

**S4 Table.** Analyses of treatment modalities according to the education level and clinicopathologic characteristics in all subjects

Characteristic	Operation		Chi-square test p-value	Radiation therapy		Chi-square test p-value	Chemotherapy		Chi-square test p-value	Endocrine therapy		Chi-square test p-value
	Lumpectomy	Mastectomy		No	Yes		No	Yes		No	Yes	
All												
Low education level	9,568 (47.7)	10,477 (52.3)	< 0.001	7,392 (42.7)	9,916 (57.3)	< 0.001	4,917 (27.2)	13,129 (72.8)	0.662	5,481 (43.6)	7,091 (56.4)	< 0.001
High education level	25,430 (59.2)	17,503 (40.8)		12,519 (32.6)	25,880 (67.4)		10,903 (27.4)	28,857 (72.6)		11,073 (36.6)	19,188 (63.4)	
Age ≤ 50 yr												
Low education level	2,753 (47.5)	3,038 (52.5)	< 0.001	2,074 (40.9)	3,000 (59.1)	< 0.001	899 (16.8)	4,466 (83.2)	< 0.001	1,524 (40.6)	2,232 (59.4)	< 0.001
High education level	18,373 (59.2)	12,640 (40.8)		8,948 (32.1)	18,885 (67.9)		7,293 (25.3)	21,535 (74.7)		7,719 (35.3)	14,170 (64.7)	
Age > 50 yr												
Low education level	6,814 (47.8)	7,437 (52.2)	< 0.001	5,317 (43.5)	6,915 (56.5)	< 0.001	4,018 (31.7)	8,661 (68.3)	0.029	3,955 (44.9)	4,859 (55.1)	< 0.001
High education level	7,055 (59.2)	4,863 (40.8)		3,571 (33.8)	6,994 (66.2)		3,610 (33.0)	7,321 (67.0)		3,354 (40.1)	5,017 (59.9)	
Tumor size ≤ 2 cm												
Low education level	6,379 (60.9)	4,095 (39.1)	< 0.001	3,435 (37.9)	5,627 (62.1)	< 0.001	3,621 (39.0)	5,664 (61.0)	0.655	2,564 (37.8)	4,212 (62.2)	< 0.001
High education level	17,082 (69.6)	7,464 (30.4)		6,431 (29.2)	15,559 (70.8)		8,847 (39.3)	13,683 (60.7)		5,510 (31.3)	12,107 (68.7)	
Tumor size > 2 cm												
Low education level	3,000 (32.4)	6,247 (67.6)	< 0.001	3,846 (48.3)	4,120 (51.7)	< 0.001	1,189 (14.0)	7,281 (86.0)	< 0.001	2,745 (49.5)	2,802 (50.5)	< 0.001
High education level	7,692 (44.2)	9,707 (55.8)		5,769 (37.0)	9,813 (63.0)		1,643 (10.0)	14,735 (90.0)		5,032 (42.3)	6,854 (57.7)	
Node negative												
Low education level	6,749 (55.2)	5,469 (44.8)	< 0.001	4,749 (45.0)	5,804 (55.0)	< 0.001	4,177 (38.6)	6,652 (61.4)	0.113	3,429 (45.1)	4,171 (54.9)	< 0.001
High education level	18,234 (67.0)	8,985 (33.0)		8,049 (33.0)	16,348 (67.0)		9,863 (39.5)	15,131 (60.5)		7,240 (37.6)	12,039 (62.4)	
Node positive												
Low education level	2,721 (35.6)	4,932 (64.4)	< 0.001	2,570 (38.8)	4,056 (61.2)	< 0.001	662 (9.3)	6,421 (90.7)	< 0.001	2,000 (41.0)	2,880 (59.0)	< 0.001
High education level	6,914 (45.2)	8,372 (54.8)		4,328 (31.5)	9,399 (68.5)		860 (5.9)	13,613 (94.1)		3,689 (34.3)	7,051 (65.7)	
Stage I												
Low education level	4,975 (63.4)	2,871 (36.6)	< 0.001	2,624 (38.5)	4,188 (61.5)	< 0.001	3,363 (48.7)	3,536 (51.3)	0.518	1,968 (38.6)	3,137 (61.4)	< 0.001
High education level	13,606 (72.2)	5,241 (27.8)		4,912 (29.0)	12,040 (71.0)		8,469 (49.2)	8,742 (50.8)		4,297 (31.4)	9,368 (68.6)	
Stage II, III												
Low education level	4,325 (36.9)	7,409 (63.1)	< 0.001	4,626 (45.6)	5,510 (54.4)	< 0.001	1,407 (13.1)	9,356 (86.9)	< 0.001	3,345 (46.7)	3,812 (53.3)	< 0.001
High education level	10,991 (48.1)	11,863 (51.9)		7,239 (35.3)	13,249 (64.7)		1,965 (9.1)	19,540 (90.9)		6,233 (39.6)	9,492 (60.4)	

Hormonal receptor negative												
Low education level	2,511 (41.6)	3,522 (58.4)	< 0.001	2,469 (45.2)	2,994 (54.8)	< 0.001	789 (13.8)	4,938 (86.2)	< 0.001	NA	NA	
High education level	5,952 (54.8)	4,919 (45.2)		3,401 (33.9)	6,619 (66.1)		1,211 (11.6)	9,208 (88.4)		NA	NA	
Hormonal receptor positive												
Low education level	6,235 (51.3)	5,926 (48.7)	< 0.001	4,428 (40.4)	6,542 (59.6)	< 0.001	3,836 (33.8)	7,518 (66.2)	0.193	721 (10.3)	6,268 (89.7)	< 0.001
High education level	17,585 (60.8)	11,319 (39.2)		8,346 (31.3)	18,349 (68.7)		9,113 (33.1)	18,418 (66.9)		1,717 (8.9)	17,592 (91.1)	
Lumpectomy												
Low education level	NA	NA		686 (8.3)	7,586 (91.7)	< 0.001	2,653 (31.6)	5,750 (68.4)	0.575	2,328 (29.5)	5,551 (70.5)	0.001
High education level	NA	NA		1,386 (6.2)	21,129 (93.8)		7,347 (31.9)	15,681 (68.1)		6,023 (27.5)	15,858 (72.5)	
Mastectomy												
Low education level	NA	NA		6,619 (75.3)	2,173 (24.7)	< 0.001	2,163 (23.1)	7,219 (76.9)	< 0.001	3,056 (68.0)	1,438 (32.0)	< 0.001
High education level	NA	NA		10,940 (71.2)	4,418 (28.8)		3,378 (20.9)	12,783 (79.1)		4,844 (61.1)	3,084 (38.9)	

Values are presented as number (%). NA, not acquired.