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Age-specific health-related quality of life in disease-free long-term prostate cancer survivors versus population controls – results from a population-based study

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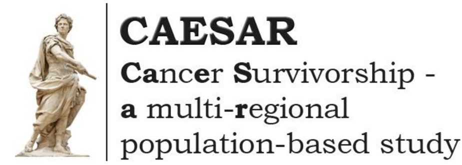
Background

- Prognosis for prostate cancer (PC) has substantially improved due to earlier diagnosis and advancements in therapy (5-year relative survival in Europe: 93%).
- However, deficits in PC survivors' health-related quality of life (HRQoL) may persist for many years and may differ with respect to age.
- Little is known regarding age-specific HRQoL in PC survivors 5 years or even ≥10 years after diagnosis.

Data & Methods

- Sample: 1,975 disease-free PC survivors (5-16 years after diagnosis) & 661 cancer-free population controls recruited from two German population-based studies:
  - **CAESAR+** ("Cancer Survivorship – a multi-regional population-based study"): 6 regions in Germany, PC diagnosis 1994-2004, recruitment 2008-2011
  - **LinDE** ("Lebensqualität in Deutschland"): age group- and sex-stratified sample from the German general population, recruitment 2013/2014



- Measurements: EORTC QLQ-C30 (HRQoL, assessed in both samples), EORTC QLQ-PR25 (PC-specific symptoms, assessed in PC survivors only).
- Statistical analysis: Multiple linear regression models, adjusted for age, education, stage, and time since diagnosis, where appropriate.
- Multiple imputation was used to reduce possible bias due to missing values.

Results

1) Overall, compared to controls, PC survivors reported (Tab. 1):
   - Comparable functioning, except for social functioning, diarrhoea, constipation and pain.
2) Age-stratified analyses (Fig. 1):
   - Overall, older age was associated with poorer global health status and poorer functioning.
   - Both controls and PC survivors tended to report a higher symptom burden at older age for various symptoms.
3) Analyses stratified by time since diagnosis (Fig. 2):
   - Detriments for social functioning persisted in all subgroups (data not shown).
   - No clear pattern between time since diagnosis and symptoms was visible.
4) Analyses on PC-specific symptoms (data not shown):
   - The highest symptom burden was reported for urinary bother and urinary symptoms, and the lowest burden for bowel symptoms.
   - Younger age was associated with less burden for urinary symptoms but higher burden for urinary bother.

Fig. 2: EORTC QLQ-C30 least square means and standard errors of disease-free PC survivors and population controls, stratified by time since diagnosis, adjusted for age and education.
t=trivial, s=small clinical relevance based on published guidelines. ysd=years since diagnosis
*Statistically significant differences (p<0.05) between PC survivor subgroup compared to population controls.

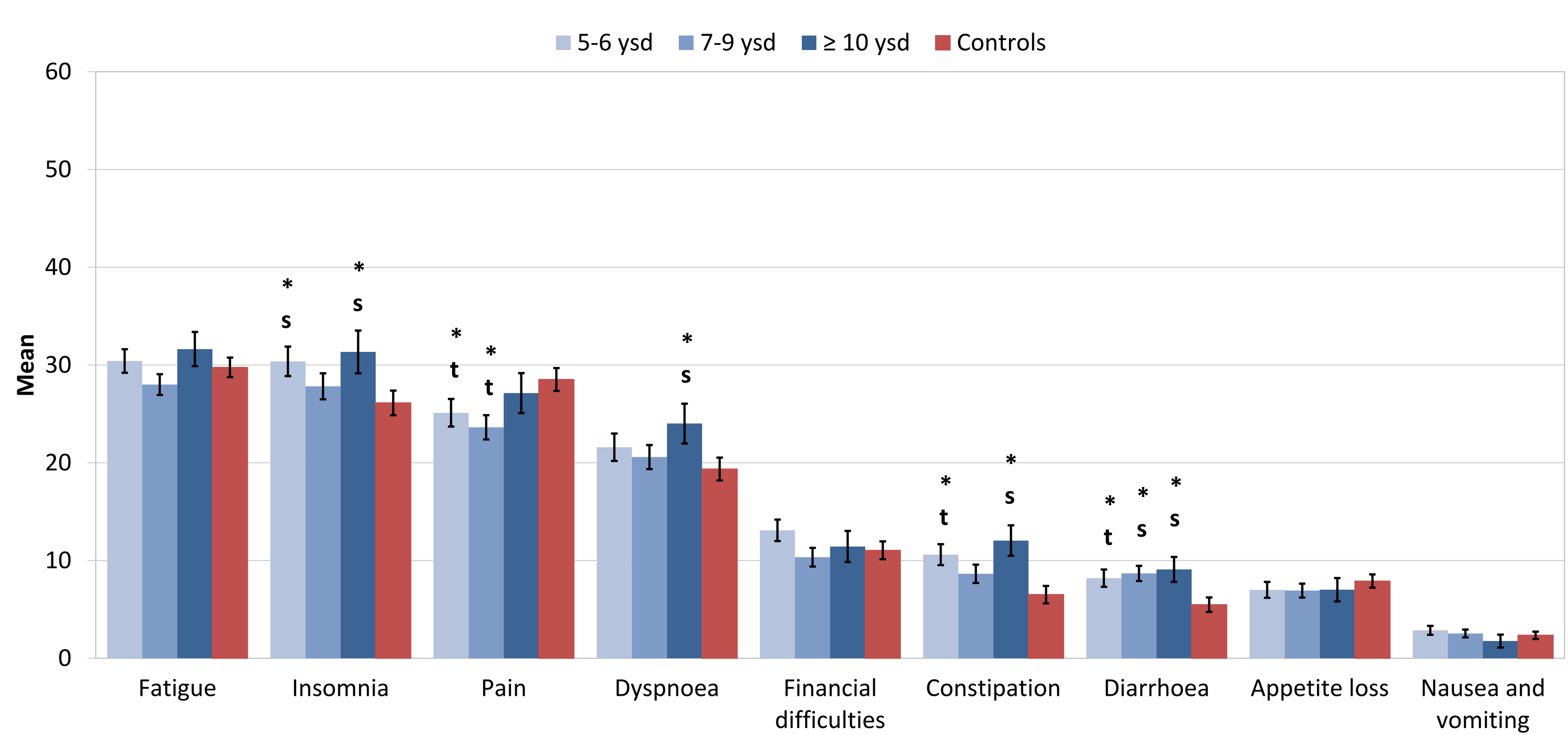
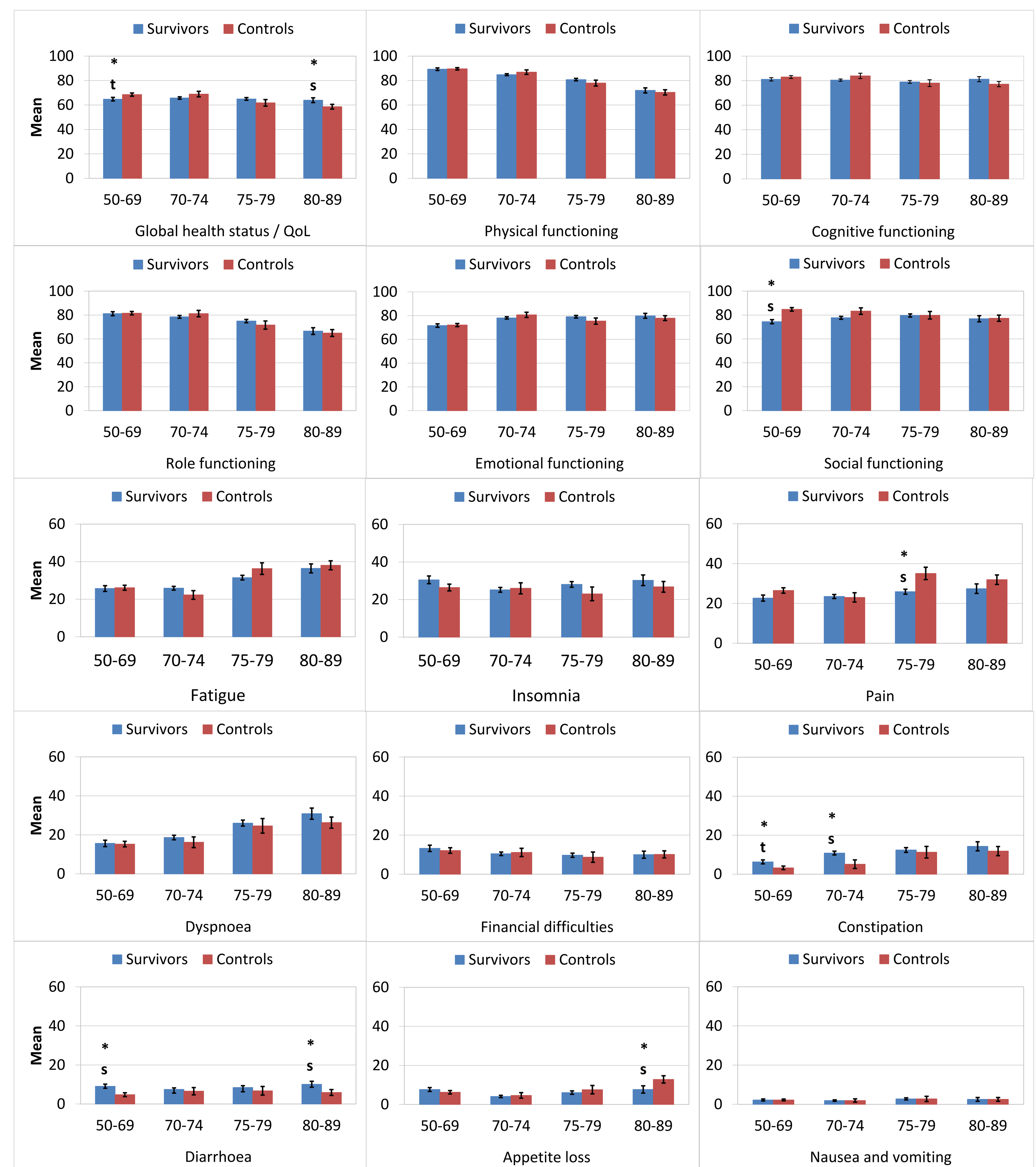


Table 1: EORTC QLQ-C30 least square means and standard errors of disease-free PC survivors and population controls, adjusted for age and education.
t=trivial or s=small clinical relevance based on published guidelines.

	PC Survivors		Controls		Difference PC Survivors and Controls	
	Mean	SE	Mean	SE	Mean	p-value
EORTC QLQ-C30 Functioning scales						
Global health/QoL	64.9	0.8	65.2	0.9	-0.4	0.715
Physical functioning	83.2	0.7	83.0	0.8	0.2	0.869
Cognitive functioning	80.7	0.8	81.2	0.9	-0.5	0.656
Emotional functioning	75.4	0.8	75.1	0.9	0.3	0.795
Role functioning	76.1	1.0	76.0	1.1	0.1	0.938
Social functioning	76.8	1.0	82.1	1.1	-5.4	**<0.001[s]**
EORTC QLQ-C30 Symptom scales						
Fatigue	29.3	0.9	29.8	1.0	-0.4	0.744
Insomnia	29.2	1.1	26.1	1.3	3.1	0.050
Dyspnoea	21.4	1.1	19.4	1.2	2.0	0.159
Pain	24.6	1.1	28.6	1.2	-3.9	**0.008[t]**
Appetite loss	7.0	0.6	7.9	0.7	-0.9	0.265
Diarrhoea	8.6	0.7	5.5	0.7	3.1	**0.008[s]**
Nausea and vomiting	2.5	0.4	2.3	0.4	0.2	0.674
Constipation	9.8	0.8	6.5	0.9	3.3	**0.003[t]**
Financial difficulties	11.4	0.8	11.0	0.9	0.4	0.727

Fig. 1: EORTC QLQ-C30 least square means and standard errors of disease-free PC survivors and population controls, stratified by age at survey, adjusted for education.
t=trivial, s=small clinical relevance based on published guidelines.
*Statistically significant differences (p<0.05) between PC survivor subgroup compared to population controls.



Conclusion

- Long-term disease-free PC survivors reported overall good HRQoL, but experienced specific detriments compared to cancer-free population controls.
- However, detriments as well as prostate-specific urological problems do not improve substantially with increasing time since diagnosis.
- It is essential to provide targeted interventions to avoid that PC-related and treatment-related symptoms become chronic and to enhance social functioning.
- Strengths & Limitations:
  (+) Large-scale population-based study
  (-) Retrospective observational design, no EORTC-QLQ-PR25 data available for controls

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