Table 2.3.5 Molecular characteristics of in situ breast cancer

	Number (%)
Estrogen receptor (ER) (N=312)	
Positive	239 (76.6%)
Negative	73 (23.4%)
Progesterone receptor (PR) (N=310)	
Positive	207 (66.8%)
Negative	103 (33.2%)
c-erbB2 / HER2 (N=297)	
Positive	95 (32.0%)
Weakly positive (Score 2)	73 (24.6%)
Negative	129 (43.4%)
Ki-67 index (N=248)	
<14%	166 (66.9%)
14-49%	72 (29.0%)
≥50%	10 (4.0%)

2.4 Treatment methods

Surgical treatment

Of the 3,467 breast cancer patients, the vast majority (98.4%) underwent surgical operations, of these, 38.6% had breast conserving surgery and 60.0% had mastectomy. 62.0% of the patients used private medical service and 38.0% in public medical service.

Total mastectomy (92.6%) was the most common type of mastectomy, followed by skin-sparing mastectomy (6.4%) (Table 2.4.1).

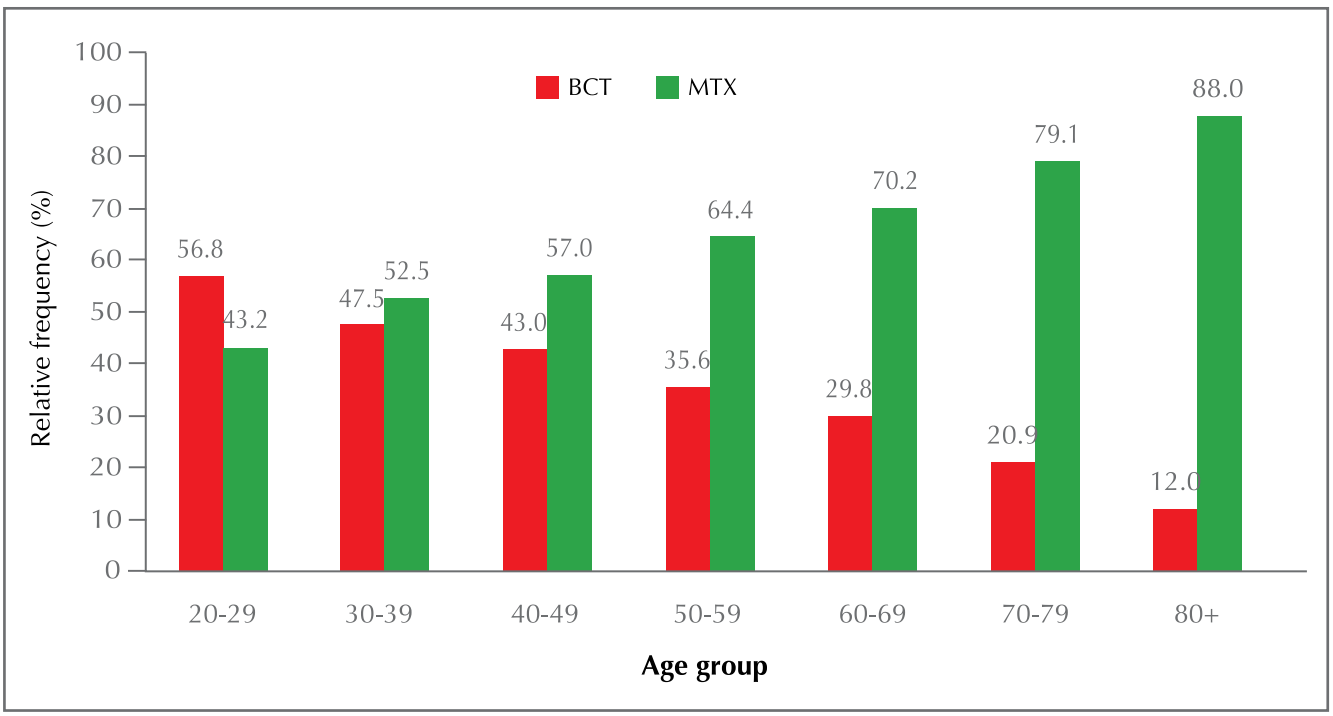
Of 2,076 mastectomy patients, 17.5% underwent breast reconstruction surgery, of which Transverse Rectus Abdominis Myocutaneous Flap (TRAM flap) (56.3%) and implant (26.4%) were the two most common techniques employed (Table 2.4.1).

Table 2.4.1 Types of surgical operations in the patient cohort (N=3,467)

	Number	(%)
No surgery	49	(1.4%)
Breast conserving surgery	1,335	(38.6%)
Mastectomy	2,076	(60.0%)
Mastectomy (N=2,076)		
Total mastectomy	1,922	(92.6%)
Skin sparing	132	(6.4%)
Areolar sparing	4	(0.2%)
Nipple sparing	13	(0.6%)
Unknown	5	(0.2%)
Reconstruction (N=364)		
TRAM flap	205	(56.3%)
Implant	96	(26.4%)
LD flap	27	(7.4%)
LD flap & implant	30	(8.2%)
Unknown	6	(1.6%)
Nodal surgery (N=3,172)		
Sentinel node biopsy	1,057	(33.3%)
Axillary dissection	1,577	(49.7%)
Sentinel node biopsy & axillary dissection	528	(16.6%)
Unknown	10	(0.3%)

The rate of breast conserving surgery was highest in the youngest patient group. The rate decreased over age, ranging from 56.8% in the group from 20 to 29 years to 12.0% in the age group of 80 and above. The mastectomy rate was lowest in the group from 20 to 29 years and showed an upward trend with age. The highest mastectomy rate was found in the group aged 80 years and above (Figure 2.4.1).

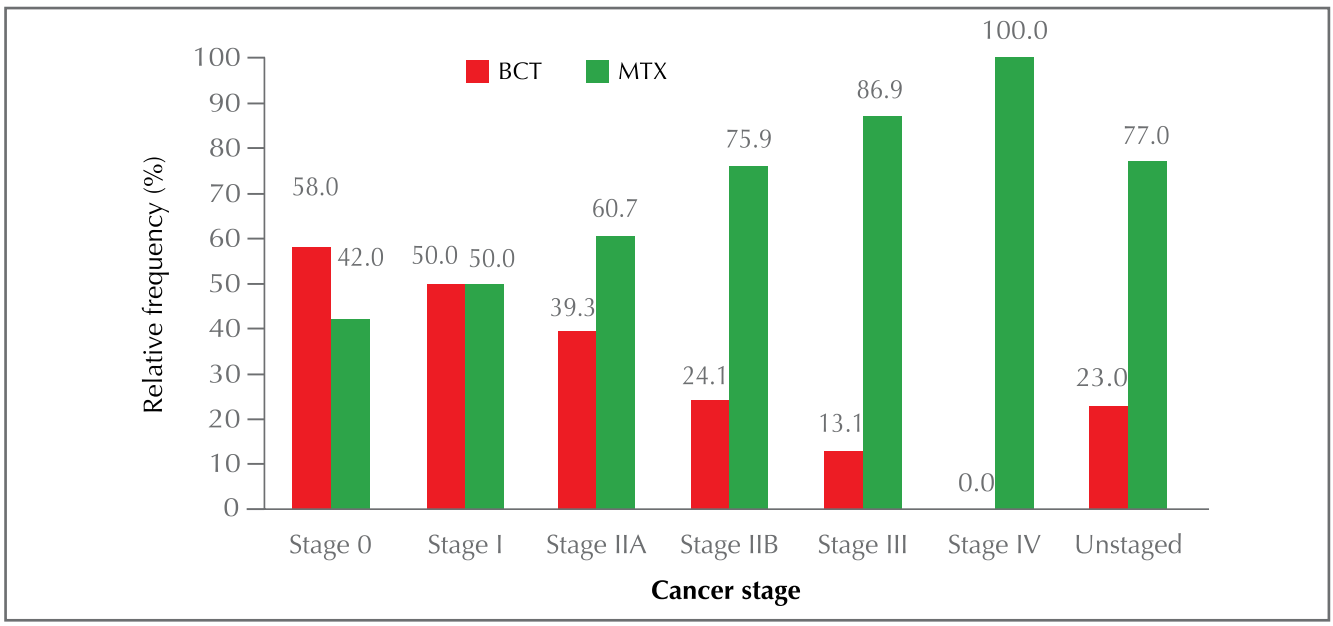
Figure 2.4.1 Type of surgery by age group (N=3,400)



BCT : Breast conserving surgery; MTX: Mastectomy

The breast conserving surgery rate (58.0%) was highest in cancer stage 0 patients with a decreasing trend towards advanced stages, whereas the mastectomy rate was lowest in stage 0 (42.0%), with an increasing trend towards advanced stages (Figure 2.4.2).

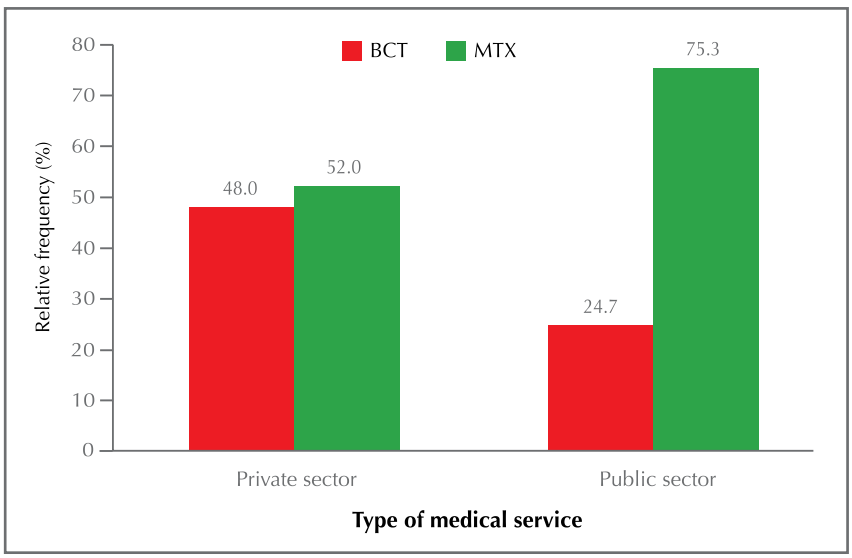
Figure 2.4.2 Type of surgery by cancer stage (N=3,411)



BCT : Breast conserving surgery MTX: Mastectomy

The mastectomy rate in patients receiving public medical care was 1.4 times that of the patients in the private medical service group (Figure 2.4.3).

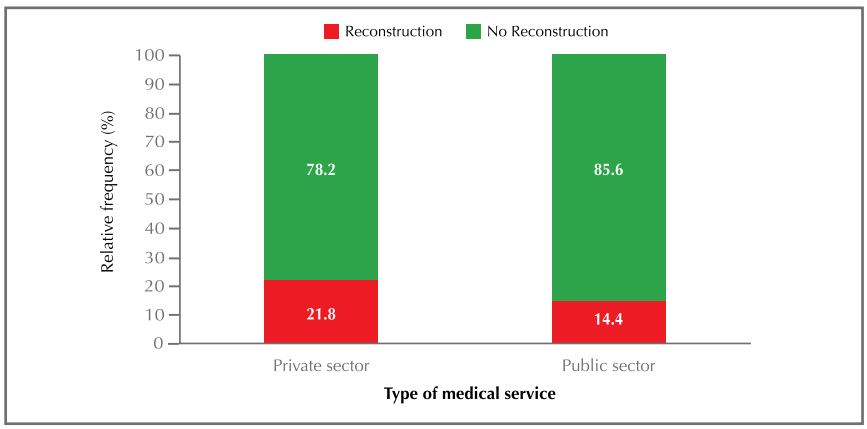
Figure 2.4.3 Type of surgery by type of medical service (N=3,411)



BCT : Breast conserving surgery MTX : Mastectomy

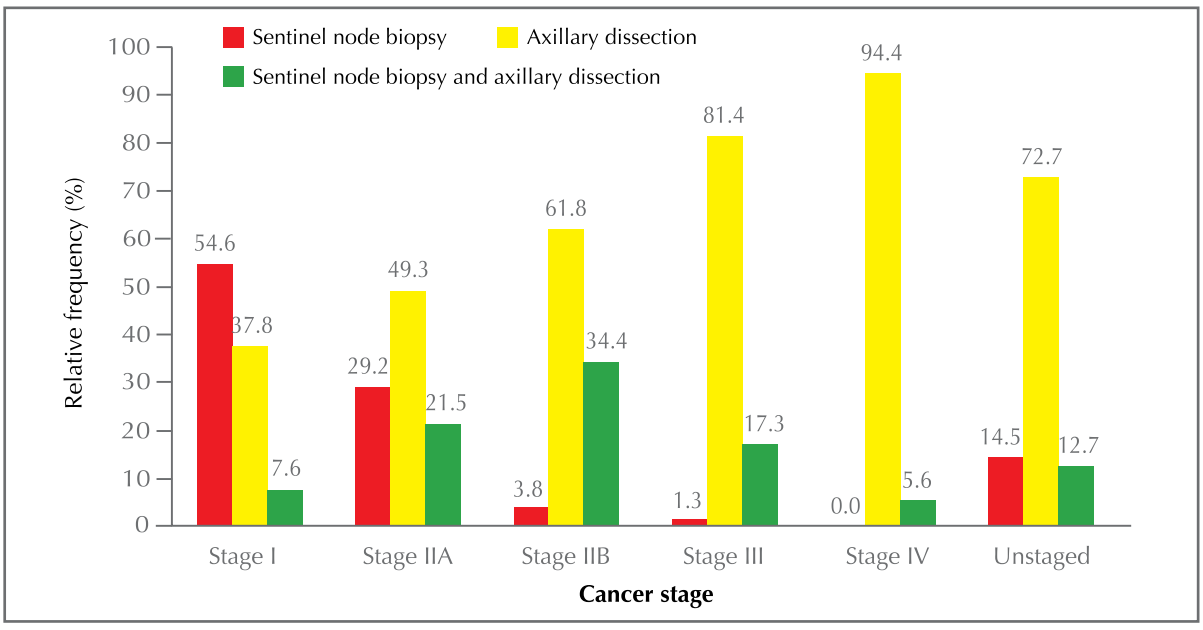
By the type of medical service, the reconstruction rate was higher in the patients using private medical service (21.8%) compared with the patients using public medical service (14.4%) (Figure 2.4.4).

Figure 2.4.4 Reconstruction rate by type of medical service (N=1,966)



Nodal surgery was performed in 91.4% of the patients. Among these, 33.3% had sentinel node biopsy (SNB) only; 49.7% had axillary dissection only and 16.6% had both SNB and axillary dissections (Table 2.4.1). Different patterns of SNB rates and axillary dissection were observed at different cancer stages, with higher SNB rates among early stage cancers (54.6% with Stage I vs. 0% with Stage IV) and higher axillary dissection rates in advanced stage cancers (94.4% with Stage IV vs. 37.8% with Stage I) (Figure 2.4.5).

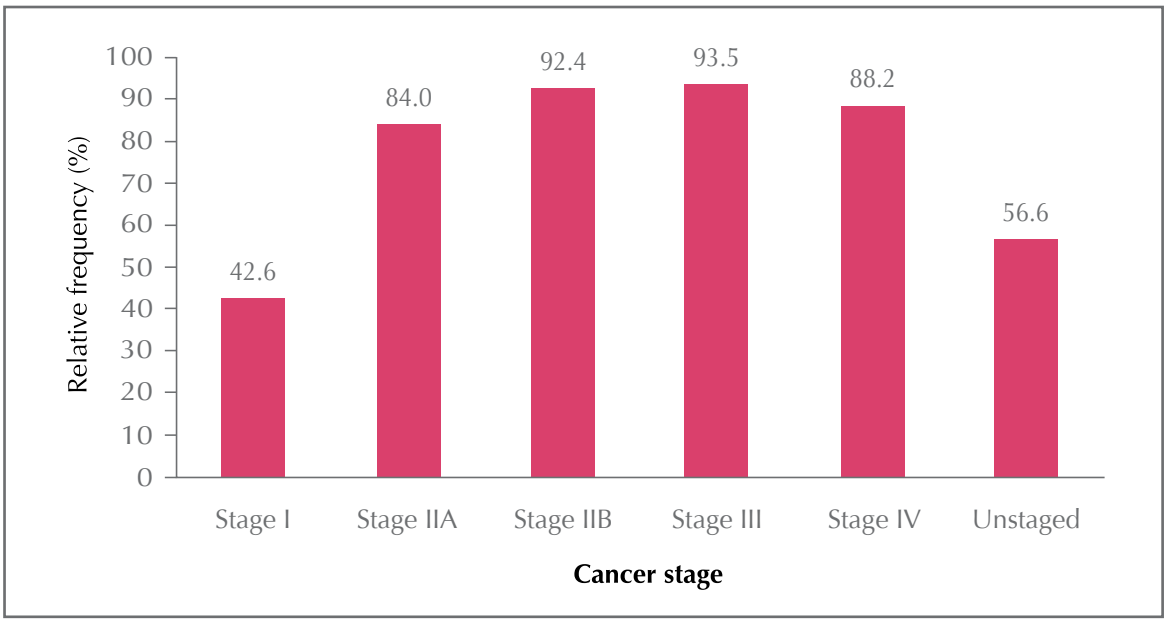
Figure 2.4.5 Type of nodal surgery in invasive cancer (N=2,926)



Chemotherapy

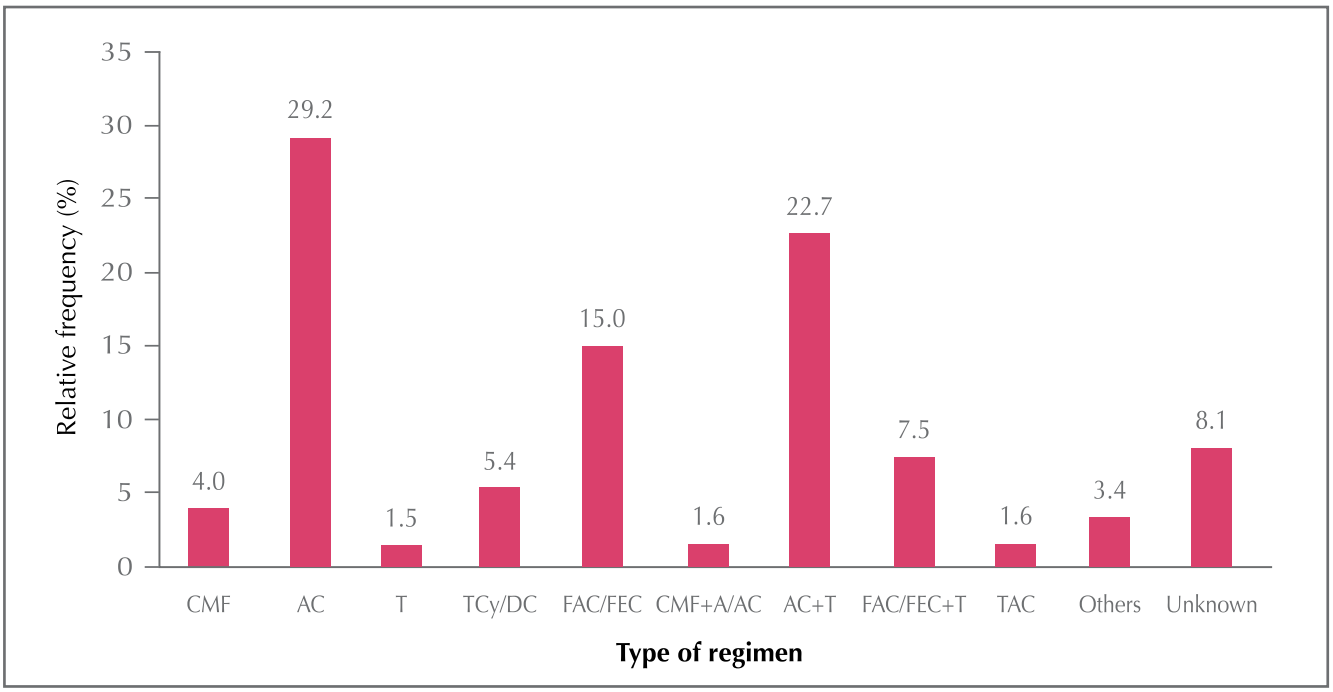
63.2% of the patients were treated with chemotherapy; 20.5% of these were in the private medical service group and 79.5% were in the public medical service group. Among those who received chemotherapy, 92.0% were adjuvant; 2.9% were neoadjuvant and 1.4% were palliative in nature. The rates of receiving chemotherapy among patients at different cancer stages ranged from 42.6% in stage I to 93.5% in stage III, but dropped to 88.2% in stage IV (Figure 2.4.6).

Figure 2.4.6 Chemotherapy rate in the patients at different cancer stages (N=3,419)



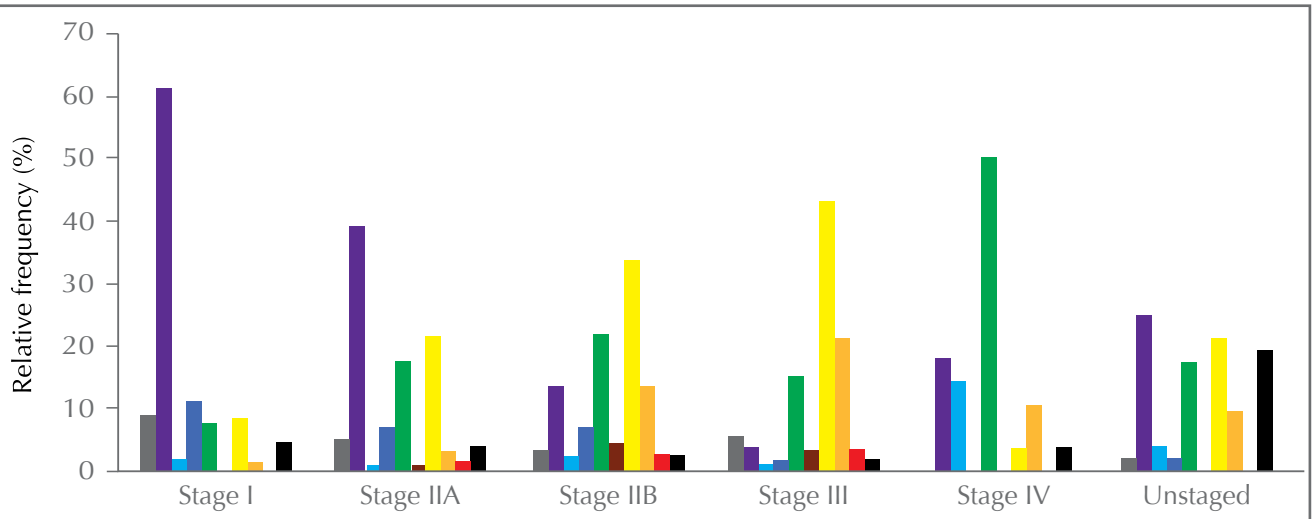
The five most frequently used chemotherapy regimens among the patient cohort were AC only (29.2%), AC+T (22.7%), FAC / FEC (15.0%), FAC / FEC+T (7.5%) and TCy / DC (5.4%) (Figure 2.4.7).

Figure 2.4.7 Type of chemotherapy regimens used in the patients (N=2,190)



The most common regimen for stage I was AC only (61.1%); stage IIA was AC only (39.0%); stage IIB was AC+T (33.8%); stage III was AC+T (43.1%); and stage IV was FAC / FEC (50.0%) (Figure 2.4.8).

Figure 2.4.8 Type of chemotherapy regimens in the patients by cancer stage (N=2,013)



	Stage I	Stage IIA	Stage IIB	Stage III	Stage IV	Unstaged
CMF	4.1	4.9	3.3	5.5	0.0	1.9
AC	61.1	39.0	13.5	3.7	17.9	25.0
T	1.7	0.8	2.3	1.1	14.3	3.8
TCy / DC	11.3	6.9	3.0	1.7	0.0	1.9
FAC / FEC	7.5	17.6	21.8	15.2	50.0	17.3
CMF+A / AC	0.2	0.9	4.3	3.2	0.0	0.0
AC+T	8.4	21.5	33.8	43.1	3.6	21.2
FAC / FEC+T	1.2	3.0	13.5	21.3	10.7	9.6
TAC	0.0	1.6	2.5	3.4	0.0	0.0
Others	4.6	3.9	2.3	1.7	3.6	19.2

Radiotherapy

Among 3,467 patients, 2,188 patients (63.7%) were treated with radiotherapy; 23.2% used private medical service and 76.8% used public medical service. Among those who had radiotherapy, 1,236 patients (56.0%) had breast conserving surgery and 952 patients (43.1%) had mastectomy. Among the patients treated with mastectomy and radiotherapy, 572 patients (60.0%) were diagnosed with Stage I or II cancer (Table 2.4.2).

Table 2.4.2 Radiotherapy rates in different cancer stages among patients with mastectomy (N=952)

Cancer stage	Number of patients received radiation therapy (%)
I	88 (9.2)
IIA	237 (24.9)
IIB	247 (25.9)
III	324 (34.0)
IV	15 (1.6)
Unstaged	41 (4.3)

Endocrine therapy

66.2% of the patients were treated with endocrine therapy. Of those patients, 22.1% were treated in the private sector and 77.9% were treated in the public sector. 72.5% to 90.6% of patients at stages I-IV were given endocrine therapy whereas only about 24.9% were on endocrine therapy at stage 0 (Figure 2.4.9). Tamoxifen (83.5%) was the most commonly used drug for endocrine therapy, followed by aromatase inhibitor (18.4%) (Figure 2.4.10).

Figure 2.4.9 Endocrine therapy rates in patients by cancer stage (N=3,411)

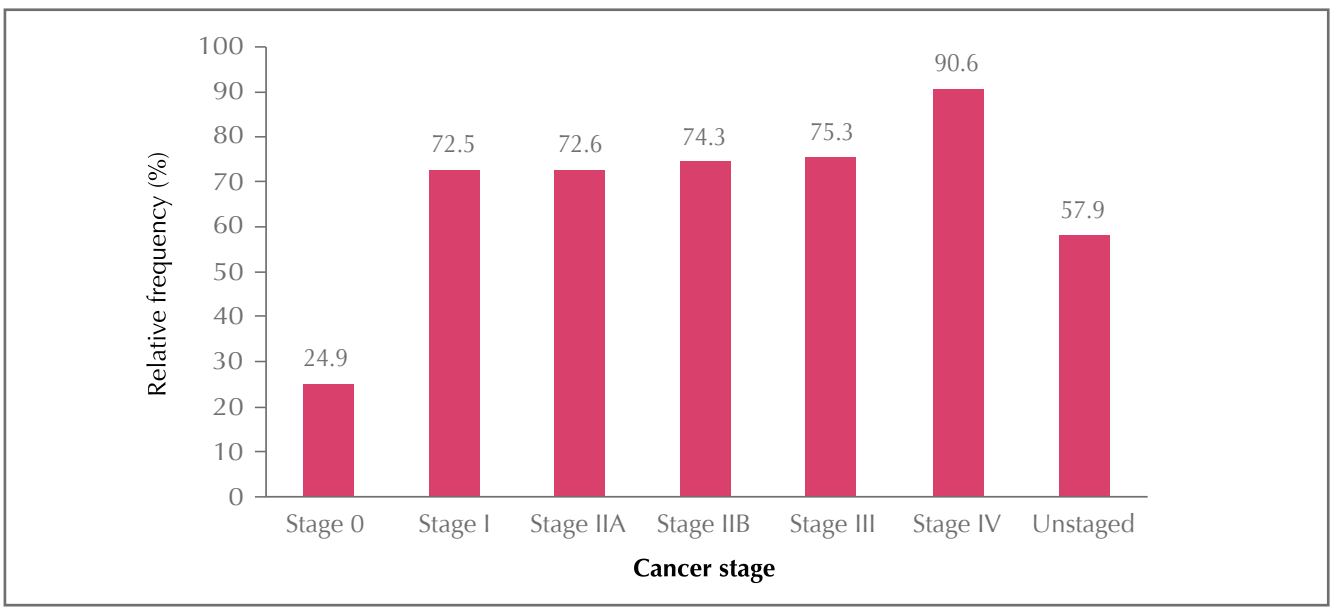
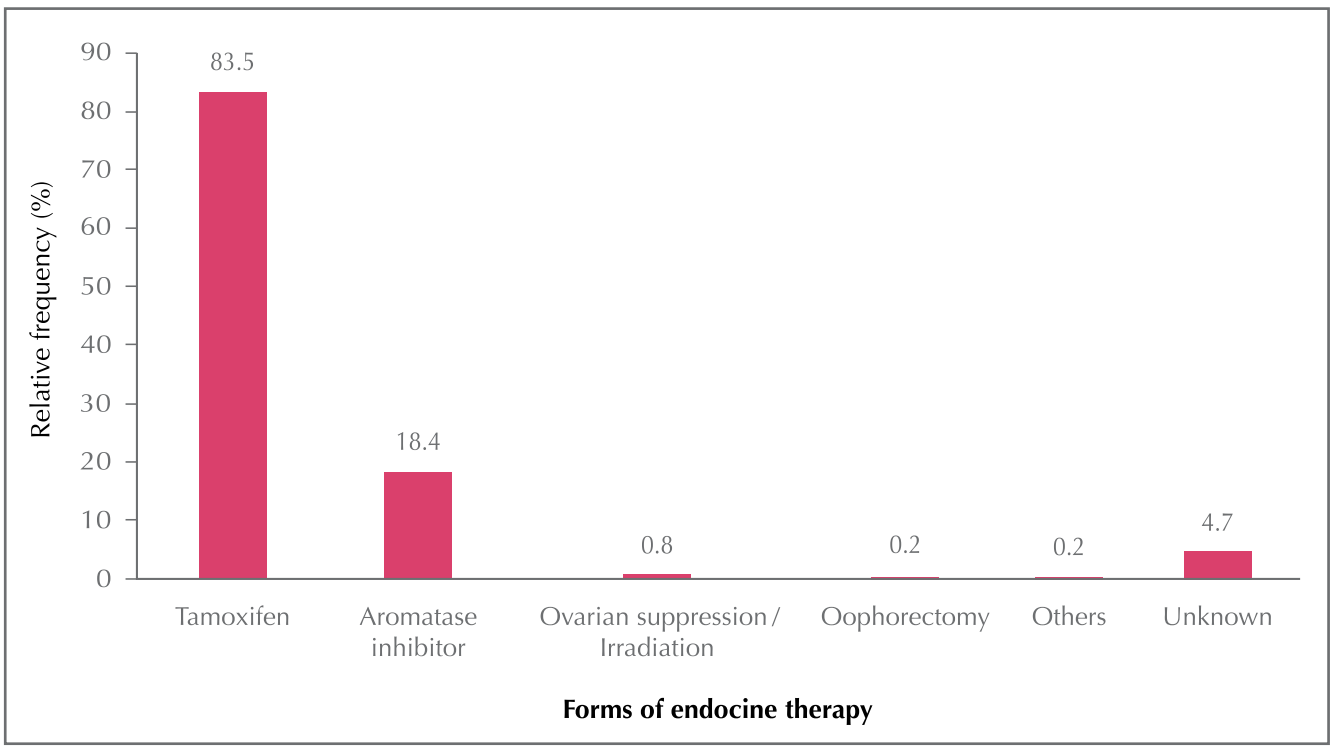


Figure 2.4.10 Forms of endocrine therapy used in patients (N=2,295)



Targeted therapy

About 6% of the patients were treated with targeted therapy. Of those patients, 28.4% were treated in the private sector and 71.6% were treated in the public sector. Approximately 3% to 8% of the patients at stages I-II were given targeted therapy; 12.1% of the patients at stage III were given targeted therapy (Figure 2.4.11). Among them, 92.4% were on trastuzumab and 2.4% were on lapatinib (Figure 2.4.12).

Figure 2.4.11 Targeted therapy rate in patients by cancer stage (N=3,416)

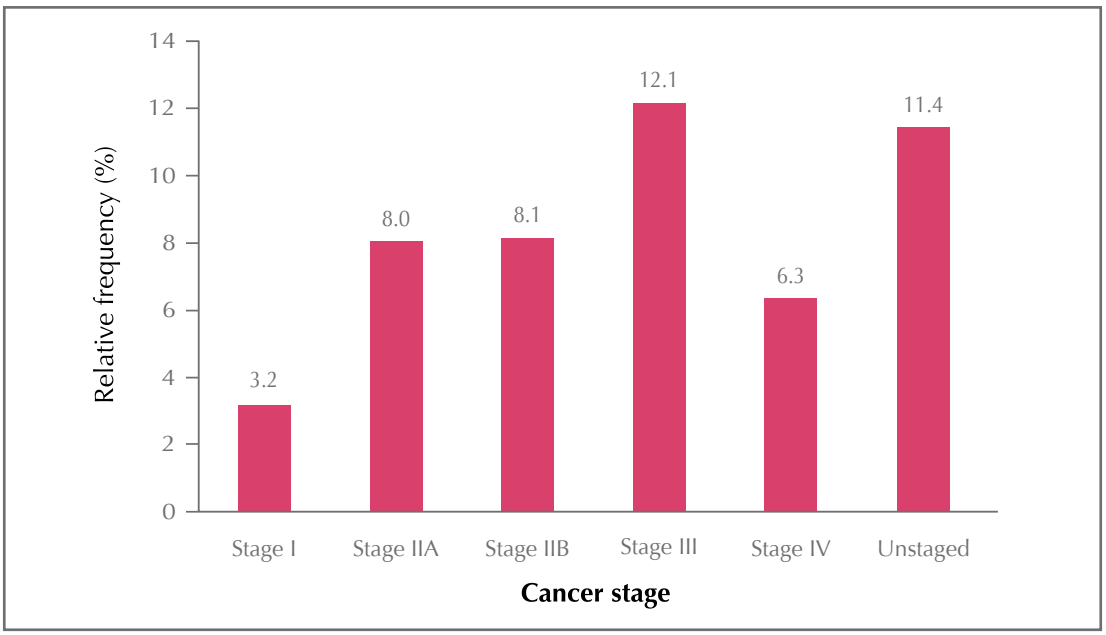
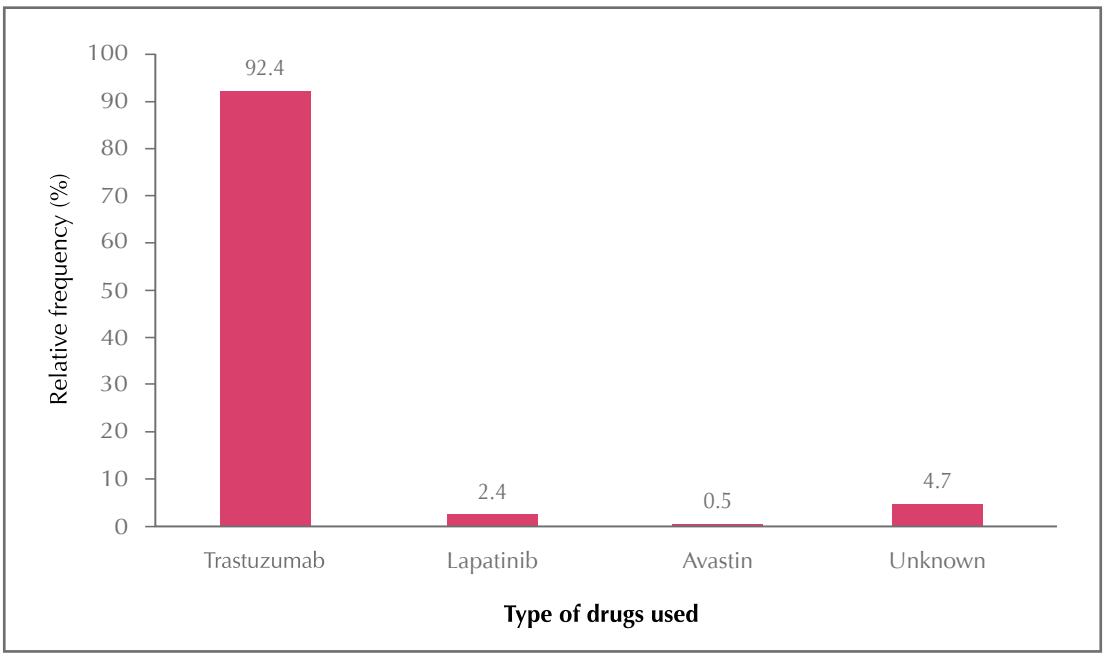


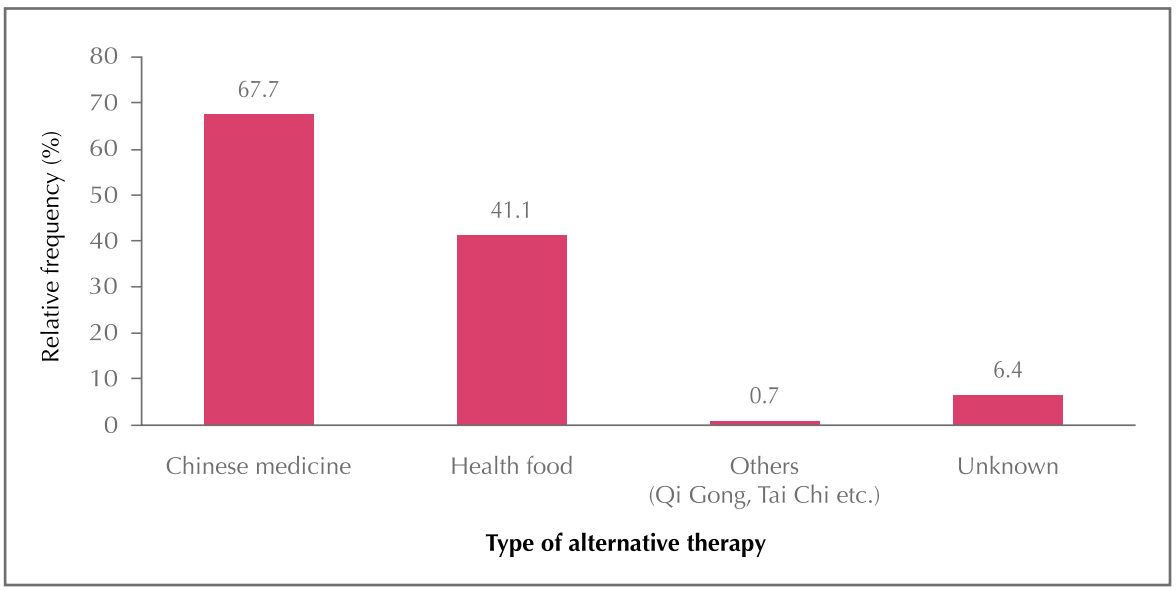
Figure 2.4.12 Type of drugs used for targeted therapy in patients (N=211)



Complementary and alternative therapies

Of 3,467 breast cancer patients, 1,162 (33.5%) were treated with complementary and alternative therapies. Of these, 84.9% received adjuvant therapy. Major types of alternative therapies were Chinese medicine (67.7%) and health food (41.1%) (Figure 2.4.13).

Figure 2.4.13 Types of alternative therapies used in 1,162 patients



2.5 Patient status

As of April 2011, a total of 3,375 surviving breast cancer patients had been observed for an average period of 3 years. Of 3,370 patients, 88 (2.6%) had locoregional recurrences with a mean time to locoregional recurrence of 4.6 years. The most common site was the breast (45.5% or 40 cases); 91 (2.7%) patients had distant recurrences with a mean time to distant recurrence of 4.2 years and the most common site was in patients´ bones (48.4% or 44 cases) (Table 2.5.1).