

# Identifying classes of the psycho-neurological symptom cluster in long-term prostate cancer survivors – Results from the multiregional PROCAS study (ID: 64)

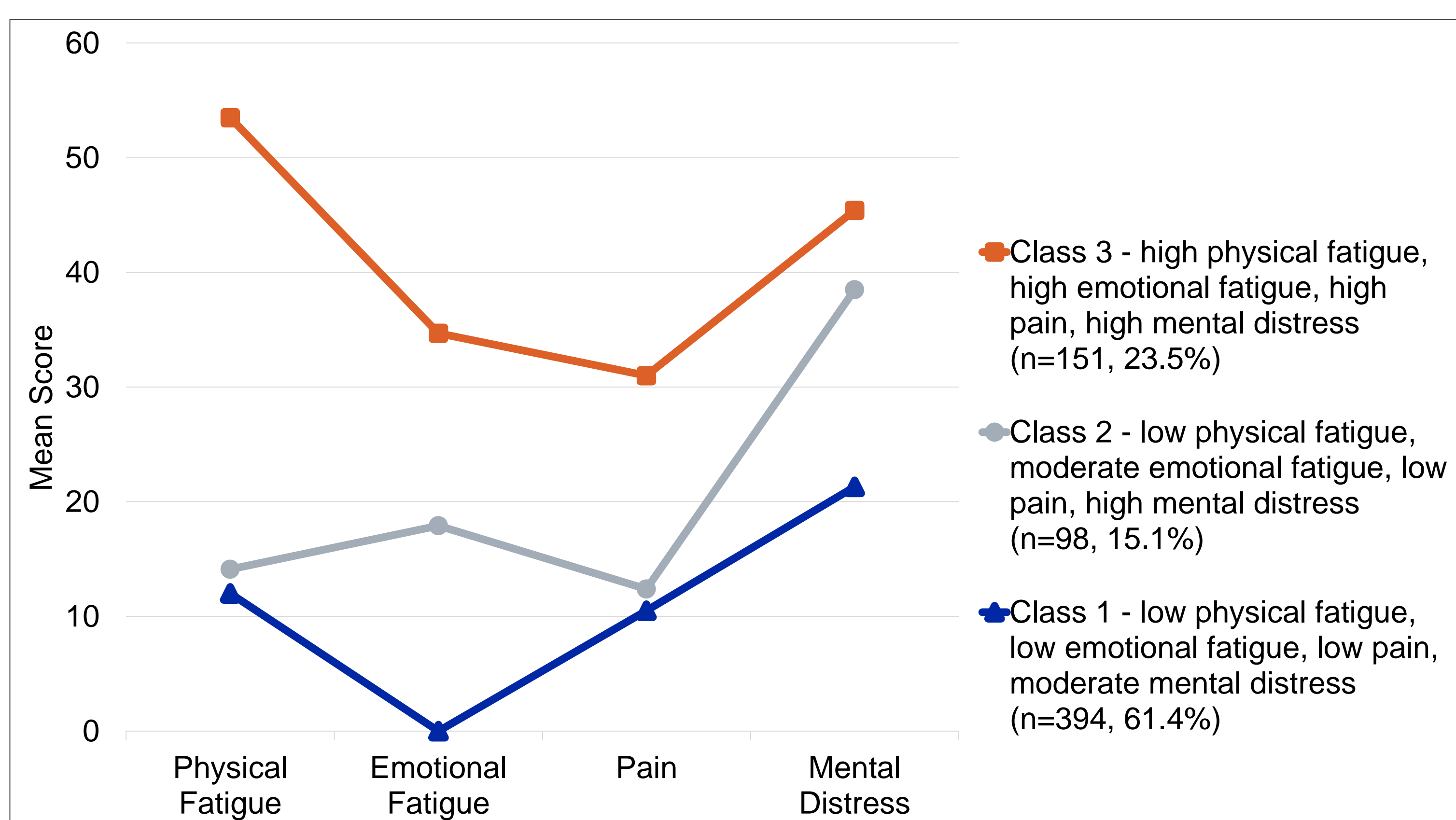
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## 1. Background

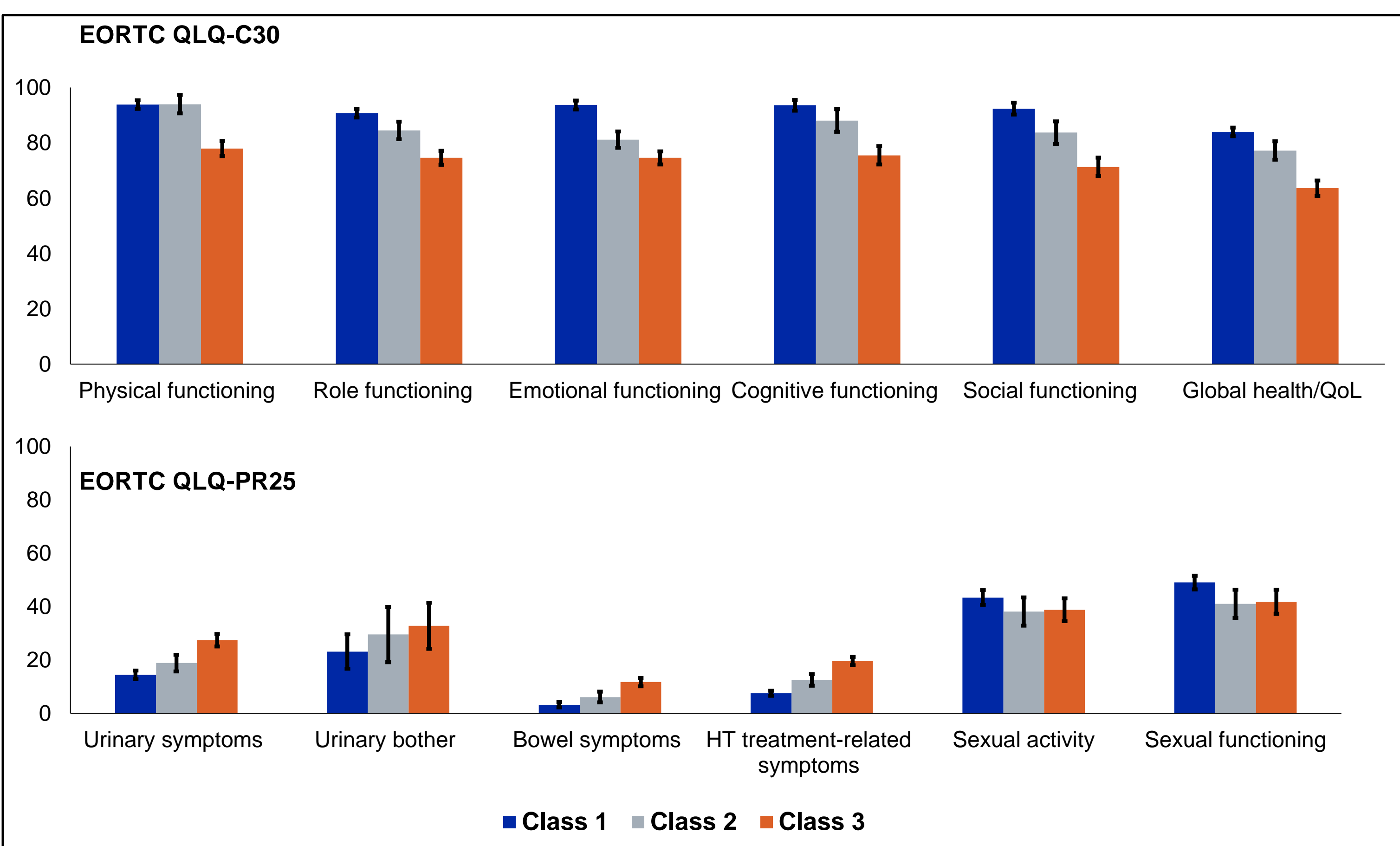
- Aside from common urological and sexual problems, long-term (≥5 years after diagnosis) prostate cancer (PC) survivors might suffer from pain, fatigue and depression. These symptoms are collectively known as the psycho-neurological symptom (PNS) cluster [1].
- Symptom clusters have been associated with survival/mortality and poorer health-related quality of life (HRQoL) [2,3].
- However, there is no published research on the PNS cluster in prostate cancer survivors.
- This study aimed to identify possible classes of the PNS cluster in long-term PC survivors, to classify PC survivors accordingly, and to explore associations between classes of the PNS cluster and HRQoL.**

## 3. Results



**Figure 1: Mean scores of physical fatigue, emotional fatigue, pain and mental distress\* by class of PNS cluster**

\*Score is the reverse of the mental health score for better comparability to the other scores



**Figure 2: EORTC QLQ-C30 and PR-25 scores according to the classes of the psycho-neurological symptom cluster**

HT – Hormone Therapy  
EORTC-QLQ-C30: higher scores on functioning scales indicate better functioning or global health.  
EORTC QLQ-PR25: higher score in the EORTC QLQ-PR25 represents a greater symptom burden or better sexual functioning and activity.

## 4. Conclusion

This is the first study performed in long-term PC survivors identifying classes of the PNS cluster.

- We found three distinct classes of the PNS cluster (Figure 1).
- Survivors in classes 2 and 3 were more likely to be physically inactive, report a history of depression or some other specific comorbidity and being treated with radiation therapy compared to class 1 (Table).
- Regarding HRQoL, PC survivors in class 3 reported significantly lower scores on all functioning subscales and higher PC-specific symptom burden when compared with classes 1 and 2 (Figure 2). Similar trends were noted in comparison between classes 1 and 2, in which class 2 reported significantly poorer scores on some functioning and symptom scale scores.
- Improving classification of PC survivors according to severity of multiple symptoms could assist in developing interventions tailored to survivors' needs to improve HRQoL outcomes.

### Strengths & Limitations

- (+) a multidimensional fatigue questionnaire was used which allowed for differentiation of fatigue dimensions in the identified classes
- (+) we could assess the association of a broad range of clinical, demographic, and lifestyle characteristics with the identified classes
- (-) retrospective observational design

## 2. Methods

### Data source

- 653 stage T1-T3N0M0 survivors were identified from the Prostate Cancer Survivorship in Switzerland (PROCAS) study.

### Instruments

- Fatigue was assessed with the EORTC QLQ-FA12, mental health with the MHI-5, pain & HRQoL with the EORTC QLQ-C30 and PC-specific symptom burden with the EORTC QLQL-PR25 questionnaire.

### Statistical analyses

- Latent class analysis (LCA) was used to derive PNS cluster classes. The optimal number of latent classes was based on the model with the lowest Bayesian information criterion (BIC) value, indicating the best fit.
- Factors associated with the derived classes were determined using multinomial logistic regression analysis.
- Adjusted means based on multivariable linear regression models were calculated to describe and test for differences in HRQoL by the identified classes. Linear models were adjusted for cancer stage, age at survey, time since diagnosis, and external-beam radiation therapy.

**Table: Odd ratios and 95% CIs of factors associated with latent classes of PNS cluster**

	n	OR	95% CI	Class 3 vs. Class 1*	OR	95% CI	Class 3 vs. Class 2*	OR	95% CI
<b>Age (years) at time of survey</b>									
<73	287	1		1			1		
≥73	356	0.81	0.51-1.31	<b>1.53</b>	<b>1.05-2.26</b>		1.69	0.96-3.00	
<b>Having a partner</b>									
No	73	1		1			1		
Yes	552	1.03	0.48-2.20	0.53	0.31-0.91		0.52	0.23-1.16	
<b>Working at survey</b>									
No	569	1		1			1		
Yes	72	0.85	0.41-1.75	0.82	0.44-1.52		0.97	0.42-2.25	
<b>Body Mass Index</b>									
<25	225	1		1			1		
≥25	409	0.85	0.54-1.34	<b>2.23</b>	<b>1.44-3.45</b>		<b>2.62</b>	<b>1.50-4.59</b>	
<b>Vigorous physical activities</b>									
<1.25 (hours per week)	325	1		1			1		
≥1.25 (hours per week)	290	0.97	0.61-1.53	<b>0.45</b>	<b>0.30-0.67</b>		<b>0.46</b>	<b>0.27-0.79</b>	
<b>Light physical activities</b>									
<6 (hours per week)	299	1		1			1		
≥6 (hours per week)	327	0.66	0.42-1.04	0.69	0.47-1.00		1.03	0.62-1.72	
<b>Cancer stage</b>									
T1-T2N0M0	520	1		1			1		
T3N0M0	123	0.76	0.41-1.41	1.20	0.96-1.51		1.92	0.98-3.79	
<b>Years since diagnosis</b>									
5-7 years	323								
8-10 years	320	0.81	0.52-1.26	1.00	0.82-1.20		1.22	0.73-2.04	
<b>Disease progression/relapse</b>									
No	506	1		1			1		
Yes	130	1.40	0.83-2.37	1.09	0.68-1.75		0.78	0.43-1.44	
<b>Most Common Comorbidities</b>									
<b>Degenerative disc disease</b>									
No	511	1		1			1		
Yes	103	1.25	0.67-2.33	<b>2.35</b>	<b>1.46-3.80</b>		1.89	0.97-3.68	
<b>Upper gastrointestinal disease</b>									
No	550	1		1			1		
Yes	66	1.82	0.91-3.63	<b>2.11</b>	<b>1.18-3.89</b>		1.61	0.55-2.44	
<b>Depression</b>									
No	558	1		1			1		
Yes	59	<b>9.52</b>	<b>3.94-23.01</b>	<b>15.97</b>	<b>7.19-35.50</b>		1.67	0.87-3.25	
<b>Therapy</b>									
<b>Radical Prostatectomy</b>									
No	140	1		1			1		
Yes	493	1.45	0.79-2.65	0.70	0.45-10.80		<b>0.48</b>	<b>0.25-0.92</b>	
<b>External-beam radiation therapy</b>									
No	445	1		1			1		
Yes	190	0.73	0.43-1.24	<b>1.69</b>	<b>1.14-2.51</b>		<b>2.32</b>	<b>1.30-4.17</b>	
<b>Hormone therapy</b>									
No	552	1		1			1		
Yes	110	1.03	0.56-1.91	1.56	0.97-2.49		1.51	0.77-3.00	

\*Indicates reference group.

## 5. References

- Laird BJA, et al. J Pain Symptom Manage. 2011.
- Lin S, et al. J Clin Nurs. 2013.
- Wikman A, et al. Cancer 2014

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