

Deterministic Linkage's Effectiveness in Improving Brazilian Population-based Cancer Registry Information

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INTRODUCTION

Population-Based Cancer Registries (PBCR) collect, analyze, and disseminate cancer incidence, mortality, and survival rates. For these rates to be accurate, good quality information is required. Some cancer registries face difficulties that reduce the quality of their data, among them, the difficulty in accessing information. This occurs mainly in low-middle countries. The linkage technique is an alternative for the improvement of the information. This study aimed to evaluate the improvement in data quality after deterministic linkage.

METHODOLOGY

Deterministic linkage was performed between São Paulo state mortality database and PBCR-Barretos through technical cooperation. To evaluate the improvement of information, a comparison was made between the databases before and after the linkage, using the following analyses: difference in the absolute number of deaths; mean follow-up time of individuals, applying the Wilcoxon test; survival analysis by Kaplan Meier and the Log Rank test to compare the difference between the survival curves.

RESULTS

With probabilistic linkage, 7,515 individuals were linked, updating the vital status of 571 cases. With the imputation of new deaths (Figure 1), the follow-up time of the cases was also increased in median from at least 3 months to 57 months (Figure 2). The Wilcoxon test showed a significant difference in the follow-up time in all tumor groups except testicular cancer. When Kaplan Meier survival analyses were compared in the pre- and post-linkage periods, there was a decrease in survival rates, seen in all tumor types except testicular cancer. When the Log Rank test was applied, the tumor sites that had a significant decrease were the female breast, colorectal, and whole stool tumor groups (Figure A, B and C).

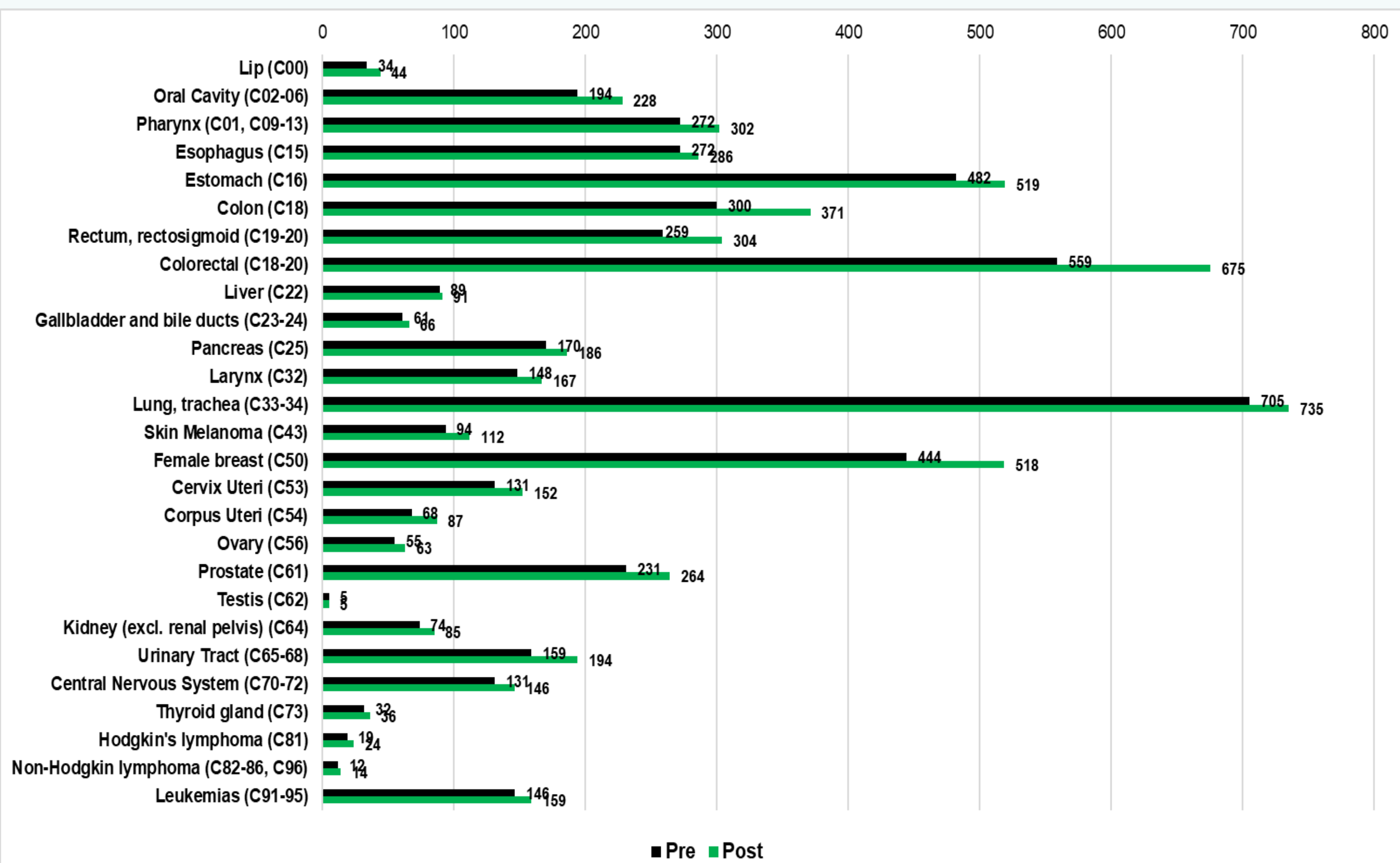


Figure 1 - Comparison of the absolute number of deaths from both databases for each tumor.

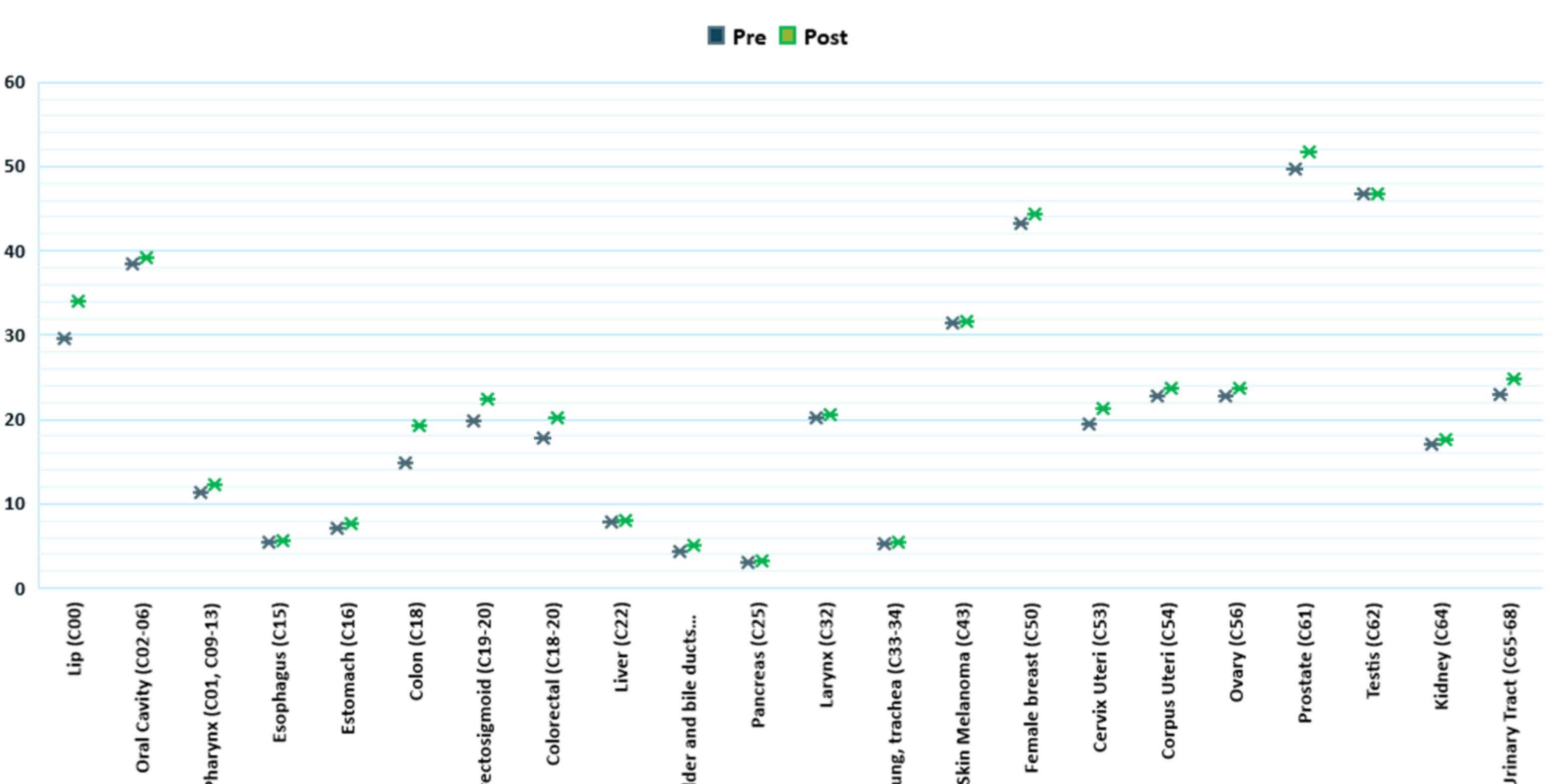


Figure 2 - Comparison of mean follow-up times of individuals for each database categorized by tumor site.

CONCLUSION

This project demonstrate the effectiveness of linkage for improving PBCR information. Knowing the importance of this technique for improving the quality of the data, it is necessary to ease the access to the vital records database, in an egalitarian way for all registries, making it possible to carry out this technique as a routine.

a Survival for Colorectal Cancer

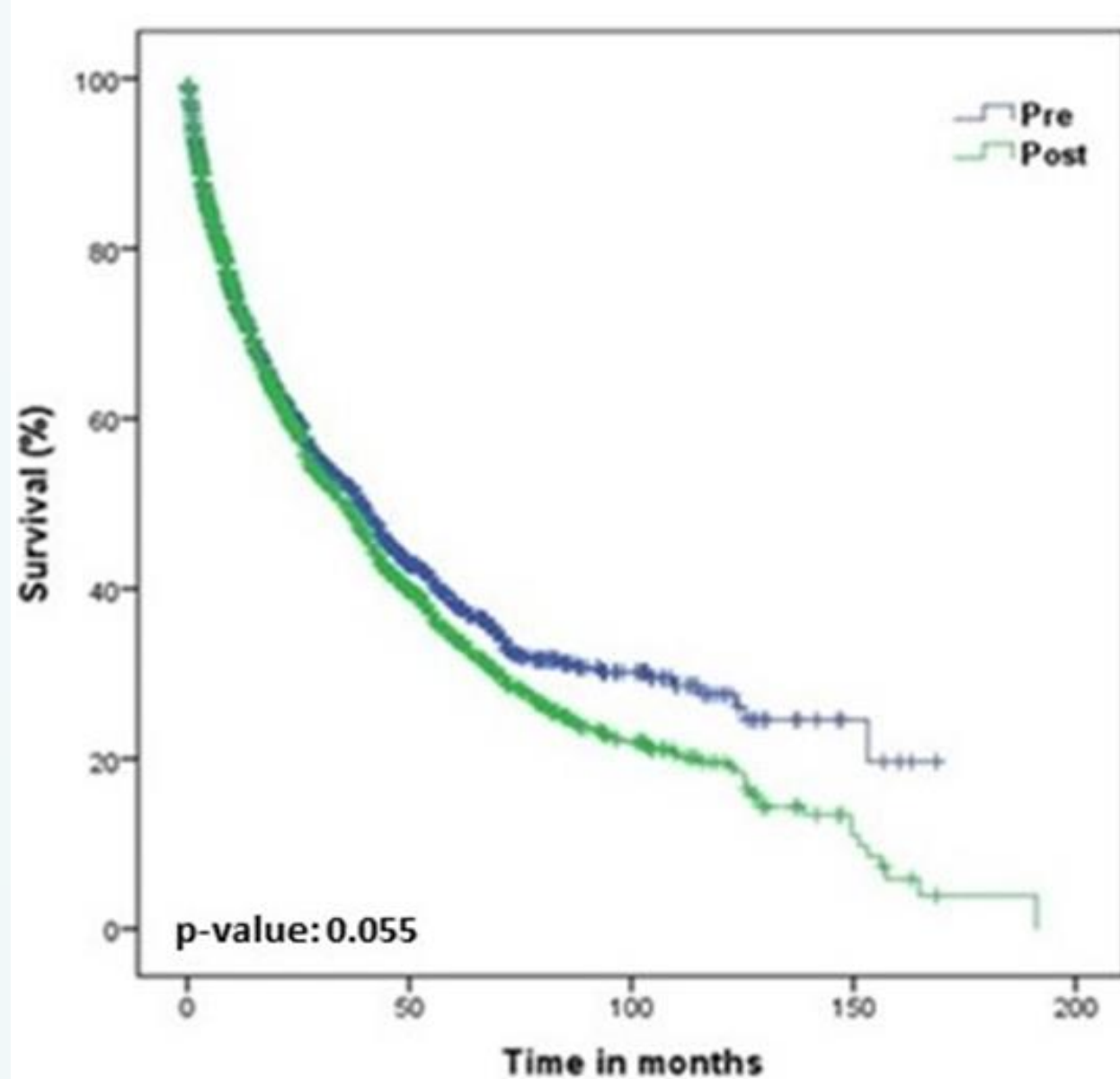


Figure A - Comparison of the survival curves for Colorectal Cancer.

b Survival for Female Breast Cancer

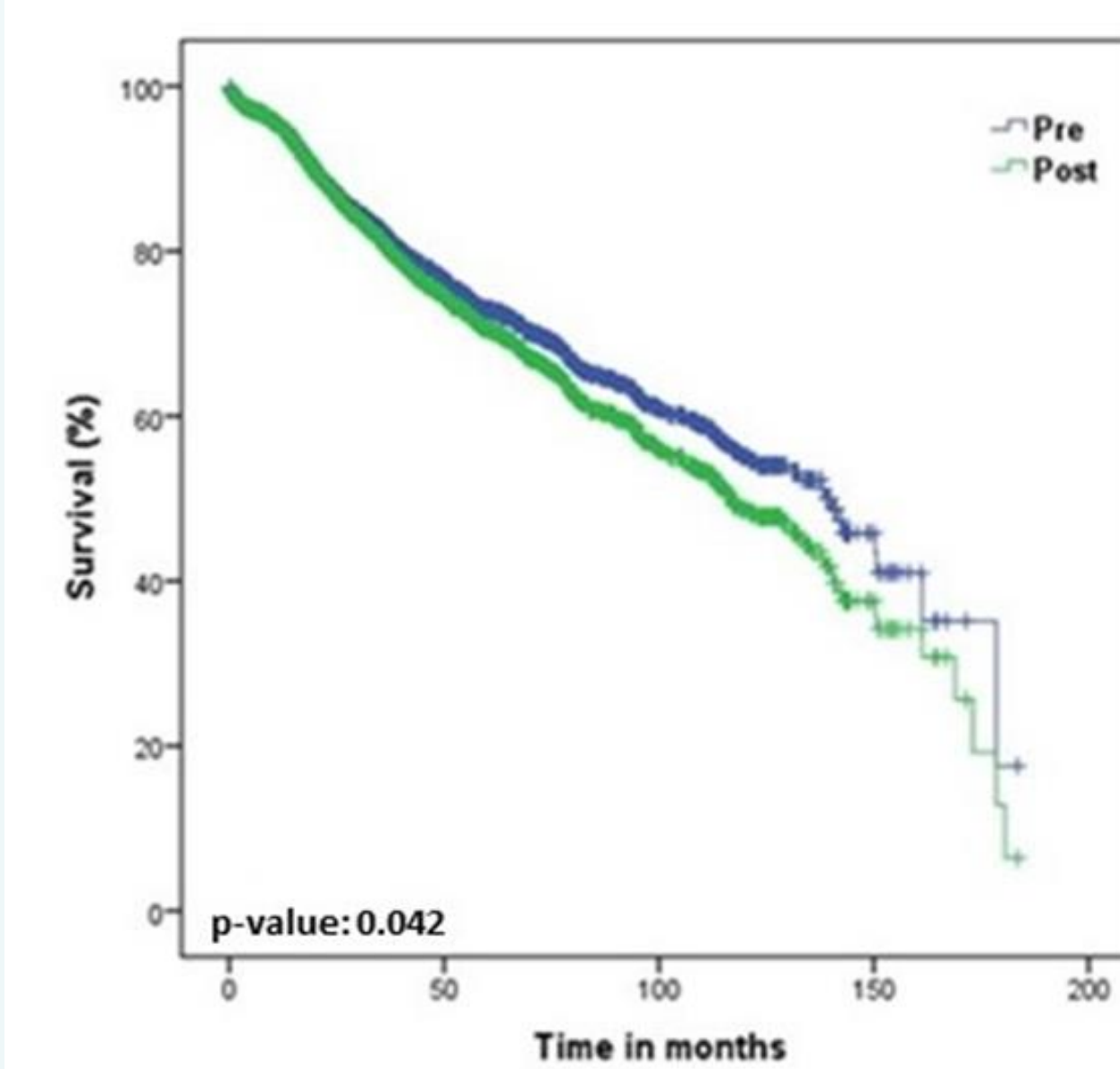


Figure B - Comparison of the survival curves for Female Breast Cancer.

c Survival for All Cancer Sites

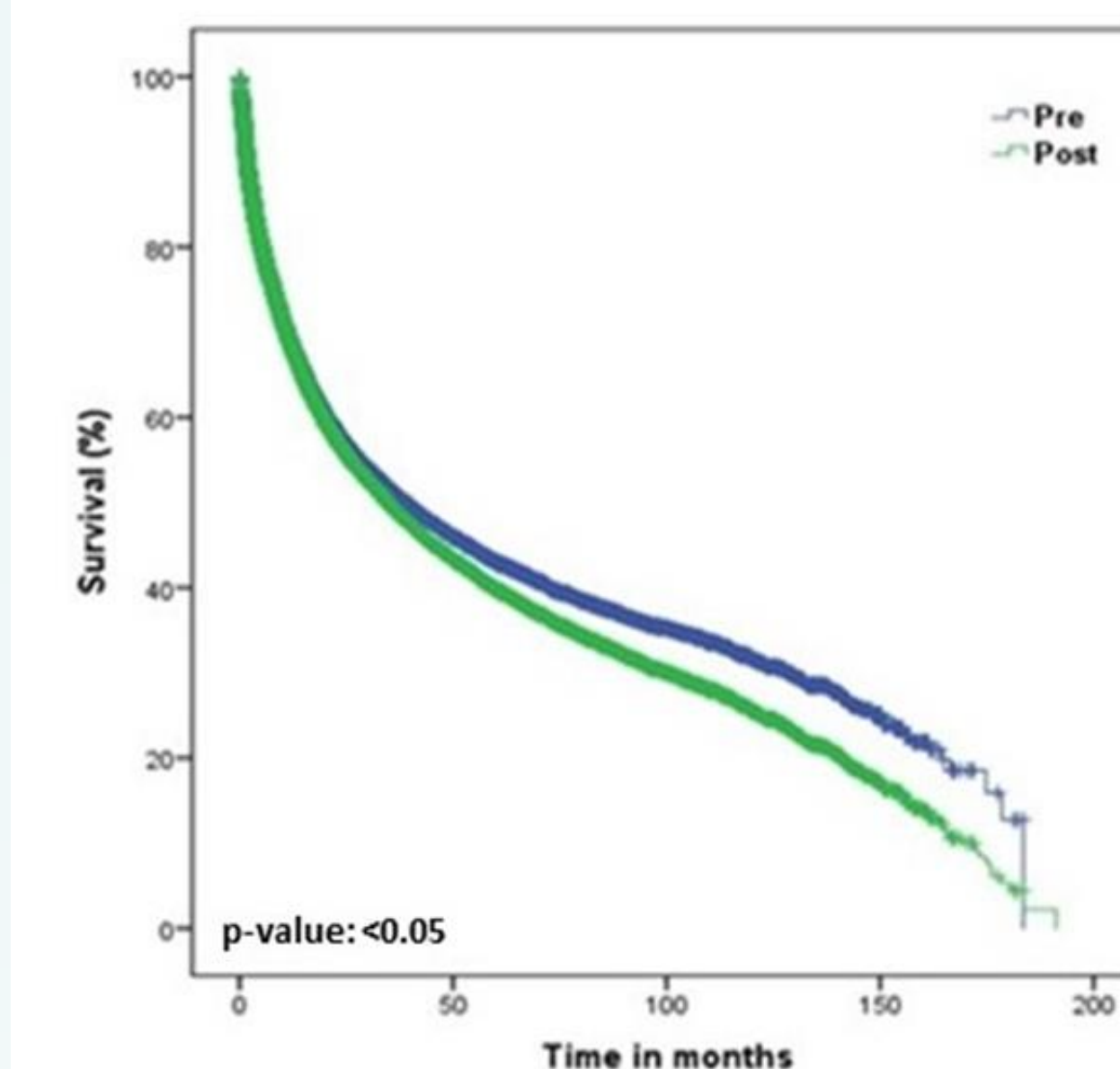


Figure C - Comparison of the survival curves for All Cancer Sites.