

MAMMOGRAPHY SCREENING PROGRAM “DONNA” SIGNIFICANTLY REDUCES OVERALL MORTALITY OF WOMEN WITH BREAST CANCER

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AIM & OBJECTIVES

- Each year 550 women in the cantons of St.Gallen and Graubünden are diagnosed with breast cancer (BC) – 500 of them with invasive BC
- Since 2010 the organized mammography screening program (MSP) “donna” is active in these cantons – all women between 50 and 69 are every two years invited to participate
- The participation rate has been increasing up to recent 52% - around 36,000 women participate each year
- “donna” helps to diagnose BC at an earlier stage thus giving the women less invasive treatment options and a more favorable prognosis [1, 2]
- Our aim is to compare the survival rates of women whose BC was diagnosed through the “donna” MSP to those who did not participate in the program

PATIENTS & METHODS

- Data of 2'701 BC tumors diagnosed between 2010 and 2019* of 2'598 women aged 50 to 69 in the cantons of St.Gallen and Graubünden were used**
- BC tumors were classified either as
 - Detected in the “donna” MSP
 - Screening-Detected Cases (SDC) after a positive mammography (N = 883 , 32.7%)
 - Interval-Carcinomas (IC) diagnosed within 24 months after a negative mammography (N = 251, 9.3%)
 - Outside MSP diagnosed BC cases (N = 1,567, 58.0%)
- We analyze the UICC-TNM stage distribution, tumor characteristics, treatments, and the survival of the women using 1-, 2-, 5- and 7-year overall survival rates as well as Kaplan-Meier estimates
- Wilcoxon-Mann-Whitney or Student’s t-tests, and Greenwood Point estimators for the Kaplan-Meier estimates respectively, were used for calculating the significance of the results

* Year of the diagnosis (SDC, outside MSP) or the mammography (IC)

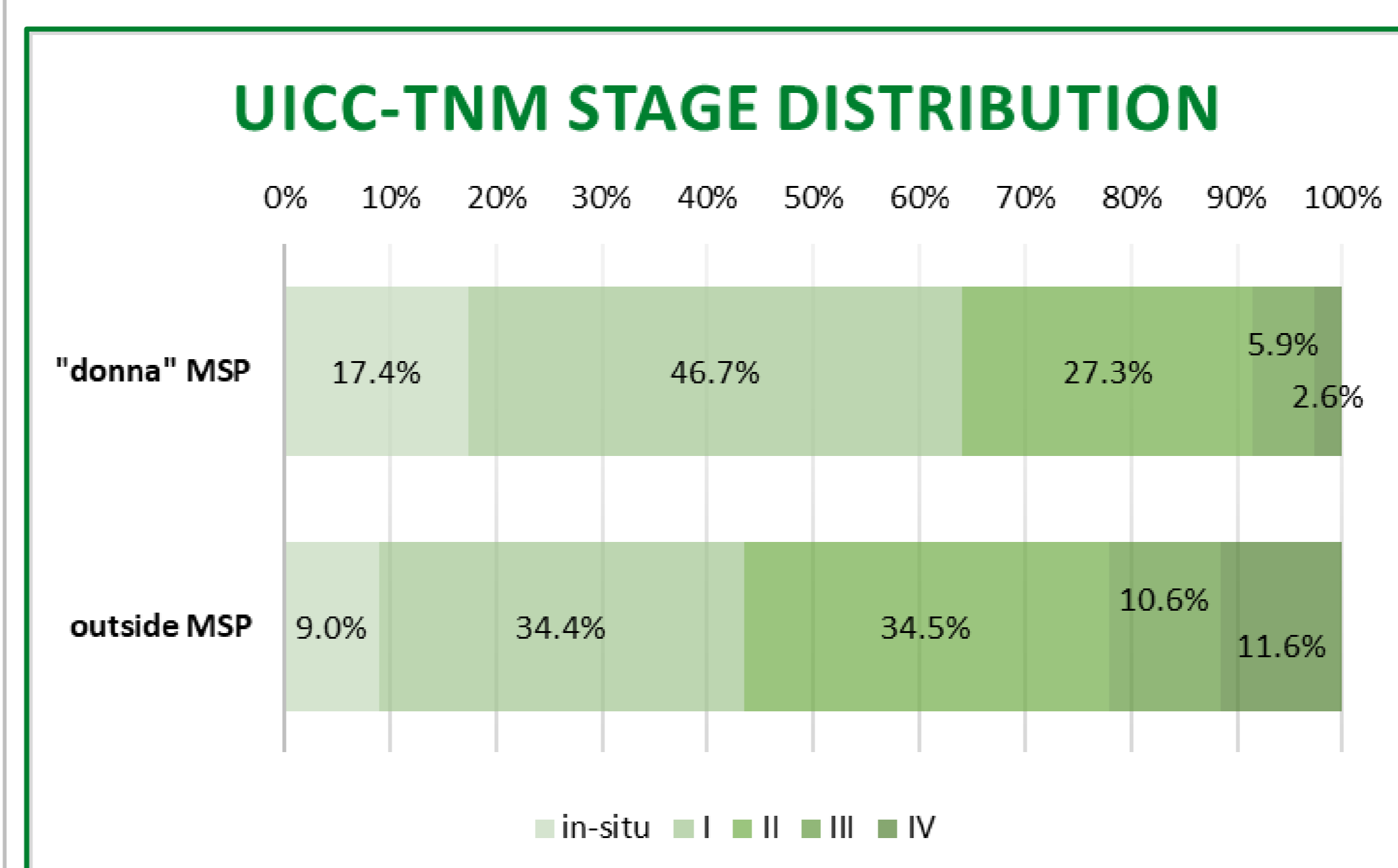
** Data Sources:

Cancer Registry of Eastern Switzerland and Cancer Registry of Graubünden-Glarus
www.krebsregister-ost.ch
www.ksgr.ch/krebsregister

donna Mammography Screening Program
www.donna-programm.ch

RESULTS

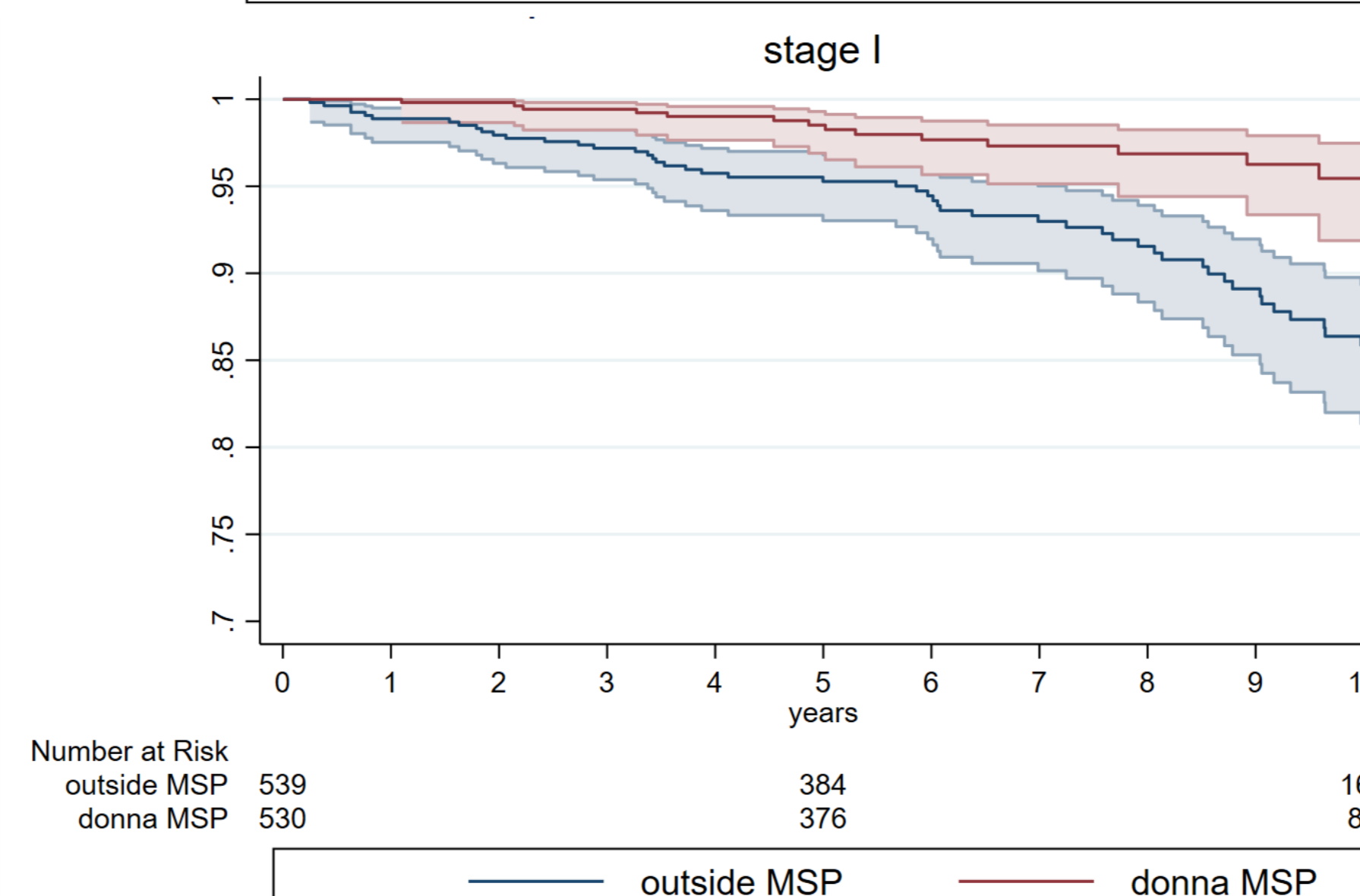
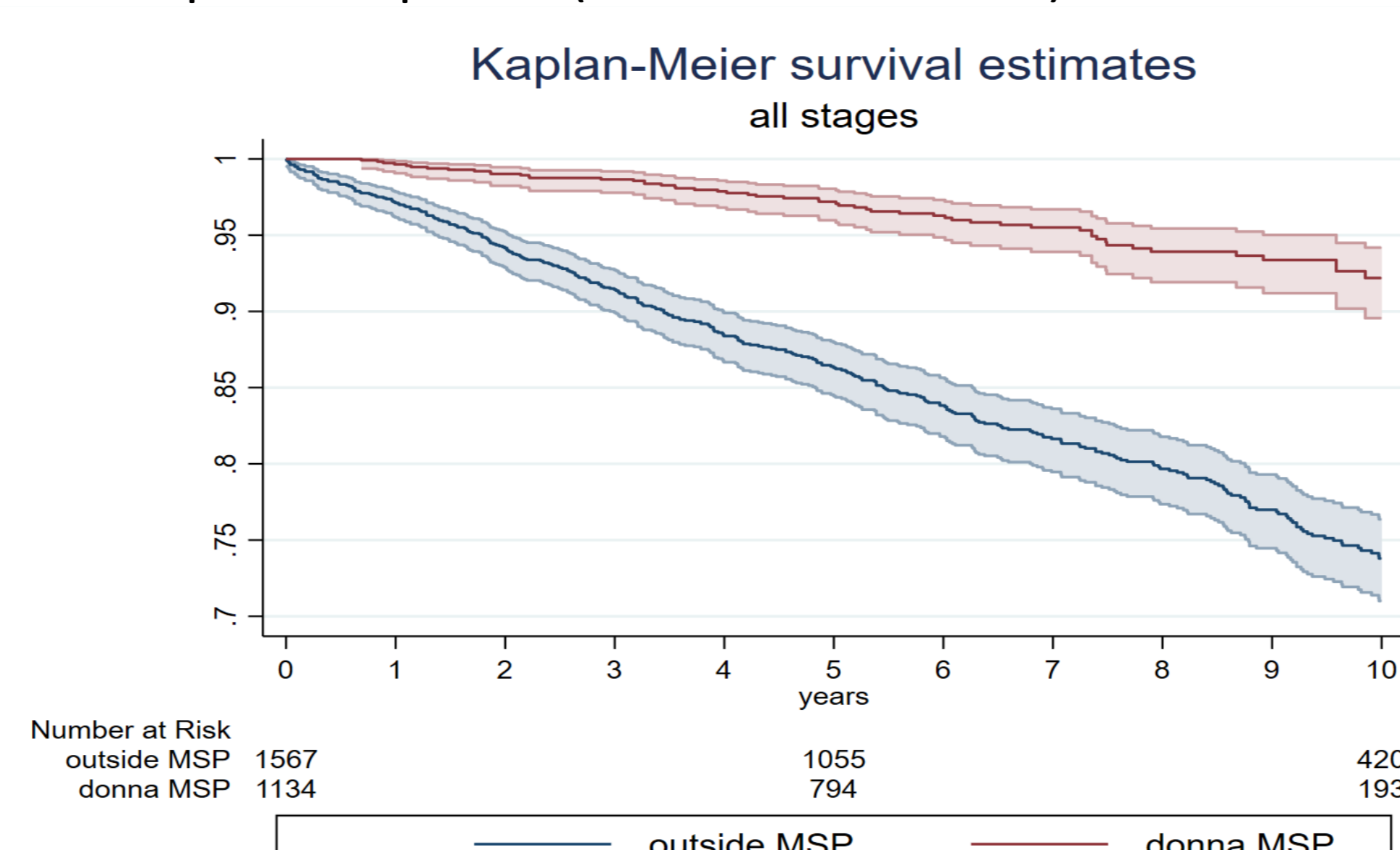
- BC diagnosed in the “donna” MSP have a significantly higher share of in-situ and stage I carcinomas (64.1% vs. 43.4%, p<0.001) and have significantly fewer metastases at diagnoses, i.e., stage IV tumors (2.7% vs. 11.6%, p<0.001)



- Women with a BC diagnosed in the “donna” MSP have
 - a smaller mean tumor size (19.0mm vs. 24.9mm, p<0.001)
 - less chemotherapies (27.6% vs. 39.9%, p<0.001)
 - fewer radical mastectomies (8.9% vs. 17.7%, p<0.001)
 - less often a recurrence or metastasis in the follow-up period (5.5% vs. 14.4%, p<0.001)
- Significantly higher survival rates of women with BC diagnosed in the “donna” MSP

Overall Survival Rates	1 year	2 years	5 years	7 years
“donna” MSP	99.7%	99.1%	96.5%	94.3%
outside MSP	97.0%	93.8%	86.1%	80.9%

- Kaplan-Meier estimates show significantly differences between these groups independent of the UICC-TNM stages, e.g., stage I
- Women with their BC diagnosed in the donna MSP
 - have a higher 10-year overall survival rate by 18 percent-points (Hazard Ratio: 0.30)
 - have a higher 10-year survival rate in stage I by 10 percent-points (Hazard Ratio: 0.32)



CONCLUSIONS & DISCUSSION

- Women with BC diagnosed in the “donna” MSP have a significantly higher overall survival rate than women diagnosed outside the program
- Detection of breast cancer at an earlier stage can only partially explain the results, as results persisted even when accounting for tumor stage
- Our results show the effectiveness of our mammography screening program to decrease mortality rates for breast cancer, thus confirming other foreign studies [3, 4]
- Potential lead and selection bias - Socioeconomic factors influence the participation rate [5] and thus could be at least a partial explanation for the better survival due to their healthier lifestyle
- The study only includes data from two cantons (8.2% of the Swiss population) and a limited observation time – hence the number of patients is rather small
- Further analysis will be conducted, such as the impact of hormone receptors, e.g., progesterone, estrogen, or HER2
- Data from other MSP and/or cantons should be used for comparison of our results

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