

The effectiveness of vocational rehabilitation on work participation: a propensity score matched analysis using nationwide register data ¹

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1. *Appendix*

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Categorizations of labor market history variables

Time in full work duties and unemployment in a given year were categorized as <30, 30–180, and ≥180 days. Time on full sickness absence in a given year was categorized as <30, 30–104, and ≥105 days (corresponding to ≥90 compensated days, i.e. to the time when an assessment of a sick listed employee's remaining work ability and possibilities to return to work is made by occupational health care in co-operation with the employer). Having partial work disability, having vocational rehabilitation, and having full temporary disability retirement in a given year were dichotomized (no/yes).

Constructing the clusters of work disability history

The two latent clusters of work disability history were empirically constructed using K-means cluster analysis, based on the total number of days of preceding work disability (sum of full sickness absence, partial work disability, vocational rehabilitation, and full temporary disability retirement days) and the number of days in full work duties in the three separate years of the measurement history. For the “increasing work disability” cluster, the mean number of days in full work duties declined from an initial relatively high level to a low level due to increasing work disability days over the three-year measurement history. For the “full work duties prevailing” cluster, an initial high number of days in full work duties decreased due to increasing work disability days only to a modest extent and only in the year immediately before rehabilitation.

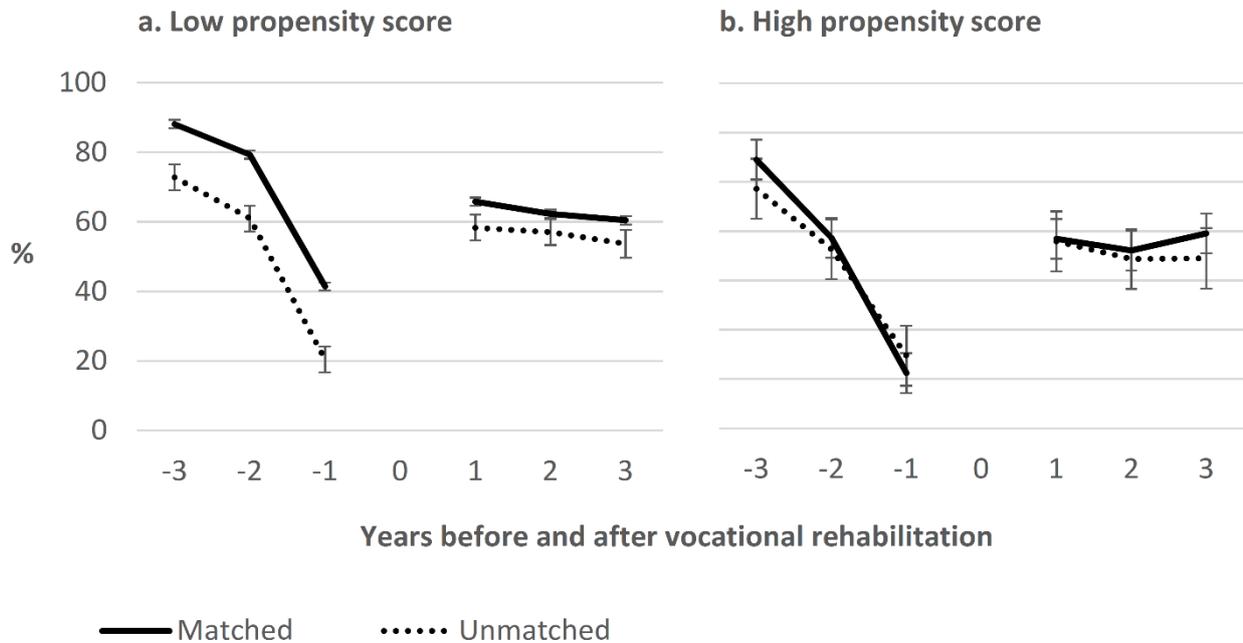
Identifying the control pool

In setting index dates for non-rehabilitees, the probability of random assignment of calendar months within each index year was weighed based on the distribution of observed start months of the vocational rehabilitation episodes. Two different control pools were formed based on the distribution of start months of shorter and longer rehabilitation, because these distributions differed. Inclusion in the control pool further required that in the five calendar years preceding the index year, earnings from work summed up to a level that would have made the individuals eligible for vocational rehabilitation provided by the earnings-related pension scheme (sum of at least €28 250, €29 959, and €30 939 at 2008, 2009 and 2010 levels, respectively; because for those with previous temporary disability pension the rule concerns the earning level used for the basis of calculating the pension benefit, information which is not available in the data, the lower limit of earnings found in the intervention group was applied). Those with very high (>€620 000) sum of earnings in the preceding five calendar years were also excluded from the control pool, because such outliers were likely to affect the balancing of background factors in the propensity score analyses. No corresponding outliers were found in the intervention group. Most of the 203 332 identified individuals were eligible as controls in more than one calendar point (90.8%), resulting in 737 713 observations in the total control pool.

The PS matching process

As many variables as possible were selected for the propensity score (PS) model, including both predictors of the outcome (work participation) and confounders of the intervention-outcome (receiving vocational rehabilitation–work participation) relationship. To compute the PS, a set of hierarchical logistic regressions was conducted with a set of background factors as covariates and

receiving vocational rehabilitation as the dependent variable. The fitness of the model was assessed with the Hosmer and Lemeshow test. The best fitted model was used for calculation of the PS. The PS was used to match individuals on the probability that they would receive vocational rehabilitation, applying 1:1 nearest neighbour matching without replacement to minimize conditional bias. Several matching models with different caliper values to maximize the number of matched pairs were conducted before setting 0.02 as the maximum tolerance for matching. Covariate balance between the PS matched groups was examined overall and at different levels of the PS values.



Appendix Figure S1. Percentage of time spent at work before and after vocational rehabilitation in the matched and unmatched intervention group with 95% confidence intervals among those with a) low (≤ 0.5 ; $N=266-3138$) and b) high (> 0.05 ; $N=26-61$) level of propensity score.