known | 153 | 6.3 |

H. Early menarche, late menopause and reproductive history

- 1.26 Life events such as early menarche (<12 years old), late natural menopause (> 55 years old), not bearing children, and late first pregnancy (>35 years old) all increase the lifetime exposure to the hormone estrogen, thus increasing the risk of breast cancer. On the other hand, late menarche, early menopause, bearing children, and early pregnancy all reduce the risk of breast cancer.¹³
- 1.27 In the patient cohort, the mean age at menarche was 13.2, the mean age of menopause was 49.7, and 13.9% experienced early menarche. About half (52.2%) of the patients were post-menopausal and among them, 5.3% experienced late menopause. One-fifth (22.3%) of the patients were nulliparous at diagnosis, and only a small proportion (4.1%) had their firstchild after the age of 35 (Table 1.8). Of the patients who experienced childbirth(s), about three-quarters (71.6%) had two or more children (Table 1.9), and the mean age at which they had their first live childbirth was 26.3.
- 1.28 Breastfeeding is considered as protective against breast cancer at all ages.¹³ In the patient cohort, 32.2% had breastfed their children and the mean total duration of breastfeeding was 16.2 months (range of 0.1 to 252 months) (Table 1.8).

Table 1.8: Early menarche, late menopause and reproductive history at diagnosis

| | Number | (%) |
|---|--------|------|
| Menarche (N=16,743) | | |
| Early menarche (<12 years old) | 2,324 | 13.9 |
| Normal menarche (\geq 12 years old) | 13,079 | 78.1 |
| Not known | 1,340 | 8.0 |
| Menopause (N=8,735) | | |
| Late menopause (>55 years old) | 464 | 5.3 |
| Normal menopause (\leq 55 years old) | 7,161 | 82.0 |
| Age at menopause not known | 1,110 | 12.7 |
| Reproductive history (N=16,743) | | |
| No childbirth | 3,736 | 22.3 |
| First childbirth at early age (\leq 35 years of age) | 11,659 | 69.6 |
| First childbirth at late age (>35 years of age) | 686 | 4.1 |
| Age at first live birth not known | 390 | 2.3 |
| Reproductive history not known | 272 | 1.6 |
| Breastfeeding (N=16,743) | | |
| Yes | 5,397 | 32.2 |
| No (Had childbirth) | 7,249 | 43.3 |
| No (No childbirth) | 3,736 | 22.3 |
| No (Reproductive history not known) | 37 | 0.2 |
| Not known | 324 | 1.9 |

Table 1.9: Number of live births reported by patient cohort (N=12,735)

| No. of live births | Number | (%) |
|--------------------|--------|-------|
| 1 | 3,558 | 27.9 |
| 2 | 5,687 | 44.7 |
| 3 | 2,182 | 17.1 |
| 4 | 765 | 6.0 |
| 5 | 264 | 2.1 |
| 6 | 140 | 1.1 |
| 7 | 51 | 0.4 |
| 8 | 19 | 0.1 |
| 9+ | 8 | < 0.1 |
| Not known | 61 | 0.5 |

I. Use of hormonal contraceptives

- 1.29 Hormonal contraceptives contain synthetic sex hormones and are administered in the form of oral tablets, injections, implants and transdermal contraceptive patches. Although the IARC has classified current or recent use of combined estrogen-progestogen oral contraceptives as a risk factor for breast cancer, recent studies suggested discontinuing use for 10 years or more resulted in the risk being reduced to that of non-users.⁴ Conflicting results were also obtained when studying the correlation between breast cancer risk and injectable contraceptives or implants.²⁶⁻³⁰ Further investigation is therefore needed to ascertain the correlation between hormonal contraceptives and breast cancer risk.
- 1.30 Slightly less than one-third (30.6%) of the patients had used hormonal contraceptives before and among them, 11% had used hormonal contraceptives for more than five years (Table 1.10). Of the hormonal contraceptives users, slightly more than three-quarters (79.5%) had stopped using it at the time of cancer diagnosis and they had stopped for a mean of 18.6 years.

Table 1.10: Use of hormonal contraceptives at diagnosis (N=16,743)

| OC use | Number | (%) |
|----------------------------|--------|------|
| Non-user | 11,332 | 67.7 |
| OC use < 5 years | 2,454 | 14.7 |
| OC use 5-10 years | 1,285 | 7.7 |
| OC use > 10 years | 556 | 3.3 |
| Length of OC use not known | 826 | 4.9 |
| Not known if OC was used | 290 | 1.7 |

OC: Hormonal contraceptives

J. Use of hormone replacement therapy

- 1.31 Hormone replacement therapy (HRT) contains synthetic sex hormones and is used to relieve postmenopausal symptoms. The IARC has classified current use of combined estrogen-progestogen HRT for menopausal symptoms as a risk factor of breast cancer.⁴ Of the postmenopausal patients, 7.2% had used HRT and 2.7% of them had used it for over five years (Table 1.11).

Table 1.11: Use of hormone replacement therapy (in post-menopausal patients) at diagnosis (N=8,735)

| HRT use | Number | (%) |
|-----------------------------|--------|------|
| Non-user | 7,945 | 91.0 |
| HRT use < 5 years | 332 | 3.8 |
| HRT use 5-10 years | 190 | 2.2 |
| HRT use > 10 years | 46 | 0.5 |
| Length of HRT use not known | 60 | 0.7 |
| Not known if HRT was used | 162 | 1.9 |

HRT: Hormone replacement therapy

K. Ten most common risk factors associated with breast cancer in Hong Kong

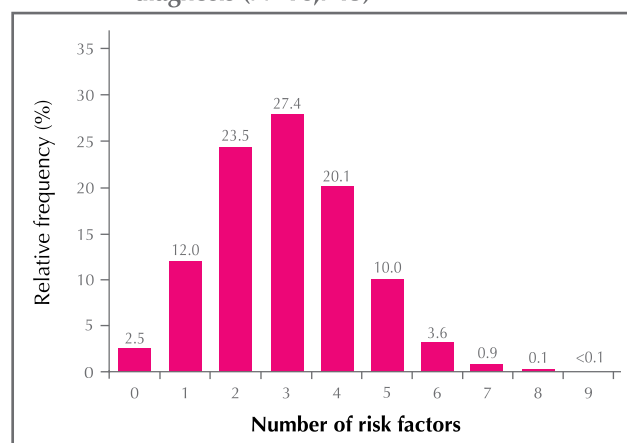
1.32 Lack of exercise (77.6%) was the most common risk factor followed by not having breastfeeding experience (65.8%) and being overweight or obese (38.4%) (Table 1.12). The accumulation of multiple risk factors increases the risk of getting breast cancer. In the patient cohort, 62.1% had three or more risk factors, while 35.5% had only one or two risk factors. A small proportion (2.5%) of patients, however, had none of the common risk factors studied (Figure 1.8).

Table 1.12: Ten most common risk factors for breast cancer in patient cohort (N=16,743)

| Risk factor | Number | (%) |
|---|--------|-------|
| Lack of exercise (<3hrs / week) | 12,994 | 77.6 |
| No breastfeeding | 11,022 | 65.8 |
| Being overweight / obese | 6,426 | 38.4 |
| High levels of stress (>50% of time) | 6,214 | 37.1 |
| No childbirth / First live birth after age 35 | 4,422 | 26.4 |
| Family history of breast cancer | 2,440 | 14.6* |
| Diet rich in meat / dairy products | 2,366 | 14.1 |
| Early menarche (<12 years old) | 2,324 | 13.9 |
| Habit of drinking alcohol | 834 | 5.0 |
| Use of hormone replacement therapy | 628 | 3.8 |

* Includes first and second degree relative(s), please refer to Table 1.4 for details.

Figure 1.8: Distribution of risk factors among patients at diagnosis (N=16,743)



IV. Breast screening habits

A. Breast screening methods

1.33 Breast screening is a method of checking a woman's breasts when there are neither signs nor symptoms of breast cancer in an attempt to enable earlier detection. Early detection reduces mortality from breast cancer. The three screening methods used for breast cancer screening include breast self-examination (BSE), clinical breast examination (CBE), and mammography screening (MMG). BSE is done by the woman herself, in that she checks for lumps, changes in size or shape of the breast, or any other changes in the breasts or underarm. CBE is conducted by a medical professional, such as a doctor or nurse, who uses his or her hands to feel for lumps or other changes. MMG is the current standard test for breast cancer screening which uses a low-energy X-ray to examine a woman's breasts.

1.34 The Hong Kong Breast Cancer Foundation recommends women aged 40 or above to conduct monthly BSE as a measure of raising breast self-awareness, and also regularly undergo CBE and

MMG. In addition to MMG, breast ultrasound screening (USG) is used along with mammograms for women with dense breasts. In Hong Kong, there is no population-based breast screening programme for women.

B. Breast screening habits and age

1.35 The breast screening habits of the patient cohort, i.e. self-initiated breast screening habits prior to cancer diagnosis, were studied by age group (Table 1.13). Less than a quarter underwent regular

BSE (20.3%), MMG (18.2%) and USG (16.2%). Regular CBE were performed by about two-fifths (35.4% to 42.7%) of the patients aged below 60, but the proportions dropped for patients aged 60 to 69 (26.1%) and aged 70 or above (10.2%) (Table 1.13). With the exception of patients aged below 40, the proportion of patients who had never performed BSE or had never undergone CBE and USG was positively correlated with age. In addition, a high proportion (63.3% to 84.9%) of the patients aged 40 or above had never undergone MMG (Table 1.13).

Table 1.13: Breast screening habits by age group

| Breast examination | Age group (years), Number (%) | | | | |
|--------------------|-------------------------------|--------------|--------------|--------------|------------|
| | <40 | 40-49 | 50-59 | 60-69 | 70+ |
| BSE | | | | | |
| Never | 597 (37.4) | 1,929 (35.6) | 2,105 (38.5) | 1,302 (44.4) | 666 (58.3) |
| Occasional | 678 (42.3) | 2,243 (41.4) | 2,111 (38.6) | 1,035 (35.3) | 314 (27.5) |
| Monthly | 308 (19.2) | 1,191 (22.0) | 1,166 (21.3) | 562 (19.1) | 147 (12.9) |
| Not known | 17 (1.1) | 60 (1.1) | 86 (1.6) | 36 (1.2) | 15 (1.3) |
| CBE | | | | | |
| Never | 800 (50.0) | 2,272 (41.9) | 2,438 (44.6) | 1,700 (57.9) | 896 (78.5) |
| Occasional | 217 (13.6) | 772 (14.2) | 838 (15.3) | 419 (14.3) | 108 (9.5) |
| Regular* | 566 (35.4) | 2,316 (42.7) | 2,115 (38.7) | 765 (26.1) | 117 (10.2) |
| Not known | 17 (1.1) | 63 (1.2) | 77 (1.4) | 51 (1.7) | 21 (1.8) |
| MMG# | | | | | |
| Never | | 3,727 (68.7) | 3,463 (63.3) | 1,987 (67.7) | 969 (84.9) |
| Occasional | | 596 (11.0) | 688 (12.6) | 369 (12.6) | 87 (7.6) |
| Regular* | | 1,031 (19.0) | 1,233 (22.5) | 530 (18.1) | 63 (5.5) |
| Not known | | 69 (1.3) | 84 (1.5) | 49 (1.7) | 23 (2.0) |
| USG# | | | | | |
| Never | | 3,666 (67.6) | 3,750 (68.6) | 2,211 (75.3) | 989 (86.6) |
| Occasional | | 577 (10.6) | 607 (11.1) | 289 (9.8) | 73 (6.4) |
| Regular* | | 1,051 (19.4) | 980 (17.9) | 353 (12.0) | 54 (4.7) |
| Not known | | 129 (2.4) | 131 (2.4) | 82 (2.8) | 26 (2.3) |

BSE: Breast self-examination, CBE: Clinical breast examination, MMG: Mammography screening, USG: Breast ultrasound screening

* "Regular" is defined as having the breast screening test every 1-3 years.

Included patients aged 40 or above only

C. Breast screening habits and education level

1.36 Breast screening habits were further studied by patients' education level (Table 1.14). The findings suggested that patients who attained lower education levels had undergone less breast screening prior to cancer diagnosis. In the cohort, 64.4% of the patients who attained only

kindergarten level or less had never performed BSE, compared to 27.7% of the patients who attained matriculation level or above. The corresponding figures are 74.9% compared to 31.7% for CBE, 86.4% compared to 50.6% for MMG, and 88.2% compared to 52.8% for USG.

Table 1.14: Breast screening habits by education level

| Breast examination | Education level, Number (%) | | | | | | | |
|--------------------|-----------------------------|--------|----------------|--------|------------------|--------|------------------------|--------|
| | No schooling / Kindergarten | | Primary school | | Secondary school | | Matriculation or above | |
| BSE | | | | | | | | |
| Never | 543 | (64.4) | 1,970 | (48.5) | 3,186 | (38.1) | 920 | (27.7) |
| Occasional | 195 | (23.1) | 1,293 | (31.8) | 3,200 | (38.2) | 1,704 | (51.2) |
| Monthly | 98 | (11.6) | 760 | (18.7) | 1,886 | (22.5) | 643 | (19.3) |
| Not known | 7 | (0.8) | 38 | (0.9) | 100 | (1.2) | 59 | (1.8) |
| CBE | | | | | | | | |
| Never | 631 | (74.9) | 2,529 | (62.3) | 3,905 | (46.6) | 1,055 | (31.7) |
| Occasional | 83 | (9.8) | 492 | (12.1) | 1,182 | (14.1) | 610 | (18.3) |
| Regular* | 121 | (14.4) | 1,005 | (24.7) | 3,162 | (37.8) | 1,606 | (48.3) |
| Not known | 8 | (0.9) | 35 | (0.9) | 123 | (1.5) | 55 | (1.7) |
| MMG# | | | | | | | | |
| Never | 705 | (86.4) | 3,040 | (76.4) | 5,027 | (67.1) | 1,298 | (50.6) |
| Occasional | 47 | (5.8) | 390 | (9.8) | 853 | (11.4) | 437 | (17.1) |
| Regular* | 57 | (7.0) | 505 | (12.7) | 1,485 | (19.8) | 789 | (30.8) |
| Not known | 7 | (0.9) | 43 | (1.1) | 122 | (1.6) | 39 | (1.5) |
| USG# | | | | | | | | |
| Never | 720 | (88.2) | 3,201 | (80.5) | 5,267 | (70.3) | 1,352 | (52.8) |
| Occasional | 33 | (4.0) | 308 | (7.7) | 769 | (10.3) | 420 | (16.4) |
| Regular* | 54 | (6.6) | 396 | (10.0) | 1,280 | (17.1) | 695 | (27.1) |
| Not known | 9 | (1.1) | 73 | (1.8) | 171 | (2.3) | 96 | (3.7) |

BSE: Breast self-examination, CBE: Clinical breast examination, MMG: Mammography screening, USG: Breast ultrasound screening

* "Regular" is defined as having the breast screening test every 1-3 years.

Included patients aged 40 or above only

D. Breast screening habits and household income

1.37 Breast screening habits were also studied by patients' monthly household income level (Table 1.15). Figures showed that patients who had lower income had undergone less breast screening prior to cancer diagnosis. In the cohort, 44.3% of the patients who had monthly household

income of less than \$10,000 never performed BSE, compared to 21.8% of the patients who had income of \$60,000 or more. The corresponding figures are 59.1% compared to 19.6% for CBE, 75.0% compared to 40.6% for MMG, and 79.8% compared to 44.5% for USG.

Table 1.15: Breast screening habits by monthly household income (HK\$)

| Breast examination | Monthly household income (HK\$), Number (%) | | | |
|--------------------|---|-----------------|-----------------|------------|
| | <10,000 | 10,000 – 29,999 | 30,000 – 59,999 | ≥ 60,000 |
| BSE | | | | |
| Never | 778 (44.3) | 1,580 (37.0) | 666 (30.3) | 274 (21.8) |
| Occasional | 639 (36.4) | 1,723 (40.3) | 1,067 (48.5) | 711 (56.5) |
| Monthly | 314 (17.9) | 920 (21.5) | 443 (20.1) | 249 (19.8) |
| Not known | 26 (1.5) | 48 (1.1) | 25 (1.1) | 24 (1.9) |
| CBE | | | | |
| Never | 1,039 (59.1) | 1,876 (43.9) | 698 (31.7) | 246 (19.6) |
| Occasional | 240 (13.7) | 637 (14.9) | 383 (17.4) | 243 (19.3) |
| Regular* | 455 (25.9) | 1,716 (40.2) | 1,093 (49.7) | 740 (58.8) |
| Not known | 23 (1.3) | 42 (1.0) | 27 (1.2) | 29 (2.3) |
| MMG# | | | | |
| Never | 1,220 (75.0) | 2,538 (67.8) | 936 (53.2) | 434 (40.6) |
| Occasional | 156 (9.6) | 456 (12.2) | 291 (16.5) | 202 (18.9) |
| Regular* | 226 (13.9) | 702 (18.8) | 511 (29.0) | 416 (39.0) |
| Not known | 25 (1.5) | 48 (1.3) | 23 (1.3) | 16 (1.5) |
| USG# | | | | |
| Never | 1,298 (79.8) | 2,651 (70.8) | 993 (56.4) | 475 (44.5) |
| Occasional | 128 (7.9) | 405 (10.8) | 269 (15.3) | 203 (19.0) |
| Regular* | 163 (10.0) | 606 (16.2) | 459 (26.1) | 342 (32.0) |
| Not known | 38 (2.3) | 82 (2.2) | 40 (2.3) | 48 (4.5) |

BSE: Breast self-examination, CBE: Clinical breast examination, MMG: Mammography screening, USG: Breast ultrasound screening

* "Regular" is defined as having the breast screening test every 1-3 years.

Included patients aged 40 or above only

E. Breast screening habits and district of residence

1.38 Breast screening habits were further stratified by patients' district of residence (Table 1.16). A higher proportion (28.3%) of patients living in Kowloon or the New Territories had never undergone any breast screening (including BSE, CBE, MMG, and USG) than those living

on Hong Kong Island (16.7%). In addition, a higher proportion (29.7%) of patients living on Hong Kong Island had regular MMG than those living in Kowloon (17.6%) and the New Territories (17.0%) (Table 1.16).

Table 1.16: Breast screening habits by district of residence

| Breast examination | District of Residence, Number (%) | | | | | |
|--------------------|-----------------------------------|--------|---------|--------|-----------------|--------|
| | Hong Kong Island | | Kowloon | | New Territories | |
| BSE | | | | | | |
| Never | 689 | (31.1) | 1,572 | (42.4) | 4,142 | (40.9) |
| Occasional | 1,041 | (46.9) | 1,369 | (36.9) | 3,782 | (37.3) |
| Monthly | 435 | (19.6) | 710 | (19.1) | 2,125 | (21.0) |
| Not known | 54 | (2.4) | 60 | (1.6) | 85 | (0.8) |
| CBE | | | | | | |
| Never | 735 | (33.1) | 1,985 | (53.5) | 5,160 | (50.9) |
| Occasional | 375 | (16.9) | 493 | (13.3) | 1,414 | (14.0) |
| Regular* | 1,043 | (47.0) | 1,169 | (31.5) | 3,473 | (34.3) |
| Not known | 66 | (3.0) | 64 | (1.7) | 87 | (0.9) |
| MMG# | | | | | | |
| Never | 1,011 | (51.2) | 2,336 | (70.3) | 6,464 | (70.9) |
| Occasional | 321 | (16.3) | 348 | (10.5) | 1,009 | (11.1) |
| Regular* | 585 | (29.7) | 584 | (17.6) | 1,545 | (17.0) |
| Not known | 56 | (2.8) | 54 | (1.6) | 93 | (1.0) |
| USG# | | | | | | |
| Never | 1,099 | (55.7) | 2,456 | (73.9) | 6,713 | (73.7) |
| Occasional | 290 | (14.7) | 315 | (9.5) | 880 | (9.7) |
| Regular* | 468 | (23.7) | 468 | (14.1) | 1,382 | (15.2) |
| Not known | 116 | (5.9) | 83 | (2.5) | 136 | (1.5) |

BSE: Breast self-examination, CBE: Clinical breast examination, MMG: Mammography screening, USG: Breast ultrasound screening

* "Regular" is defined as having the breast screening test every 1-3 years.

Included patients aged 40 or above only

