

Despite universal access to rehabilitation, German Federal Pension Fund data reveal social inequalities in the return-to-work outcomes of patients with lower gastrointestinal cancer.

Social inequalities in the return to work after lower gastrointestinal cancer following medical rehabilitation

Background:

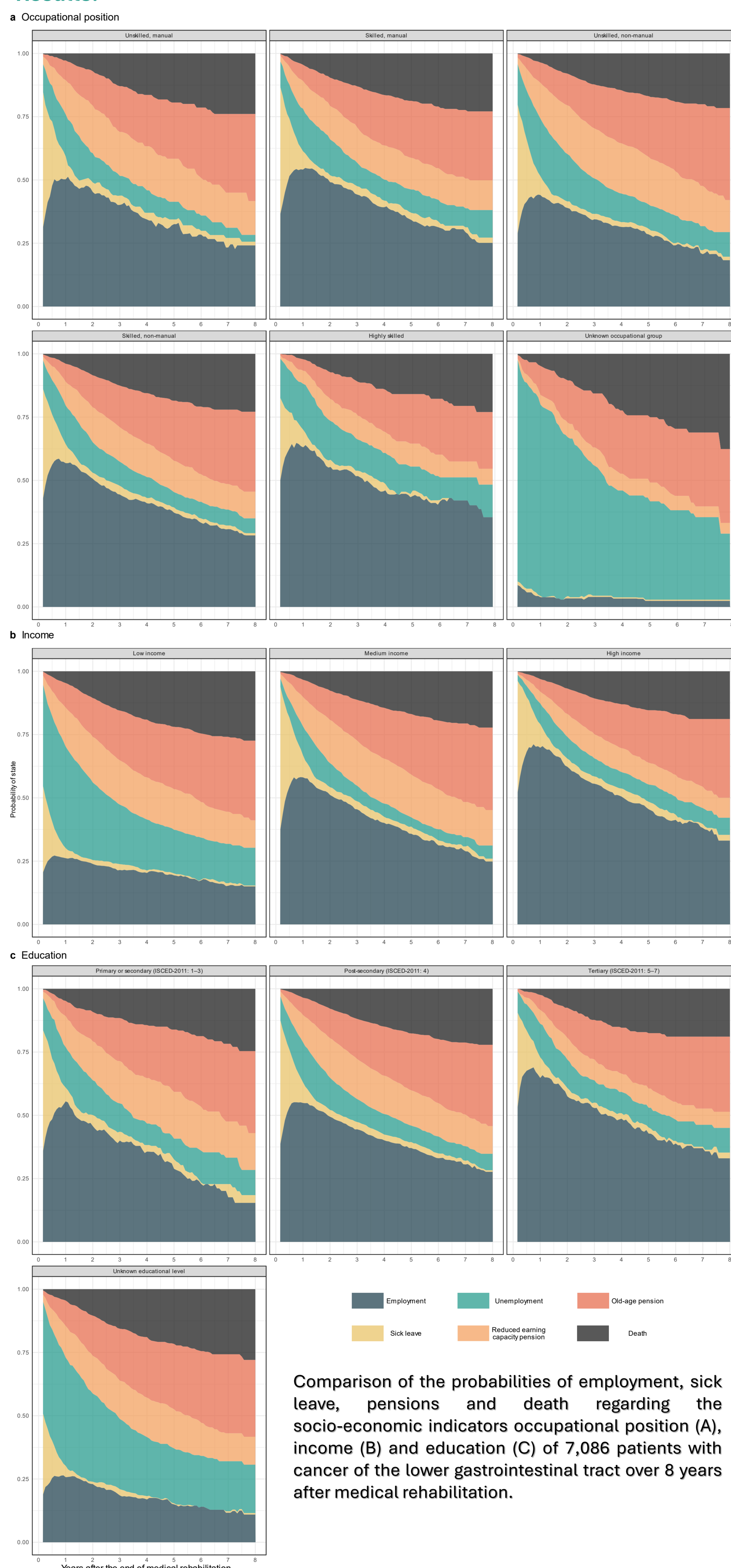
- **Cancer of the lower gastrointestinal tract** is often associated with **restrictions in the ability to work**, that can range from a temporary interruption to a complete loss of income.
- Each year in Germany, this affects over 16,000 or 28% people diagnosed at working age (20-64 years).
- For those patients, the **return to work (RTW) is a key rehabilitation goal** and often signifies a milestone in restoring a structure of daily living.
- Analysis of the socio-economic position (SEP) has shown heterogeneous effects on the RTW.

This study examines the association between SEP and RTW, including its competing outcomes (pension entry or death), following medical rehabilitation.

Methods:

- **Data basis:** Scientific use file of the German pension fund on “**Completed rehabilitations 2012–2019**”
- **Study population:** Previously employed rehabilitants, aged 18 to 62, after a medical rehabilitation due to lower gastrointestinal cancer (ICD-10 C17–21)
- **Outcomes:**
 - Initial RTW** – employment in the first month after the medical rehabilitation
 - Long-term RTW** – employment of ≥ 360 days in at least 1 of 2 calendar years after the rehabilitation and no pension application in the corresponding year
 - Restricted mean survival time (RMST)** of the 8 years after medical rehabilitation for employment, unemployment, sick leave, old-age pension, reduced earning capacity pension and death
- **Analysis:** Logistic regression for the initial and long-term RTW; Multistate model for the RMST

Results:



Association between socio-economic position and return-to-work of 4,593 colorectal cancer patients

Indicators of SEP	N	Initial RTW OR (95% CI)	Long-Term RTW OR (95% CI)
Education^a (ISCED-2011 level)			
Primary or secondary (1–3)	481	—	—
Post-secondary (4)	3576	1.13 (0.90 to 1.43)	1.10 (0.89 to 1.36)
Tertiary (5–7)	455	2.41*** (1.80 to 3.24)	2.00*** (1.50 to 2.68)
Unknown	963	0.50*** (0.37 to 0.67)	0.37*** (0.28 to 0.47)
Occupational position^{a,b}			
Unskilled, manual	398	—	—
Skilled, manual	940	1.16 (0.87 to 1.57)	1.34* (1.03 to 1.75)
Unskilled, non-manual	1598	1.12 (0.85 to 1.49)	0.91 (0.71 to 1.17)
Skilled, non-manual	1866	1.58** (1.19 to 2.11)	1.39* (1.07 to 1.80)
Highly skilled	463	1.92*** (1.37 to 2.69)	1.58** (1.15 to 2.18)
Unknown	210	0.54 (0.28 to 1.00)	0.09*** (0.03 to 0.20)
Income^{a,b,c}			
Low	1825	—	—
Middle	1825	1.85*** (1.55 to 2.22)	3.01*** (2.56 to 3.53)
High	1825	2.63*** (2.19 to 3.17)	3.84*** (3.23 to 4.58)

^a Adjusted for Sex, Age and Citizenship. ^b Adjusted for Education. ^c Adjusted for Occupation. *** p < 0.001; ** p < 0.01; * p < 0.05

Conclusions:

- For the **income tertiles** and **education**, associations were consistent for **both RTW endpoints**, but less so in terms of occupation.
- The typical **difference between blue-collar and white-collar workers** was observed during the **first transition** from inpatient treatment to employment.
- The **long-term RTW** as an indicator of stable employment revealed the main **difference between the qualification levels** of the occupations.
- The database enabled robust estimates and avoidance of selective non-response and recall bias. However, **results might not generalize to non-rehabilitants** due to confounding-by-indication.

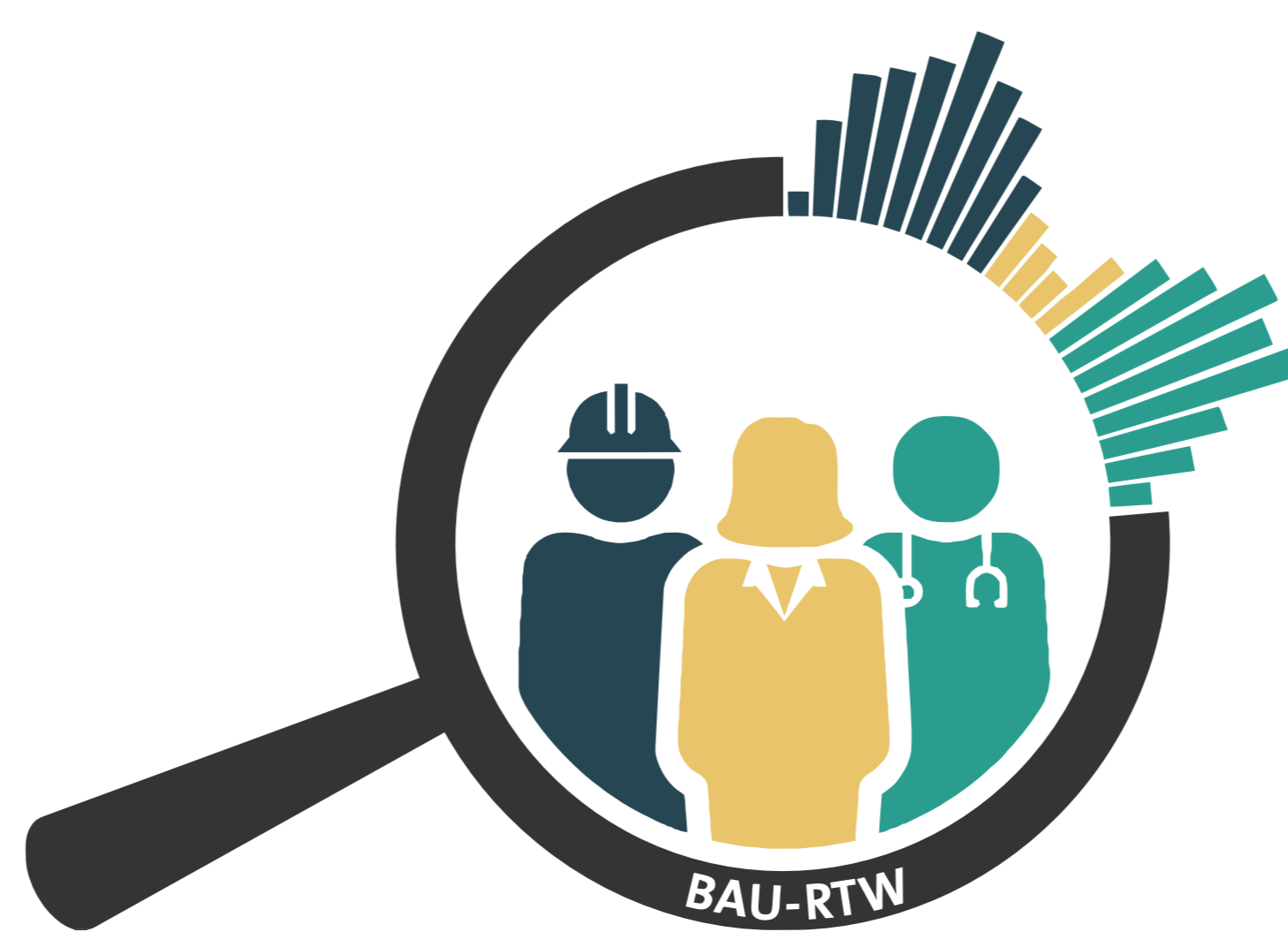
As cancer patients with low SEP are at risk for an unsuccessful RTW, there is a need to discuss whether additional targeted interventions and increased low-threshold information services on vocational rehabilitation options should be offered.

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