CHAPTER 1

PREVENTION AND EARLY DETECTION OF BREAST CANCER

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It is well established that the risk of breast cancer is significantly linked to health factors and lifestyle behaviours. In this chapter, using the demographics and socioeconomic data collected from the 14,905 Hong Kong breast cancer patients including lifestyle and patient health background, we will examine whether these established risk factor associations exist in the local context. These analyses would shed light on the cause of breast cancer in Hong Kong.

KEY FINDINGS

► The mean and median ages of our patients at diagnosis were 51.9 and 51.0 years old, respectively.

► Around two-thirds (66.0%) of our patient cohort were aged between 40 to 59 years old.

Risk factors

► The 10 most common risk factors for developing breast cancer (identified by international cancer research groups) and the respective % of patients having that risk factor in our patient cohort:

Risk factor	Number	(%)
Lack of exercise (<3hrs / week)	11,588	(77.7)
No breastfeeding	9,813	(65.8)
Being overweight / obese	5,758	(38.6)
High level of stress (>50% of time)	5,527	(37.1)
No childbirth / First live birth after age 35	3,899	(26.2)
Diet rich in meat / dairy products	2,155	(14.5)
Family history of breast cancer	2,115	(14.2)
Early menarche (<12 years old)	1,878	(12.6)
Drinking alcohol	729	(4.9)
Use of hormonal replacement therapy	575	(3.9)

Screening habits

► The overall patients' breast screening habits were poor. Less than half of the patients attended regular clinical breast examination and less than a quarter of patients performed regular breast self-examination or mammography screening.

► Breast screening habit was less with increasing age.

► Less patients who attained a lower educational level conducted regular breast screening habits than those with higher educational levels.

► Patients who had a lower household monthly income were also less likely to conduct frequent breast screening than those with higher incomes.

► Over 60% of our patients aged 40 or above have never performed mammography screening before cancer diagnosis.

1.1 Demographics

1.1.1 Age at time of diagnosis

Breast cancer risk generally increases with age[1-2]. Table 1.1 shows the lifetime risk of developing breast cancer for women in different age groups[1]. In Hong Kong the highest incidence rates were observed in women aged 60 to 65. Although patients over 70 had a lower incidence of breast cancer than those aged 60 to 65, in 2014 it was demonstrated that they still contributed to 15% (673 cases) of all newly diagnosed cases[1].

Table 1.1 Lifetime risk of breast cancer in Hong Kong women (averaged data from 2009 to 2013)[1]

Age	Lifetime risk
Before 30	1 in 2,862
Before 35	1 in 709
Before 40	1 in 246
Before 45	1 in 107
Before 50	1 in 58
Before 55	1 in 39
Before 60	1 in 30
Before 65	1 in 24
Before 70	1 in 20
Before 75	1 in 18

In our patient cohort, the age at time of diagnosis ranged from 18 to 101 years; with two-thirds of the patients being aged 40 to 59 (Figure 1.1), and the median being 51 years old.
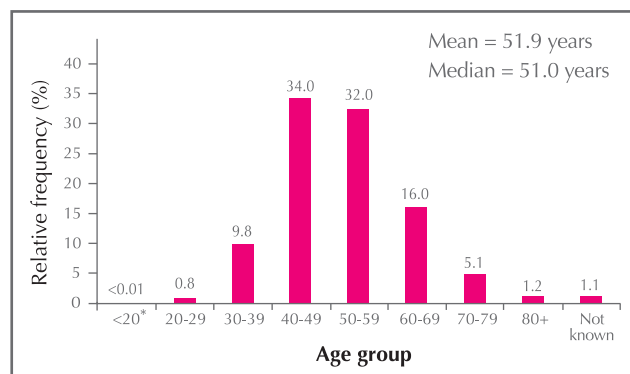

Figure 1.1 Distribution of age at diagnosis (N=14,905)

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

1.1.2 Occupation

Although international studies showed that there is no evidence that occupation is related to breast cancer[3], some suggested that a certain degree of association existed between night shift work and breast cancer[4]. It has been argued that night shift work results in a disrupted circadian rhythm due to exposure to artificial light at night, leading to a cascade of disrupted essential pathways[4]. A local study found that the average working hours among females in the general population was 43.2 hours per week[5].

In our Registry, around half (56.8%) of the patients were working at the time of cancer diagnosis; the median working hour being 47.0 per week. Among them, 747 (8.8%) had night shift duties, and the median no. of nights they worked in a year was 60.
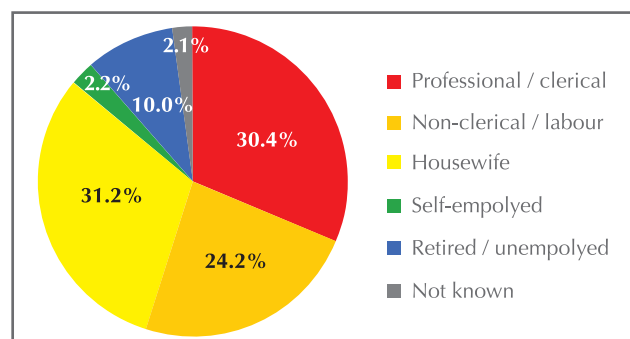
Figure 1.2 Occupation of our patient cohort (N=14,905)

1.1.3 Educational level and household monthly income

Literature suggest that given that they are living in the same city, women with lower educational level or household income are linked to lower level of breast cancer awareness and breast screening habits[6,7].

Around two-thirds (69.6%) of our patient cohort have attained secondary school level or above, while 29.5% had primary school level or below (Figure 1.3). Less patients who attained a lower educational level conducted regular breast screening than those with higher educational levels (Section 1.3).

Around one-third (35.8%) of our patient cohort had a monthly household income of 30,000 HKD or higher, while 19.1% had a monthly household income less than 10,000 HKD (Figure 1.4). Patients who had a lower household monthly income were also less likely to conduct frequent breast screening than those with higher incomes (Section 1.3).
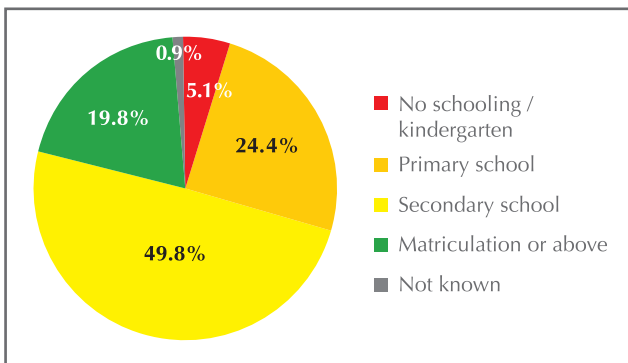

Figure 1.3 Educational level of our patient cohort (N=14,905)
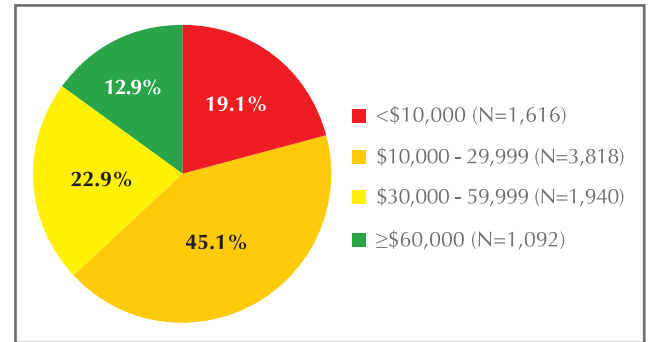
Figure 1.4 Monthly household income (HKD) of our patient cohort (N=8,466)

1.1.4 District of residence

Over half (59.7%) of the patients in the cohort resided in the New Territories at the time of cancer diagnosis, while 22.7% resided in Kowloon, and 13.7% resided on Hong Kong Island (Figure 1.5). Patients living in Kowloon or the New Territories conducted breast screening less frequently in comparison to those living on Hong Kong Island (Section 1.3).

Figure 1.5 Distribution of residential districts of our patient cohort (N=14,905)

1.1.5 Bra size and cup size

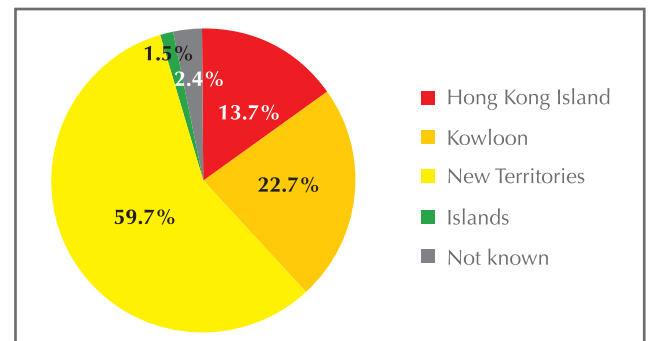Some studies have suggested that there is certain degree of association between larger breast size and breast cancer[8-10]. Nevertheless, these studies are mainly conducted on women in Western countries, and such evidence is lacking in Hong Kong.

61.1% of our patient cohort had bra size of 34 inches or more while 17.4% of them had 38 inches or more (Figure 1.6). For breast cup size, half (50.2%) of our patients had cup B or smaller breasts while only 4.1% had cup D or above (Figure 1.7).
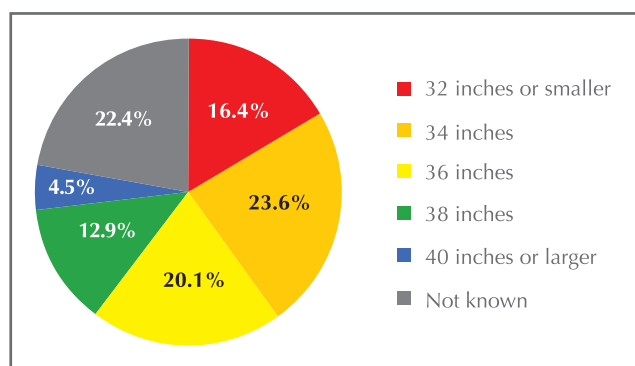

Figure 1.6 Bra size of our patient cohort (N=14,905)
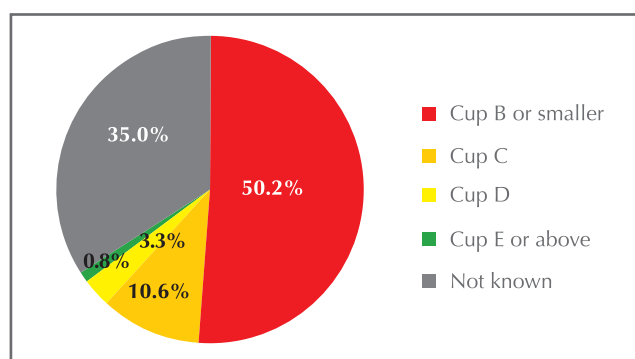

Figure 1.7 Bra cup size of patient cohort (N=14,095)

1.2 Risk factors and health background

1.2.1 Tobacco smoking

IARC has classified tobacco smoking as a probable cause of breast cancer[4]. However, a causal relationship between active or passive smoking and breast cancer is yet to establish[11]. A study found that, in 2016, 3.2% of Hong Kong women in the general population had daily smoking habit[12].

Of our patient cohort, 710 (4.8%) reported they had ever smoked prior to cancer diagnosis and they had smoking habit for a mean duration of 18.6 years (range: 1 to 70 years). Among these smokers, 37.1% had quit smoking for a year or longer prior to cancer diagnosis, 4.6% had quit for less than a year, and 58.3% 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 3.7 packs of cigarette (range: 0.2 to 21 packs) per week in the preceding 12 months prior to cancer diagnosis.

1.2.2 Alcohol drinking

WHO has classified alcoholic beverages as Group 1 carcinogens for breast cancer to people of all ages[4,13]. The risk of breast cancer increases with the amount of alcohol consumed; every 10g ethanol (one standard drink, approximately equals to a 330ml can of beer or a 100ml glass of table wine or a 30ml glass of high strength spirit) increased the risk of breast cancer 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].

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 5 alcoholic drinks in a 12-month period) were not considered as habitual alcohol consumers in the study.

4.9% of patients had been habitual alcohol consumers at some point in their life and they maintained this habit for a mean duration of 14.3 years (range: 0.3 to 63 years). Among these consumers, 20.4% had stopped habitual alcohol consumption for a year or longer prior to cancer diagnosis, 5.2% had stopped for less than a year, and 74.3% 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 frequently, they consumed a mean of 7.0 glasses (range: 0.3 to 73.5 glasses) per week in the preceding 12 months prior to cancer diagnosis. Commonly consumed alcohol beverages were red wine (30.2%) and beer (25.7%).

1.2.3 Dietary and exercise habits and stress level

Most findings on the effect of dietary factors on breast cancer risk have been inconclusive and inconsistent. However, a link between physical activity and prevention of postmenopausal breast cancer has been found[13]. Since an 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.

Around two-thirds (68.3%) of our patients were having a balanced diet, while 14.5% of them ate a meat rich/dairy product rich diet. Nearly half of our patient never exercised, only around one-fifth (18.9%) of our patient cohort exercised 3 hours or more per week in the year prior to the time of diagnosis (Table 1.2).

The current studies on stress as a risk factor for breast cancer are non-conclusive and require further investigation. However, some researchers suggest that people with prolonged stress exposure may adopt other risky habits such as smoking or drinking alcohol; which may increase their risk for cancer. Of our patient cohort, 37.1% said that they experienced high levels of stress in the year prior to cancer diagnosis (Table 1.2).

Table 1.2 Dietary habits, exercise habits and stress level at the time of diagnosis (N=14,905)

	Number	(%)
Dietary habit		
Meat rich / dairy product rich	2,155	14.5
Vegetable rich / Vegetarian	2,208	14.8
Balanced diet	10,182	68.3
Not known	360	2.4
Exercise		
Never	7,145	47.9
< 3 hours per week	4,443	29.8
≥ 3 hours per week	2,824	18.9
Not known	493	3.3
Stress level		
High level*	5,527	37.1
Moderate level**	4,139	27.8
Low level	5,070	34.0
Not known	169	1.1

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

1.2.4 Height, weight and body mass index

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 23-24.9 and 25 or over, respectively. Obesity has been 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].

The average height of our patient cohort was 157.9 cm with a standard deviation of 5.8 cm, while the average weight was 57.4 kg with a standard deviation of 9.4 kg. Of our patient cohort, 37.7% were overweight or obese at the time of cancer diagnosis (Table 1.3).

Table 1.3 Body mass index at the time of diagnosis (N=14,905)

BMI	Number	(%)
≥ 25.0 (Obese)	3,217	21.6
23.0-24.9 (Overweight)	2,541	17.0
18.5-22.9 (Normal weight)	6,072	40.7
< 18.5 (Underweight)	983	6.6
Not known	2,092	14.0

1.2.5 Family history of breast cancer

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]. Only 14.2% of our patient cohort had family histories of breast cancer (Table 1.4)

Table 1.4 Family history of our patient cohort at the time of diagnosis (N=14,905)

Family history of breast cancer	Number	(%)
No	**12,588**	**84.5**
Yes		
First-degree relative(s)	1,529	10.3
Non first-degree relative(s)	586	3.9
Details not known	32	0.2
Family history not known	**170**	**1.1**

1.2.6 Personal history of tumours

International studies have found that breast cancer risk is 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 is found to be lower in cervical squamous cell carcinoma survivors[23, 24]. Of our patient 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 our patient cohort at the time of diagnosis (N=14,905)

History of tumours	Number	(%)
No	12,163	81.6
Benign tumour	2,183	14.7
Malignant tumour	253	1.7
Nature of previous tumours not known	59	0.4
History of tumours not known	247	1.7

Table 1.6 Origins of malignant tumours reported by our patient cohort (N=253)

Type of malignant tumours	Number	(%)
Thyroid	41	16.2
Colorectum	36	14.2
Uterine corpus	31	12.3
Cervix	21	8.3
Ovaries	15	5.9
Lung	12	4.7
Nasopharynx	12	4.7
Blood	9	3.6
Small intestines	6	2.4
Liver	5	2.0
Bone	4	1.6
Esophagus	4	1.6
Skin	4	1.6
Stomach	4	1.6
Urological sites	4	1.6
Brain	2	0.8
Endodermal sinus	2	0.8
Muscle	2	0.8
Tongue	2	0.8
Others*	6	2.4
Not known	46	18.2

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

1.2.7 History of benign breast condition and precancerous breast lesion

Several studies have found that women with some types of benign breast condition or precancerous breast lesion have an increased risk of getting 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 that also increases a woman's risk of getting breast cancer.

Of our patient cohort, 14.6% had previous history of benign breast disease and among them, 0.2% had papillomatosis and 0.4% had atypia ductal hyperplasia. One patient suffered from LCIS prior to breast cancer diagnosis (Table 1.7).

Table 1.7 History of breast disease at the time of diagnosis

	Number	(%)
History of previous breast disease	**2,179**	**14.6**
Type of previous breast disease		
Fibroadenoma	1,027	47.1
Fibrocystic disease	90	4.1
Papilloma	31	1.4
Papillomatosis	4	0.2
Atypical ductal hyperplasia	9	0.4
Lobular carcinoma in situ	1	<0.1
Others (Gynaecomastia, other benign tumours)	935	42.9
Not known	117	5.4

1.2.8 Early menarche, late menopause and reproductive history

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, and thus increase 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].

In our patient cohort, the mean age at menarche was 13.3 years, and the mean age of menopause was 49.7 years. 12.6% of our patient cohort experienced early menarche. Around half (51.5%) of our patient cohort were post-menopausal and among them, 5.4% experienced late menopause. One-fifth (22.2%) of our patient cohort were nulliparous at the time of cancer diagnosis, and only 4.0% had their first child after the age of 35 (Table 1.8). Of our patients that experienced child birth(s), the mean age at which they had their first live child birth was 27.3 years. Data on patient parity is shown in Table 1.9, 72.0% of our patients had two or more children.

Breastfeeding has been classified as protective against breast cancer at all ages[13]. In our patient cohort, 32.0% breastfed their children and the mean total duration of breastfeeding was 16.2 months with a range of 0.1 to 252.0 months (Table 1.8).

Table 1.8 Early menarche, late menopause and reproductive history at the time of diagnosis

	Number	(%)
Menarche (N=14,905)		
Early menarche (<12 years old)	1,878	12.6
Normal menarche (≥ 12 years old)	11,862	79.6
Not known	1,165	7.8
Menopause (N=7,682)		
Late menopause (>55 years old)	412	5.4
Normal menopause (≤ 55 years old)	6,320	82.3
Age at menopause not known	950	12.4
Reproductive history (N=14,905)		
No childbirth	3,303	22.2
First childbirth at early stage (≤ 35 years of age)	10,396	69.7
First childbirth at late age (>35 years of age)	596	4.0
Age at first live birth not known	335	2.2
Reproductive history not known	275	1.8
Breastfeeding (N=14,905)		
Yes	4,766	32.0
No (Had childbirth)	6,479	43.5
No (No childbirth)	3,296	22.1
No (Reproductive history not known)	38	0.3
Not known	326	2.2

Table 1.9 Number of live births reported by our patient cohort (N=11,327)

No. of live births	Number	(%)
1	3,121	27.6
2	5,076	44.8
3	1,938	17.1
4	694	6.1
5	244	2.2
6	126	1.1
7	50	0.4
8	18	0.2
9+	7	0.1
Not known	53	0.5

1.2.9 Use of hormonal contraceptives

Hormonal contraceptives contain synthetic sex hormones and are administered in the form of oral tablets, injections, implants and transdermal contraceptive patches. Although IARC has classified current or recent use of combined estrogen-progestogen oral contraceptives as a risk factor of breast cancer, recent studies suggested discontinuing use for 10 years or more results in the risk being reduced to that of non-user[4]. Conflicting results were also obtained when studying the correlation between breast cancer risk and injectable contraceptives or implants[26-30]. Therefore, further investigation is needed to elicit the correlation between hormonal contraceptives and breast cancer risk. Less than one-third (31.0%) of our patient cohort had ever used hormonal contraceptives, among which 11.2% used hormonal contraceptives for more than 5 years (Table 1.10). Among the hormonal contraceptives users, more than three-quarters (79.5%) had stopped using it at the time of cancer diagnosis and they have stopped for a mean of 18.4 years.

Table 1.10 Use of hormonal contraceptives at the time of diagnosis (N=14,905)

OC use	Number	(%)
Non-user	9,990	67.0
OC use < 5 years	2,234	15.0
OC use 5-10 years	1,164	7.8
OC use > 10 years	514	3.4
Length of OC use not known	713	4.8
Not known if OC was used	290	1.9

OC: Hormonal contraceptives

1.2.10 Use of hormone replacement therapy

Hormonal replacement therapy (HRT) contains synthetic sex hormones and is used to relieve post-menopausal symptoms. The IARC has classified current use of combined estrogen-progestogen HRT for menopausal symptoms as risk factor of breast cancer[4]. A small proportion (7.5%) of our postmenopausal patients in the cohort had ever used HRT in which 2.8% of them used it for over 5 years (Table 1.11).

Table 1.11 Use of hormone replacement therapy (in our post-menopausal patients) at the time of diagnosis (N=7,682)

| HRT use	Number	(%)
Non-user	6,945	90.4
HRT use < 5 years	310	4.0
HRT use 5-10 years	171	2.2
HRT use > 10 years	43	0.6
Length of HRT use not known	51	0.7
Not known if HRT was used	162	2.1

HRT: Hormone replacement therapy

1.2.11 Ten most common risk factors associated with breast cancer

Many risk factors have been classified by international cancer research groups as convincing causes or probable risk factors of breast cancer development. Some of these factors are described in previous sections of this chapter. In this chapter, the Hong Kong Breast Cancer Registry aims to study the and relevance and frequency of these factors in Hong Kong breast cancer patients and the ten most common risk factors observed in our patient cohort are listed in Table 1.12.

Lack of exercise was the most common risk factor within our patient cohort, reported by 77.7% of patients, followed by not having breastfeeding experience (65.8%) and being overweight or obese (38.6%) (Table 1.12). The accumulation of multiple risk factors increases the risk of getting breast cancer. One-third (33.5%) of our patient cohort had four or more risk factors shown in Table 1.12. Interestingly, a small proportion (2.6%) of patients had none of the common risk factors studied (Figure 1.8).

Table 1.12 The ten most common risk factors in our patient cohort (N=14,905)

Risk factor	Number	(%)
Lack of exercise (<3hrs / week)	11,588	77.7
No breastfeeding	9,813	65.8
Being overweight / obese	5,758	38.6
High levels of stress (>50% of time)	5,527	37.1
No childbirth / First live birth after age 35	3,899	26.2
Diet rich in meat/ dairy products	2,155	14.5
Family history of breast cancer	2,115	14.2
Early menarche (<12 years old)	1,878	12.6
Drinking alcohol	729	4.9
Use of hormonal replacement therapy	575	3.9
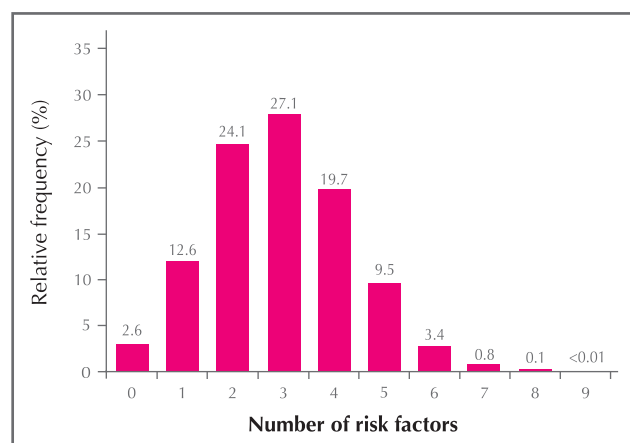
Figure 1.8 Distribution of our patient cohort with different number of risk factors for breast cancer at the time of diagnosis (N=14,905)

1.3 Breast screening habits

Breast screening is a method of checking woman's breasts when there are neither signs nor symptoms of breast cancer in an attempt to achieve 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). Breast self-examination is conducted by a woman herself, where she checks for lumps, changes in size or shape of the breast, or any other changes in the breasts or underarm. Clinical breast examination 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. Mammography screening is the current standard test for breast cancer screening where a low-energy X-ray is used to examine a woman's breasts.

The Hong Kong Breast Cancer Foundation recommends women aged 40 or above to conduct monthly breast self-examination as a measure of raising breast self awareness, also to regularly conduct clinical breast examination and mammography screening. 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 of all ages. The breast screening habits reported here are patients' self-initiated breast screening habits prior to cancer diagnosis.

The breast screening habits in our patient cohort were studied by age group in Table 1.13. Less than a quarter of the patient cohort of all ages performed regular BSE, MMG and USG. Regular CBE was performed by around 40% of the patients aged below 60, however, the proportions dropped to 25.3% and 10.1% for our patients aged 60-69 and aged 70 or above, respectively (Table 1.13). With the exception of patients aged below 40, proportion of patients who have never performed BSE, CBE, and USG was positively correlated with age. Over 60% or more of the patients aged 40 or above have never performed MMG prior to diagnosis(Table 1.13).

Table 1.13 Breast screening habits of our patient cohort by age group

Breast examination	Age group (years), Number (%)				
	<40	40-49	50-59	60-69	70+
BSE					
Never	579 (36.6)	1,791 (35.3)	1,855 (38.9)	1,054 (44.1)	553 (58.9)
Occasional	682 (43.1)	2,078 (41.0)	1,810 (38.0)	847 (35.4)	253 (26.9)
Monthly	300 (19.0)	1,135 (22.4)	1,020 (21.4)	461 (19.3)	119 (12.7)
Not known	22 (1.4)	65 (1.3)	79 (1.7)	29 (1.2)	14 (1.5)
CBE					
Never	779 (49.2)	2,065 (40.7)	2,133 (44.8)	1,409 (58.9)	738 (78.6)
Occasional	220 (13.9)	706 (13.9)	696 (14.6)	330 (13.8)	84 (8.9)
Regular*	564 (35.6)	2,233 (44.1)	1,862 (39.1)	606 (25.3)	95 (10.1)
Not known	20 (1.3)	65 (1.3)	73 (1.5)	46 (1.9)	22 (2.3)
MMG#					
Never		3,469 (68.4)	3,027 (63.5)	1,643 (68.7)	798 (85.0)
Occasional		550 (10.9)	576 (12.1)	284 (11.9)	66 (7.0)
Regular*		978 (19.3)	1,080 (22.7)	422 (17.6)	51 (5.4)
Not known		72 (1.4)	81 (1.7)	42 (1.8)	24 (2.6)
USG#					
Never		3,431 (67.7)	3,314 (69.6)	1,830 (76.5)	818 (87.1)
Occasional		532 (10.5)	494 (10.4)	212 (8.9)	53 (5.6)
Regular*		975 (19.2)	826 (17.3)	275 (11.5)	42 (4.5)
Not known		131 (2.6)	130 (2.7)	74 (3.1)	26 (2.8)

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

Breast screening habits were further studied by patients' educational level (Table 1.14). The findings suggested that patients who attained a lower education level had less breast screening habits prior to cancer diagnosis. 64.1% of the patients who attained kindergarten or less had never performed BSE, compared to 27.5% of the patients who attained matriculation level or above. The corresponding figures decreased from 75.2% to 31.0% for CBE, 86.5% to 50.1% for MMG, and 88.5% to 52.9% for USG, respectively.

Table 1.14 Breast screening habits of our patient cohort by educational level

Breast examination	Educational level, Number (%)							
	No schooling / Kindergarten		Primary school		Secondary school		Matriculation or above	
BSE								
Never	486	(64.1)	1,746	(48.0)	2,813	(37.9)	812	(27.5)
Occasional	177	(23.4)	1,152	(31.7)	2,838	(38.2)	1,507	(51.0)
Monthly	87	(11.5)	698	(19.2)	1,688	(22.7)	576	(19.5)
Not known	8	(1.1)	38	(1.0)	90	(1.2)	59	(2.0)
CBE								
Never	570	(75.2)	2,244	(61.8)	3,416	(46.0)	915	(31.0)
Occasional	74	(9.8)	420	(11.6)	1,013	(13.6)	536	(18.1)
Regular*	105	(13.9)	934	(25.7)	2,885	(38.8)	1,451	(49.1)
Not known	9	(1.2)	36	(1.0)	115	(1.5)	52	(1.8)
MMG#								
Never	633	(86.5)	2,726	(76.8)	4,397	(67.2)	1,117	(50.1)
Occasional	40	(5.5)	326	(9.2)	719	(11.0)	379	(17.0)
Regular*	52	(7.1)	458	(12.9)	1,309	(20.0)	695	(31.2)
Not known	7	(1.0)	40	(1.1)	117	(1.8)	38	(1.7)
USG#								
Never	648	(88.5)	2,869	(80.8)	4,633	(70.8)	1,179	(52.9)
Occasional	26	(3.6)	254	(7.2)	637	(9.7)	360	(16.2)
Regular*	49	(6.7)	354	(10.0)	1,107	(16.9)	598	(26.8)
Not known	9	(1.2)	73	(2.1)	165	(2.5)	92	(4.1)

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

Breast screening habits were also studied by patients' monthly household income level (Table 1.15). Our figures showed that patients who had lower income had less breast screening habits prior to cancer diagnosis. 44.2% of the patients who had monthly household income less than 10,000 HKD had never performed BSE, compared to 21.9% of the patients who had income of 60,000 HKD or more. The corresponding figures decreased from 58.7% to 19.3% for CBE, 75.2% to 39.8% for MMG, and 79.9% to 44.7% for USG, respectively.

Table 1.15 Breast screening habits of our patient cohort by monthly household income (HKD)

Breast examination	Monthly household income (HKD), Number (%)							
	<10,000		10,000 – 29,999		30,000 – 59,999		≥ 60,000	
BSE								
Never	715	(44.2)	1,391	(36.4)	577	(29.7)	239	(21.9)
Occasional	585	(36.2)	1,561	(40.9)	935	(48.2)	613	(56.1)
Monthly	291	(18.0)	823	(21.6)	402	(20.7)	217	(19.9)
Not known	25	(1.5)	43	(1.1)	26	(1.3)	23	(2.1)
CBE								
Never	949	(58.7)	1,633	(42.8)	596	(30.7)	211	(19.3)
Occasional	218	(13.5)	564	(14.8)	330	(17.0)	202	(18.5)
Regular*	426	(26.4)	1,582	(41.4)	986	(50.8)	652	(59.7)
Not known	23	(1.4)	39	(1.0)	28	(1.4)	27	(2.5)
MMG#								
Never	1,118	(75.2)	2,226	(67.7)	806	(52.7)	361	(39.8)
Occasional	138	(9.3)	395	(12.0)	251	(16.4)	170	(18.7)
Regular*	208	(14.0)	621	(18.9)	450	(29.4)	360	(39.7)
Not known	23	(1.5)	46	(1.4)	23	(1.5)	16	(1.8)
USG#								
Never	1,188	(79.9)	2,333	(71.0)	867	(56.7)	405	(44.7)
Occasional	116	(7.8)	348	(10.6)	223	(14.6)	170	(18.7)
Regular*	148	(10.0)	527	(16.0)	400	(26.1)	288	(31.8)
Not known	35	(2.4)	80	(2.4)	40	(2.6)	44	(4.9)

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

Breast screening habits were further stratified by patients' district of residence and the result is shown in Table 1.16. More patients in our cohort living in Kowloon or the New Territories have never performed any breast screening (including BSE, CBE, MMG, and USG) compared to Hong Kong Island. More patients in our cohort living in Hong Kong Island have performed regular healthcare service-assisted breast screening tests (i.e., CBE, MMG, and USG) than those living in Kowloon and the New Territories (Table 1.16).

Table 1.16 Breast screening habits of our patient cohort by district of residence

Breast examination	District of Residence, Number (%)		
	Hong Kong Island	Kowloon	New Territories
BSE			
Never	638 (31.2)	1,439 (42.5)	3,593 (40.4)
Occasional	946 (46.2)	1,220 (36.1)	3,340 (37.5)
Monthly	406 (19.8)	666 (19.7)	1,884 (21.2)
Not known	56 (2.7)	58 (1.7)	79 (0.9)
CBE			
Never	672 (32.8)	1,814 (53.6)	4,462 (50.2)
Occasional	346 (16.9)	431 (12.7)	1,203 (13.5)
Regular*	962 (47.0)	1,074 (31.7)	3,147 (35.4)
Not known	66 (3.2)	64 (1.9)	84 (0.9)
MMG#			
Never	916 (50.9)	2,117 (70.5)	5,626 (71.3)
Occasional	299 (16.6)	303 (10.1)	828 (10.5)
Regular*	529 (29.4)	529 (17.6)	1,346 (17.1)
Not known	57 (3.2)	52 (1.7)	88 (1.1)
USG#			
Never	1,007 (55.9)	2,235 (74.5)	5,863 (74.3)
Occasional	264 (14.7)	273 (9.1)	710 (9.0)
Regular*	415 (23.0)	410 (13.7)	1,186 (15.0)
Not known	115 (6.4)	83 (2.8)	129 (1.6)

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