



Folgen der Corona-  
Beschränkungen für  
Krebstherapie und  
Survivorship



# Frequency and perceived burden of changes in cancer treatment during the COVID-19 pandemic in Baden-Württemberg, Germany

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**dkfz.**

DEUTSCHES  
KREBSFORSCHUNGSZENTRUM  
IN DER HELMHOLTZ-GEMEINSCHAFT



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## Context

- There was a **big impact on the health sector due to the Covid-19 pandemic**
- To ensure the provision of care for COVID-Patients, **reassignments of health care assets** were made to the disadvantage of cancer care
- **Alterations** in oncological care, lockdowns, contact restrictions, and so on are known to be **causing** and **triggering worsening** in **health-related quality of life**



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# The CroKuS-Study

- Our goal: Assessing the **aftermath** of the **pandemic** on **cancer care**
- We compared **cancer patients** (Diagnosis 07/19 – 06/20) - and **cancer survivors** (Diagnosis 07/15 – 06/19)
- Population-based **cross-sectional survey**
- Patients drawn from **Cancer Registry Baden-Württemberg**
- **Paper questionnaire** → **patient reported outcomes**
- Potential follow up examinations up to 2026



## Endpoints

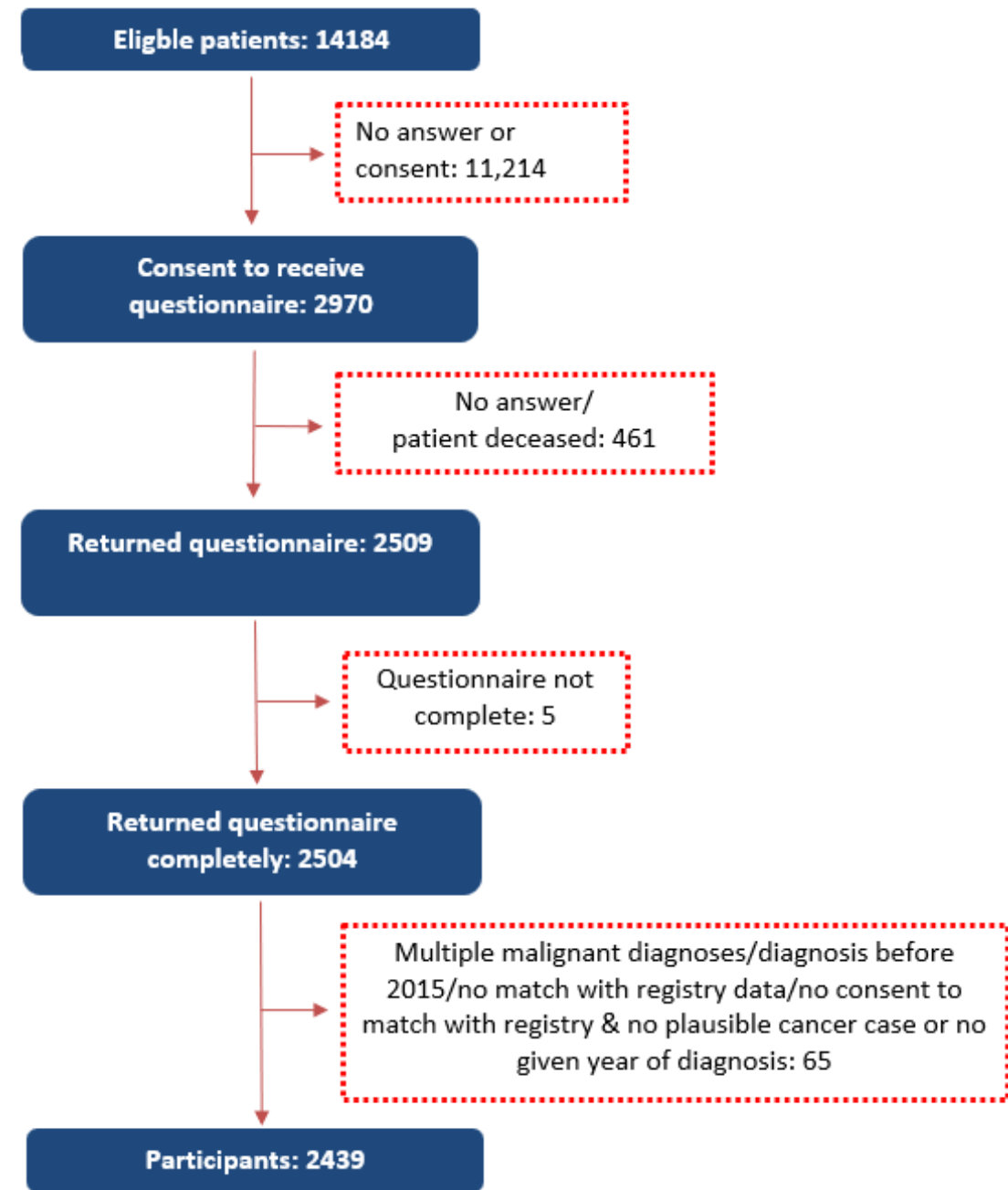
1. Did **changes in cancer care** occur, and if they do, **how often**, and in which **domains**?
2. Are there statistically significant **differences** in **cancer patients** and **cancer survivors**, regarding potential **changes** in cancer care?
3. Are there statistically significant **differences** in measured **HRQoL** between **patients with/without changes** in cancer care?
4. Have there been **contact restrictions**? (Following presentation by **Dr. Daniela Doege**)
5. Are there associations with anxiety and depression? (Following presentation by **Dr. Daniela Doege**)



## Flowchart

### We excluded patients with the following conditions:

- Denial of consent in any form
- Death before sending us the questionnaire
- Inconsistencies in comparison to registry data
- Occurrence of a malignant secondary tumor (except for white skin cancer) or in situ carcinoma

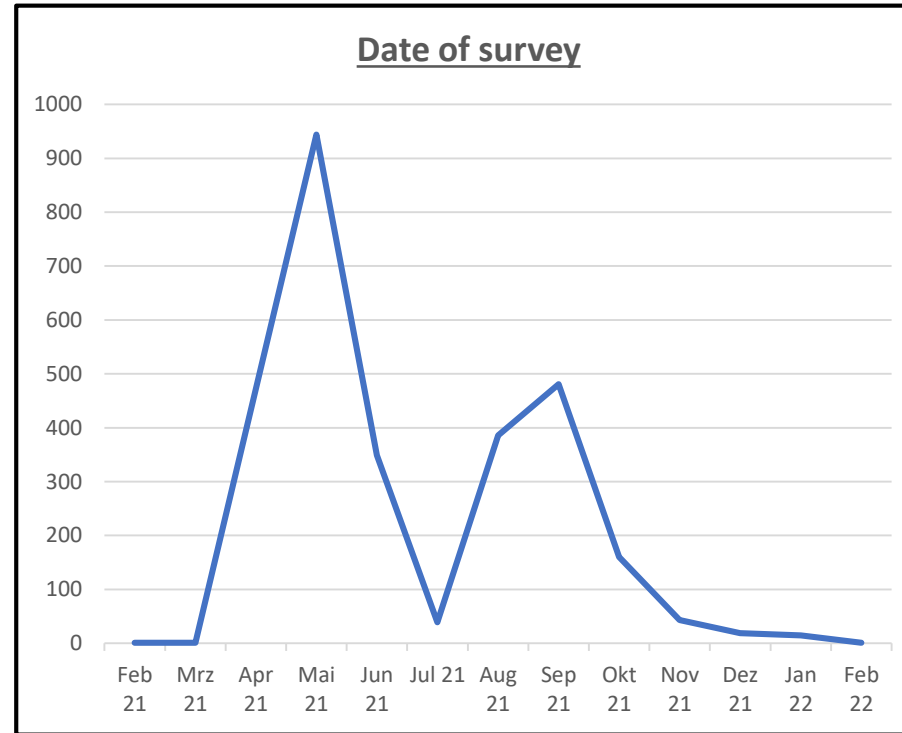
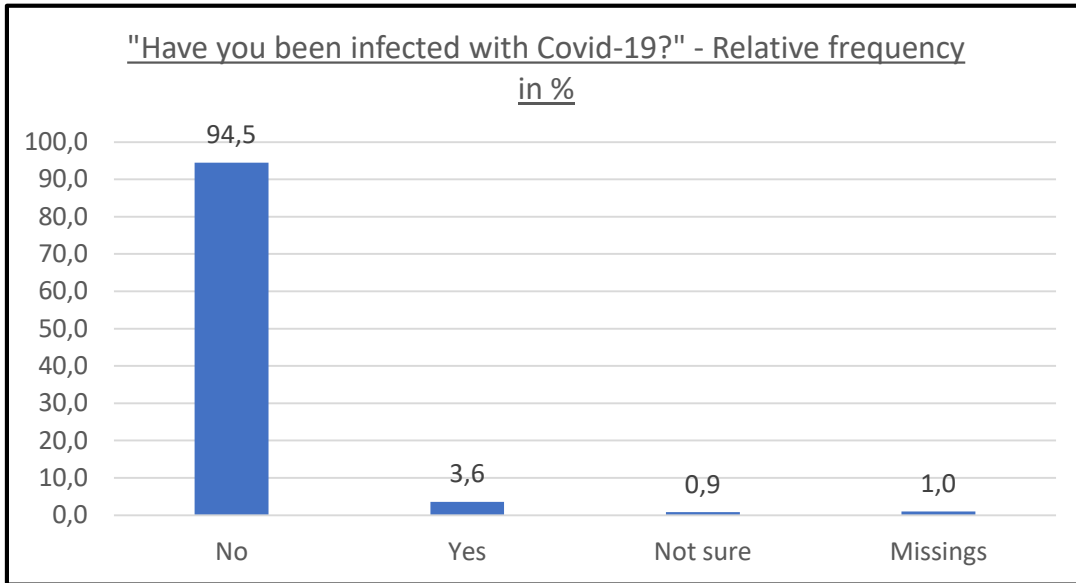




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# CroKuS-Survey



Year/Month	2020								2021							2022					
	03	04	05	06	07	08	11	12	01	03	05	07	09	11	12	01	02	03	04	05*	06*
∅ Newly reported COVID-19 cases/day	1995	3240	721	426	466	1087	17837	21480	16020	11824	9662	1323	9488	41309	42374	85971	176056	205142	123119	48643	55113
∅ COVID-19 hospitalization rate (per 100.000)	1,41	4,27	1,06	0,40	0,31	0,39	8,38	13,45	13,65	7,18	5,14	0,50	3,14	10,70	11,66	8,31	11,64	13,86	10,44	4,99	5,07
Utilization of intensive care units with COVID-19 cases	15,0%	17,1%	6,7%	2,3%	1,3%	1,2%	16,5%	23,6%	24,6%	14,8%	19,3%	2,2%	7,3%	16,7%	23,5%	15,1%	12,3%	11,9%	9,8%	5,1%	3,6%

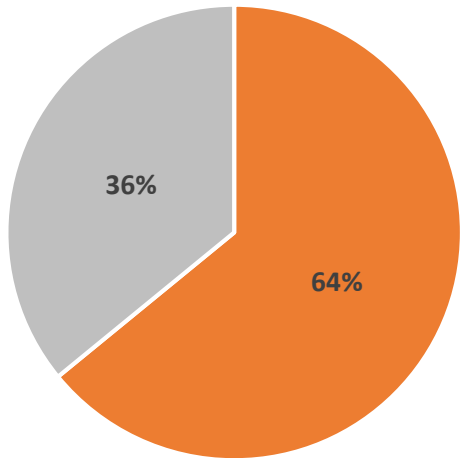
Arndt, V., Doege, D., Fröhling, S. et al. Cancer care in German centers of excellence during the first 2 years of the COVID-19 pandemic. *J Cancer Res Clin Oncol* 149, 913–919 (2023). <https://doi.org/10.1007/s00432-022-04407-1>



# Sample characteristics I

P-values		
Age at survey	0,77	p-values show statistical differences
Sex	0,23	between cancer patients and cancer survivors
<b>Marriage status</b>	<b>0,02</b>	
Insurance status	0,45	

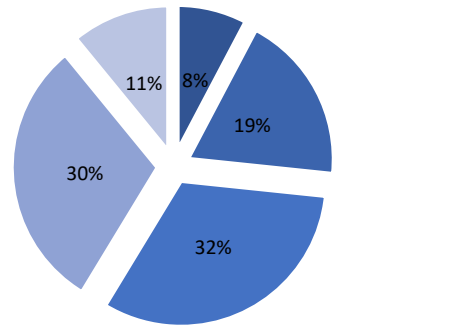
Ratio Patients vs. Survivors



■ Patients ■ Survivors

Cancer Patient = Diagnosis around pandemic (from 15.06.2019)  
Cancer Survivor = Diagnosis before pandemic (until 14.06.2019)

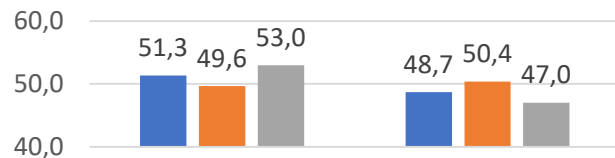
Age at survey



■ 18-49 ■ 50-59 ■ 60-69 ■ 70-79 ■ > 80

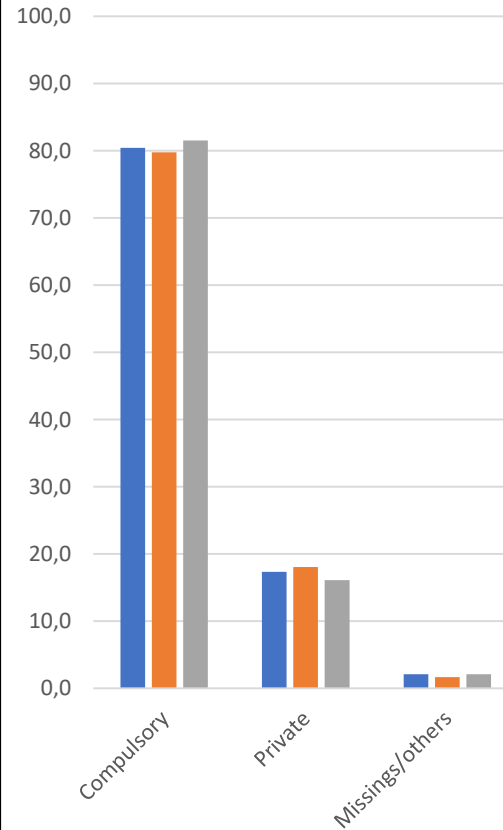
Age at survey	Mean Age	SD
All Patients	65,5	11,8
Cancer Patients	65,5	11,7
Cancer Survivors	65,6	12,0

Sex – Relative frequency in %



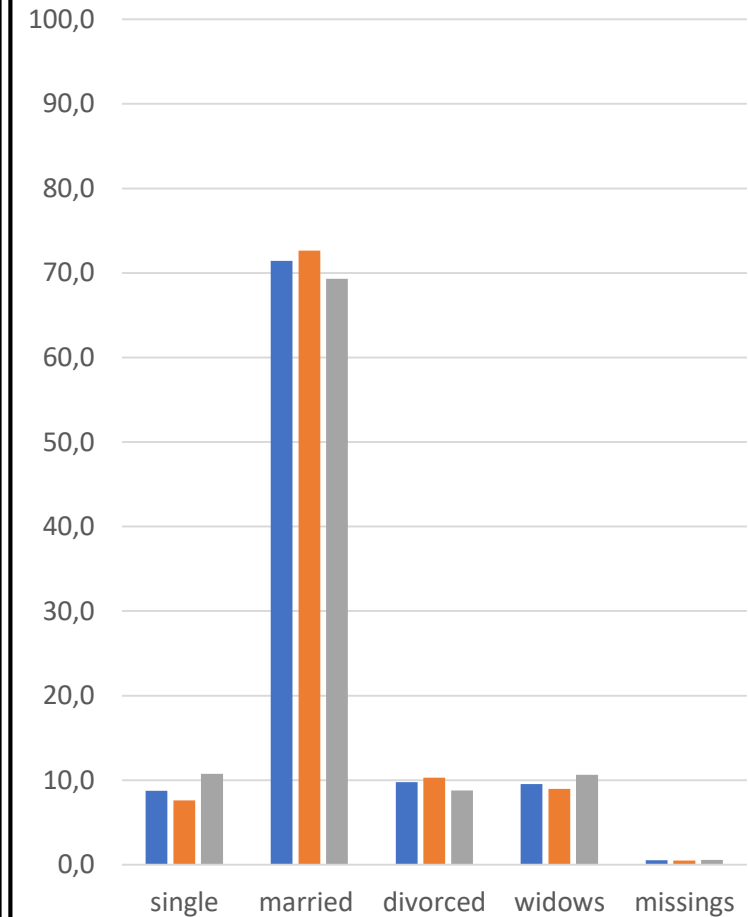
■ All Patients ■ Cancer Patients ■ Cancer Survivors

Health insurance status - Relative frequency in %



■ All Patients ■ Cancer Patients ■ Cancer Survivor

Marriage status - Relative frequency in %



■ All Patients ■ Cancer Patients ■ Cancer survivors



# Sample characteristics II

**P-values**

Education

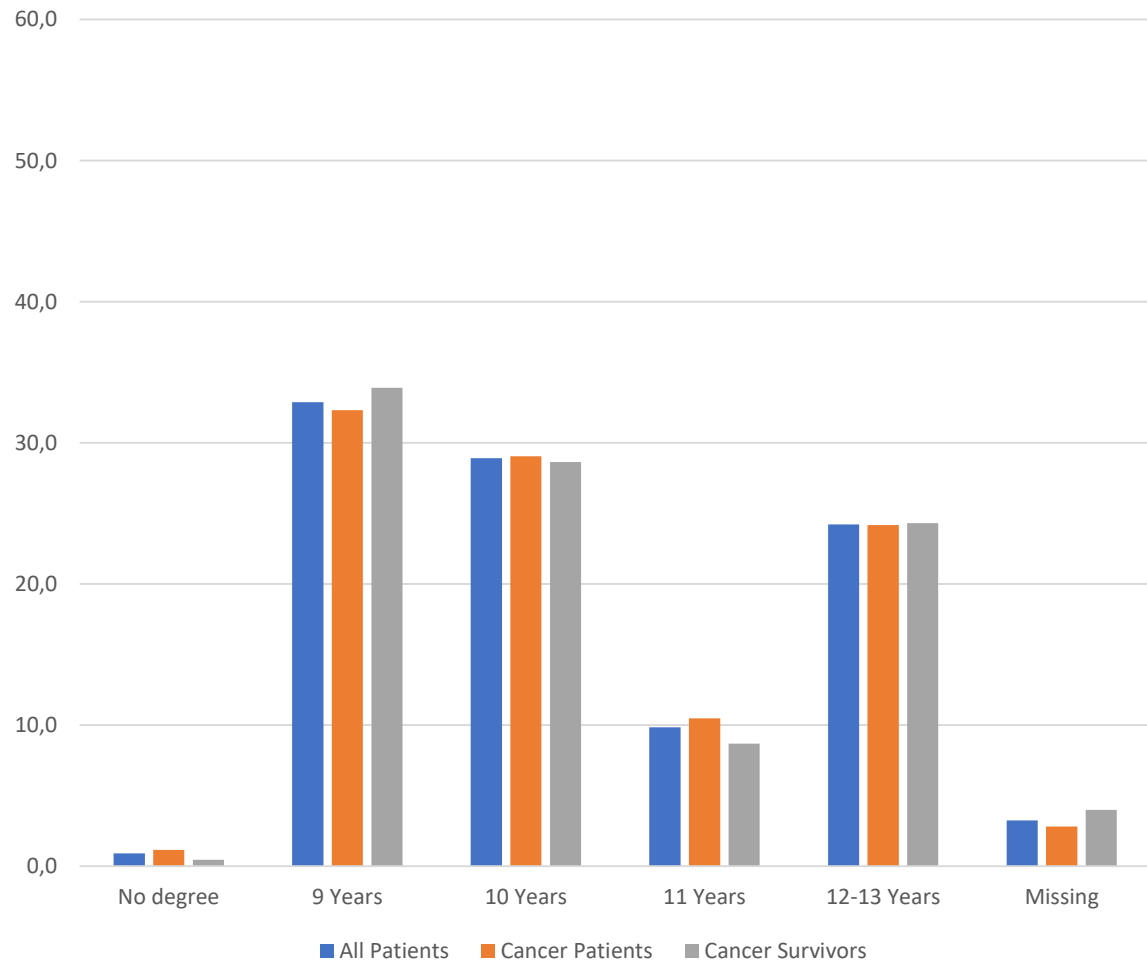
0,26

p-values show statistical differences between cancer patients and cancer survivors

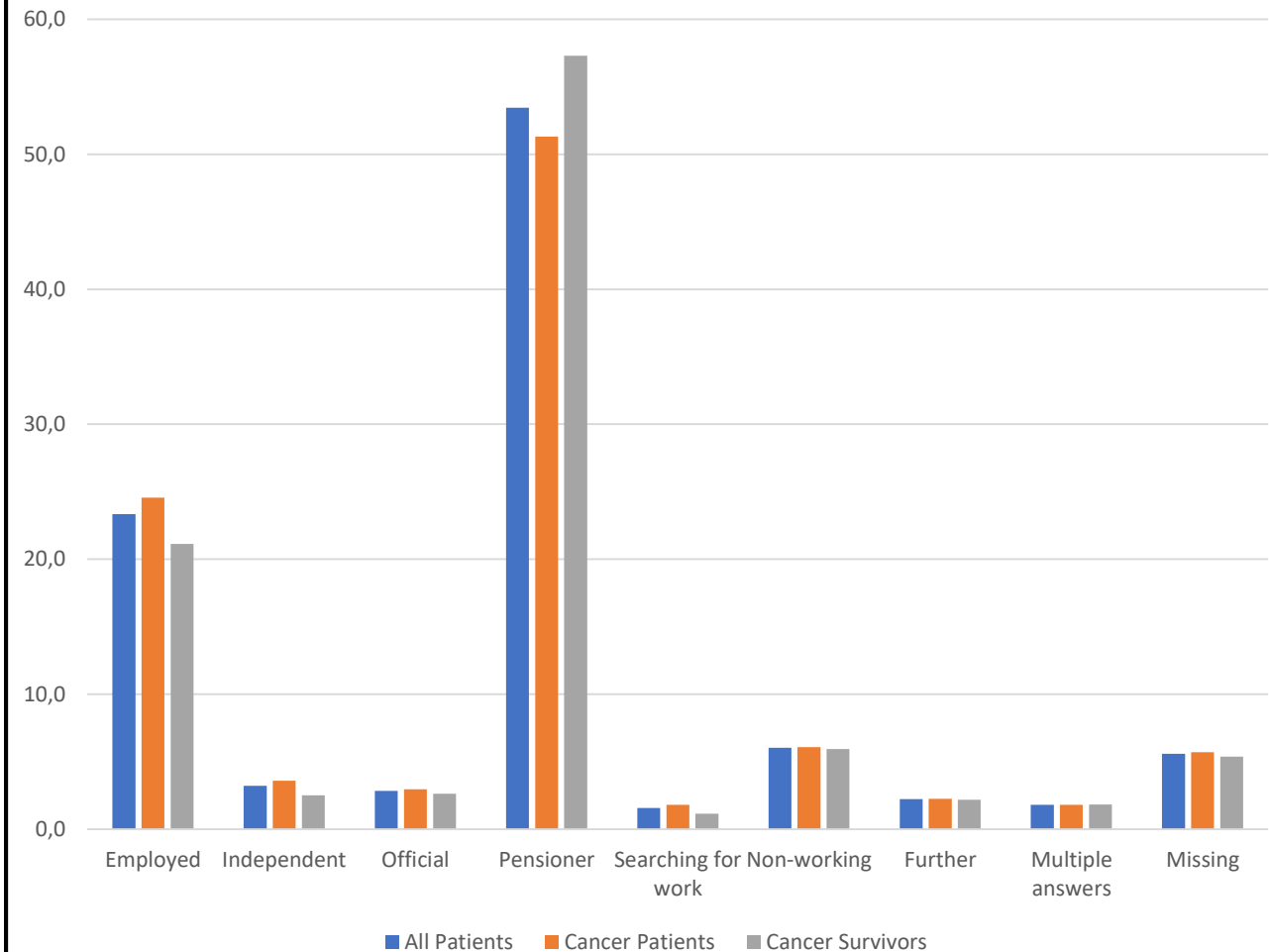
Employment

0,16

Education (Completed years of school) - Relative frequency in %



Employment - Relative frequency in %

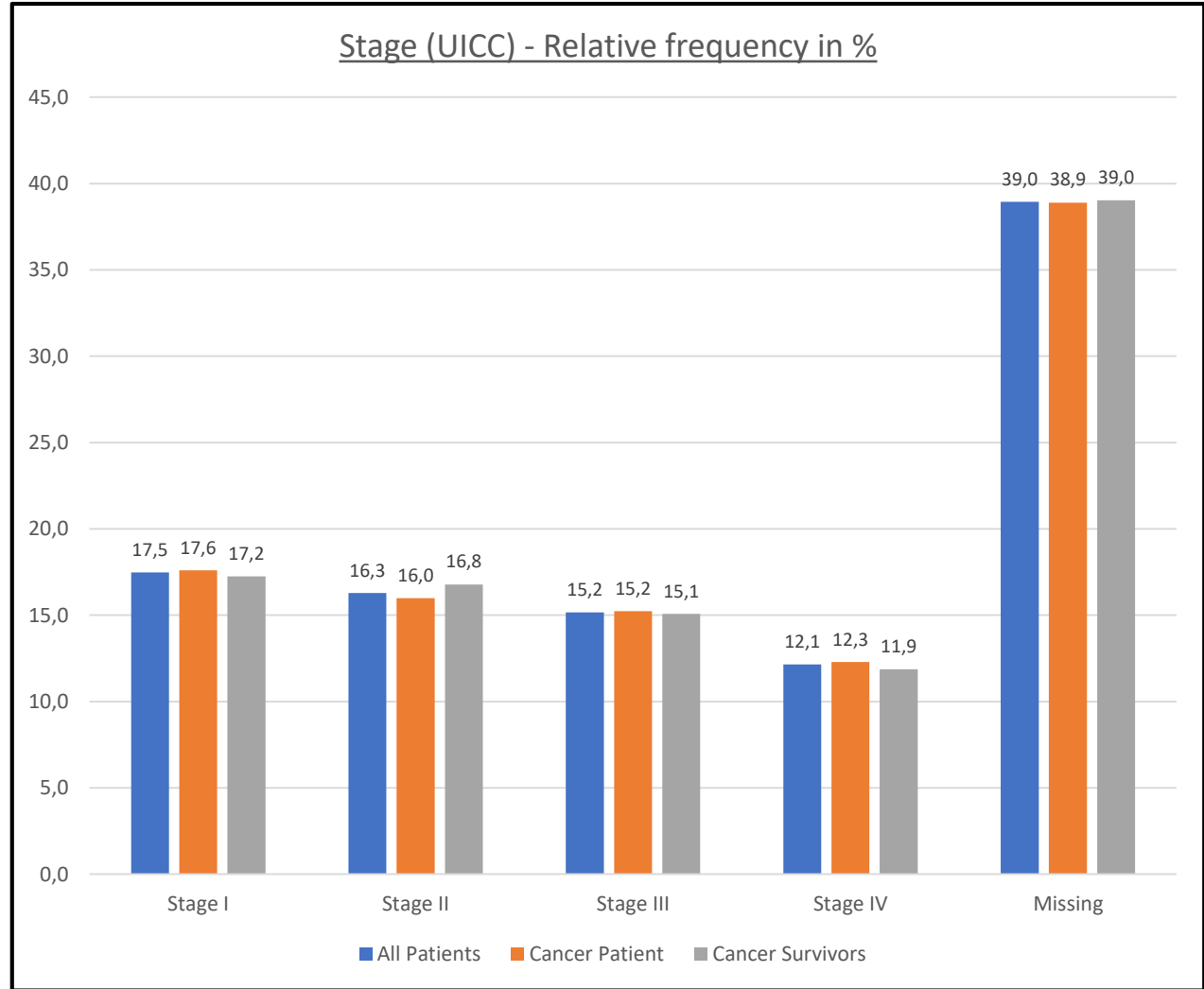
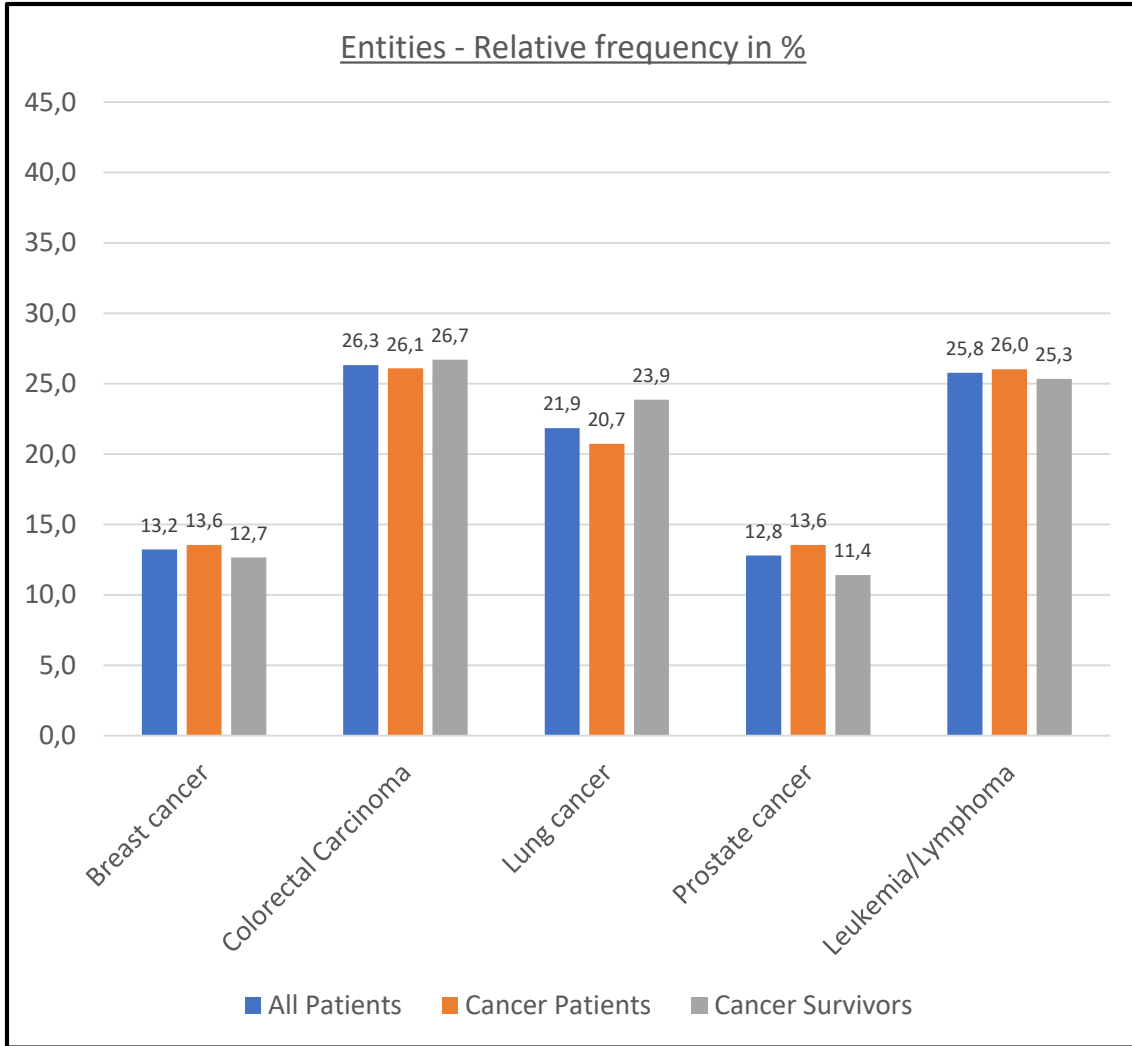






# Sample characteristics III

P-values	
Entity	0,28
Stage	0,98
p-values show statistical differences between cancer patients and cancer survivors	

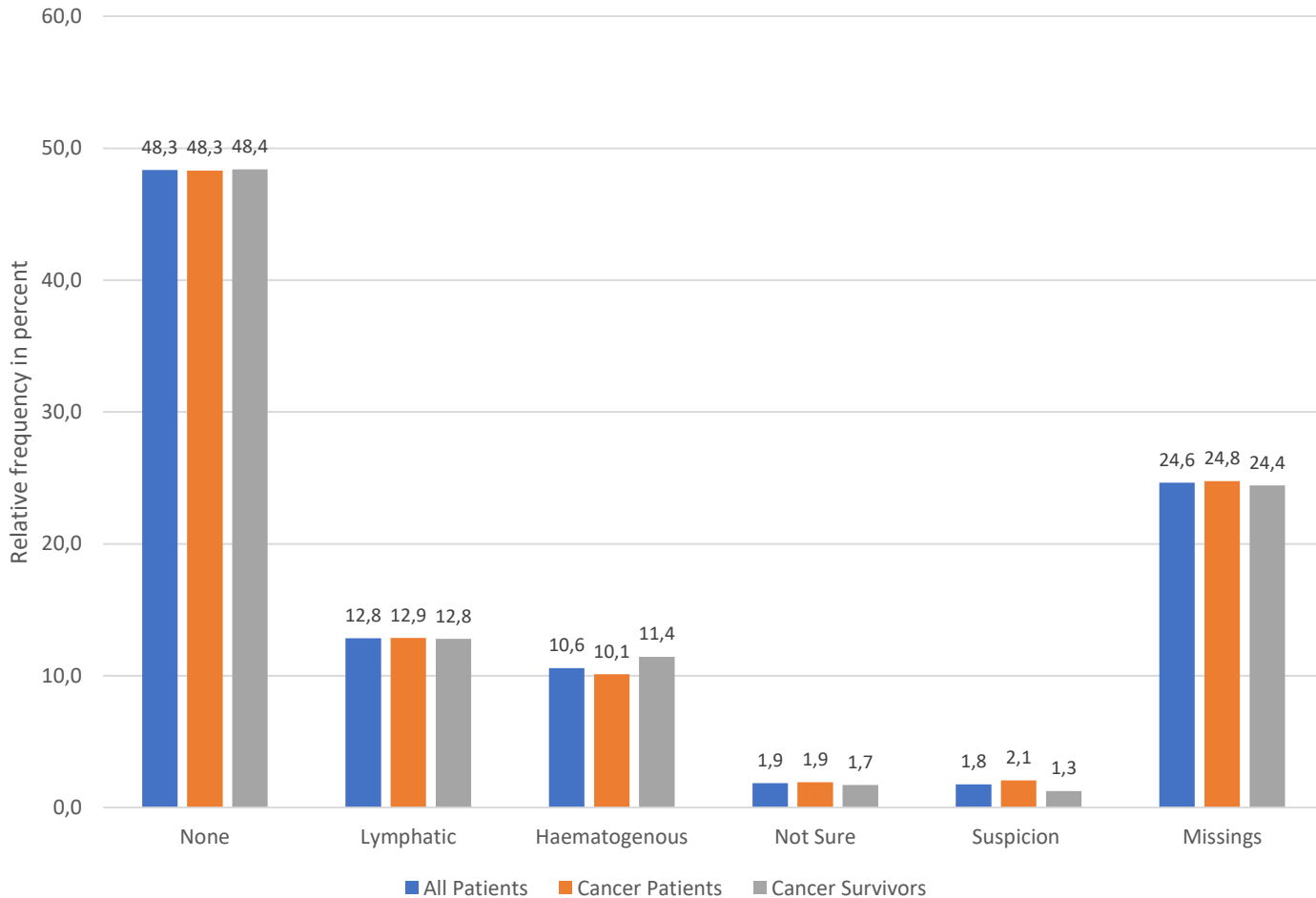




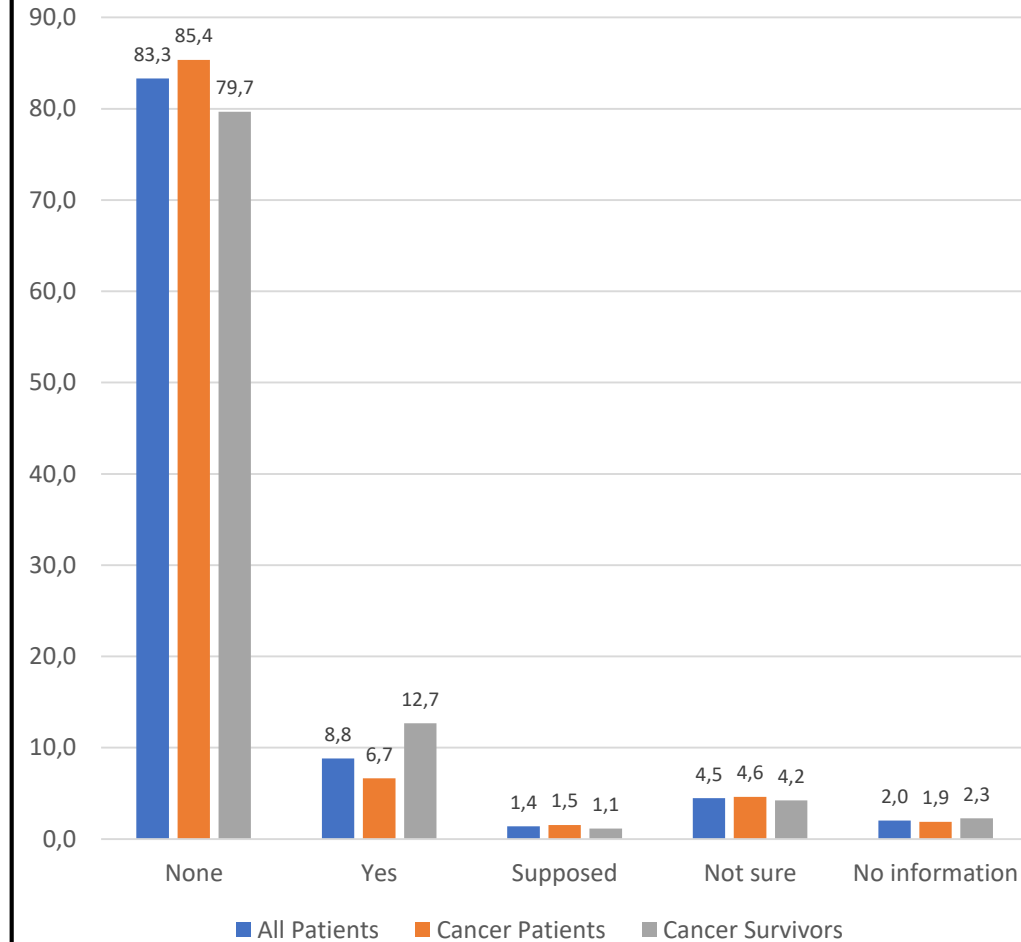
# Sample characteristics IV

P-values		
Metastasis	0,55	p-values show statistical differences between cancer patients and cancer survivors
Recurrence	<.0001	

Occurrence of Metastasis - Relative frequency in %



Occurrence of Recurrence - Relative frequency in %





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# Changes in Cancer care – domains we looked at

## Primary care: Treatment

- Surgery
- Medication
- Radiatio

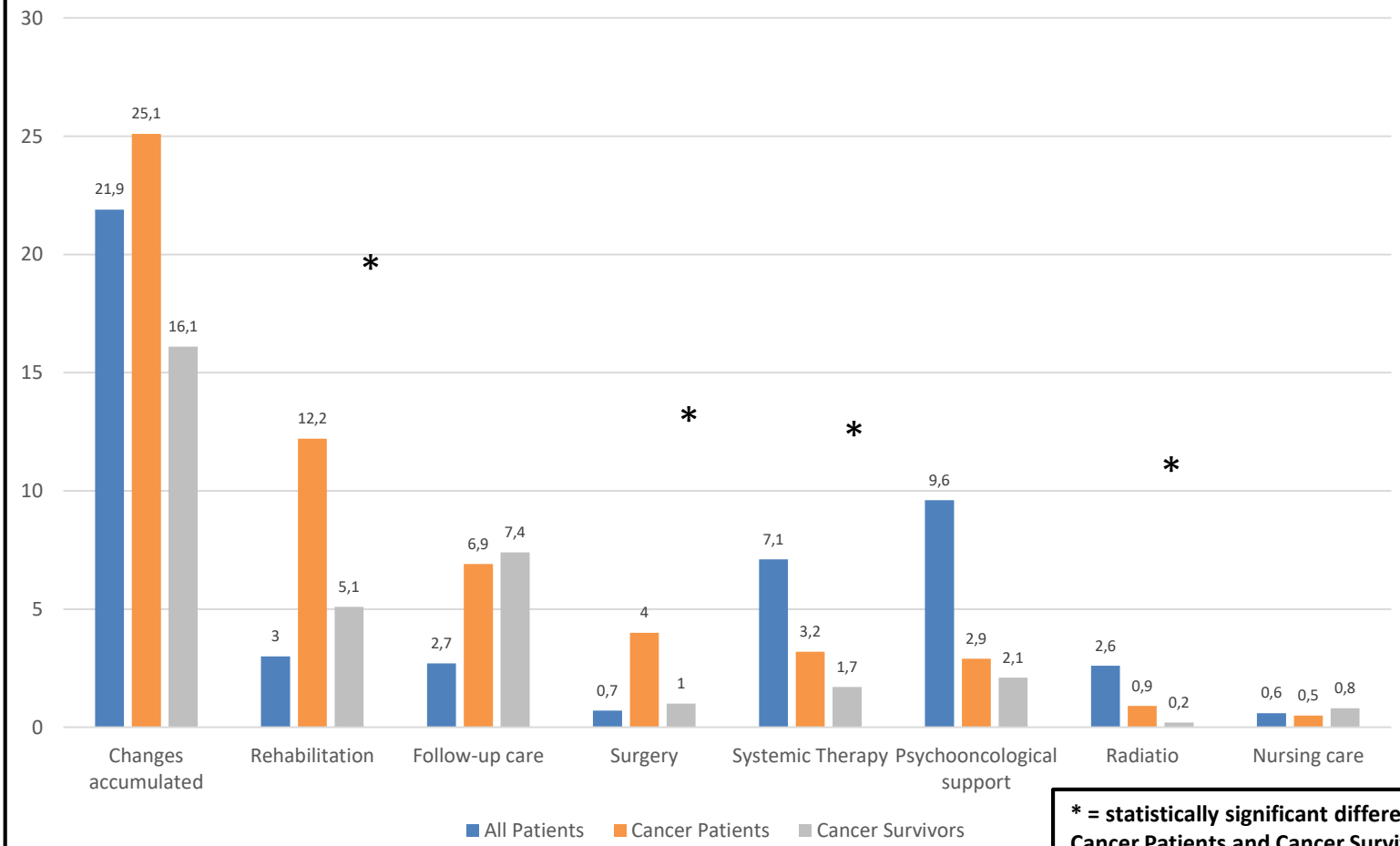
→ matched with  
registry data  
(completed therapies  
reported)

## Secondary Care

- Follow-up care
- Rehabilitation
- Psychooncological support
- Nursing care

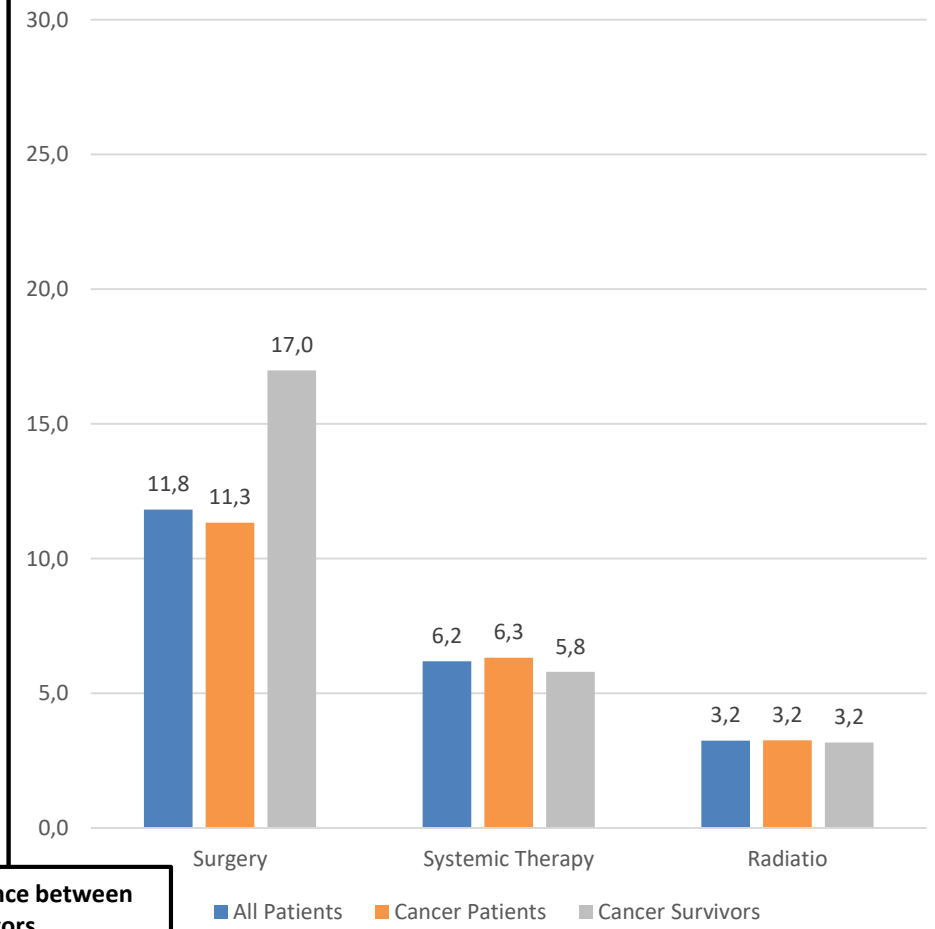
# Changes in cancer care – per domain

Changes in cancer care – Relative frequency in relation to total number of patients in respective group (in %)



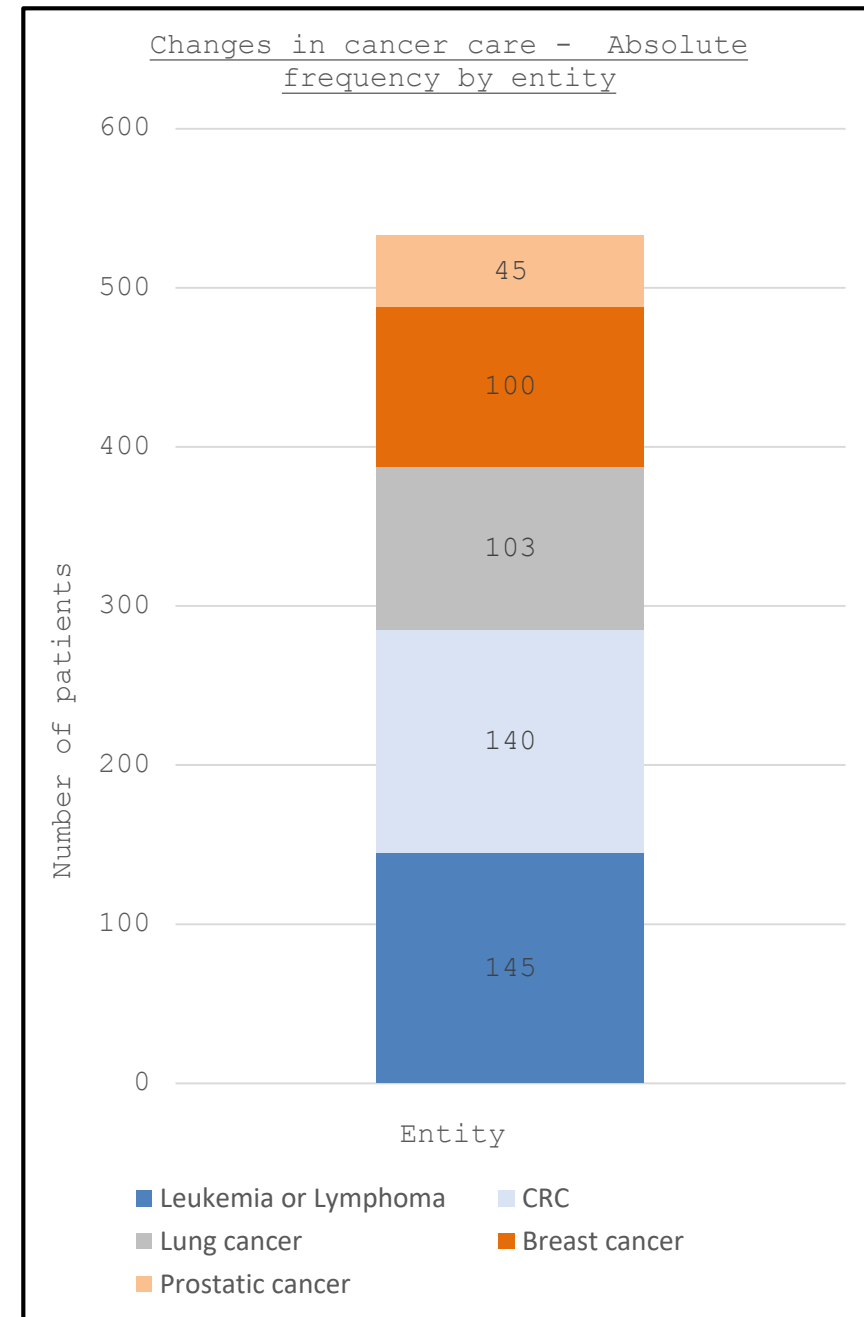
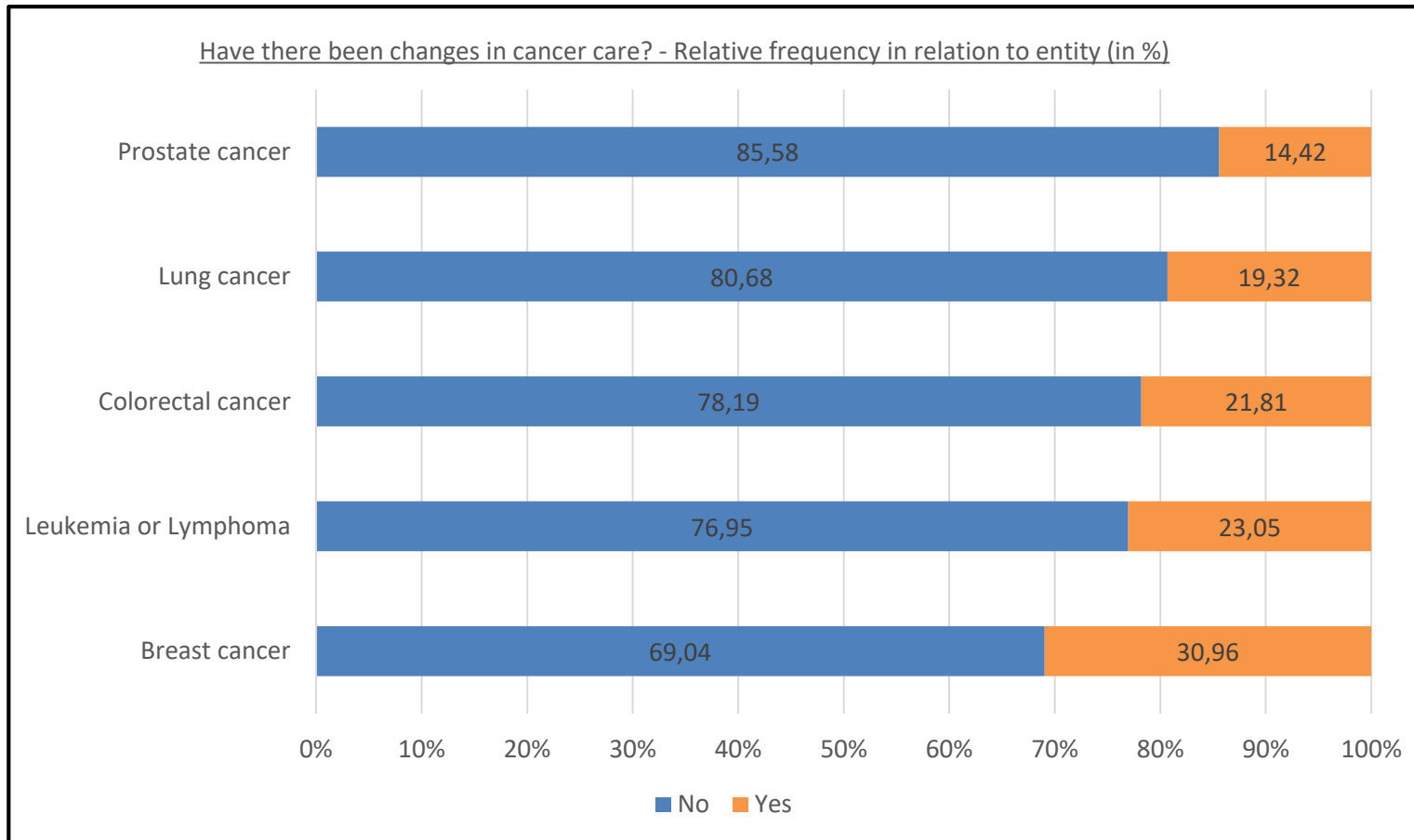
\* = statistically significant difference between Cancer Patients and Cancer Survivors

Changes in cancer care - Relative frequency in relation to registered therapies (in %)



■ All Patients ■ Cancer Patients ■ Cancer Survivors

# Changes in cancer care – per entity





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## Further Changes

*The emotional state of society made it difficult for me to look optimistically in the future, to meet friends and to experience anything positive..*

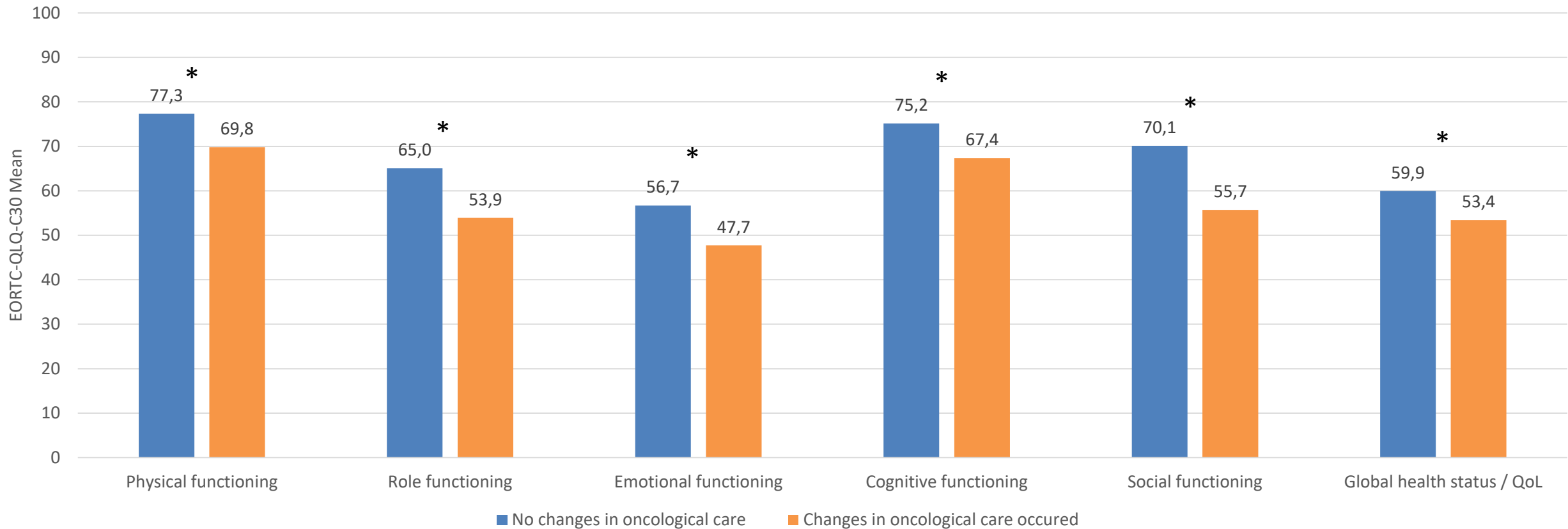
*There was no supportive therapy or support groups offered and I could not bring someone to the doctor's consultation..*

*Because of COVID the mammography was postponed and so I got my initial diagnosis 2 months later..*



# Health-related quality of life I

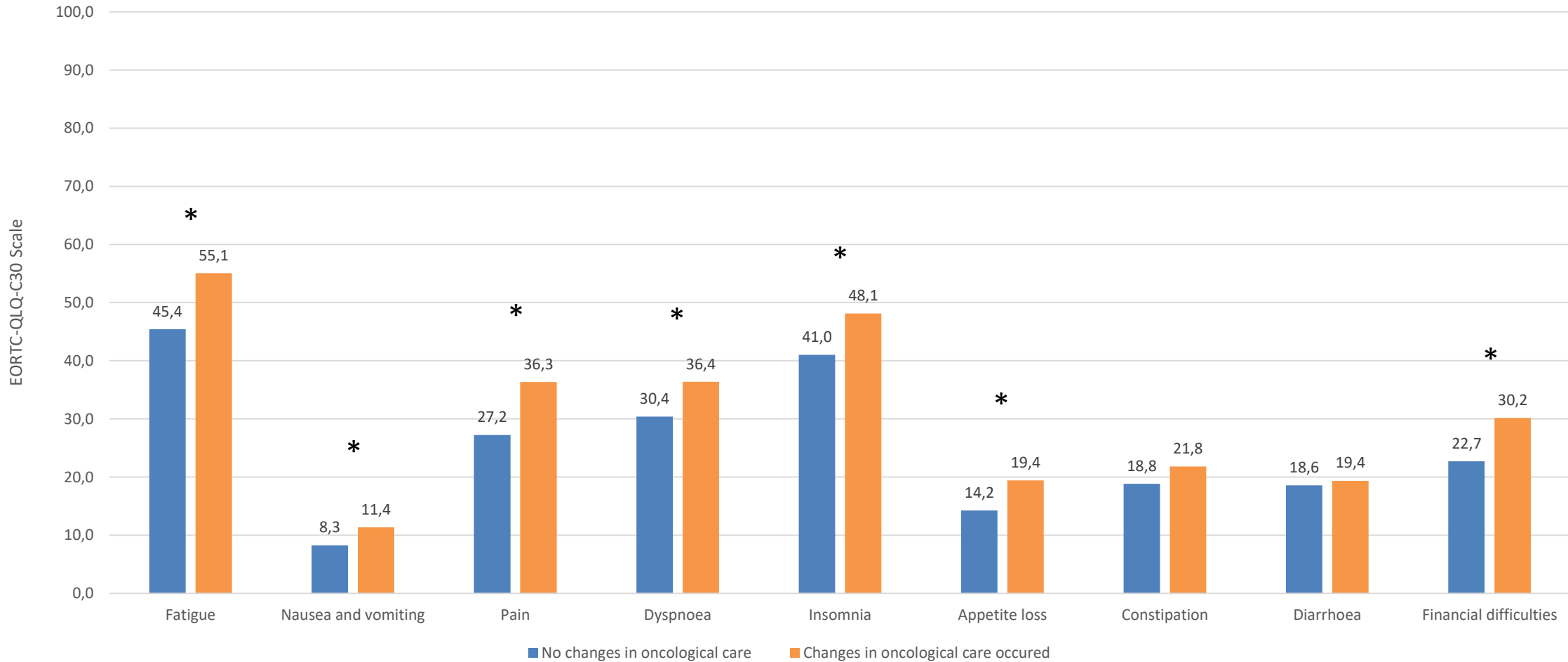
EORTC-QLQ-C30 functioning scales and global health status - Mean values by Occurrence of changes in oncological care



Adjusted by: Sex, Age, Education level, Entity, Stage, Treatment phase, Insurance status  
\* = statistically significant difference between patients with changes in oncological care and patients without

# Health-related quality of life II

EORTC-QLQ-C30 symptom scales and financial difficulties - Mean values by Occurrence of changes in oncological care



Adjusted by:  
Sex, Age,  
Education  
level, Entity,  
Stage,  
Treatment  
phase,  
Insurance  
status

\* = statistically  
significant  
difference  
between  
patients with  
changes in  
oncological  
care and  
patients  
without





## Discussion

- $\frac{1}{4}$  of patients reported to have **changes** in some area of oncological care
- Most common: changes in **rehabilitation** and **follow-up care**
- Changes in **surgery** were **quite common**
- **Statistically significant differences between Patients and Survivors in treatment-changes and rehabilitation**
- Not all changes were postponements or cancellation
- Some reported **telemedicine** as a replacement
- **Patients with changes** reported a **poorer Health-related quality of life** in most of the scales



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## Limitations/Bias

- **Design: Cross-sectional study** with a **low response rate** but **well-balanced sample**
- **Selection bias:** due to low response rates (but similar results in studies, which were alike)
- **Recall bias:** retrospective survey
- **Information bias:** confirmed registry information only for primary treatment available



## Conclusion

- Getting a **cancer diagnosis** and receiving **treatment** or **secondary care** is upsetting
- **Additional alterations** and **changes** can be **stressors** for **mental health** and **health-related quality of life**
- So do **lockdowns**, **contact restrictions** and so on (Dr. Daniela Doege)
- This study shows, that **not only providers** of health care **noticed changes** in cancer care, but that **the patients themselves did so**

# Thank you for your time!



<https://www.benarnews.org/english/cartoons/coronavirus-pandemic-07262021113033.html>