'Placement budgets' for supported employment: impact on employment rates in a multicentre randomised controlled trial

Wulf Rössler, Wolfram Kawohl, Carlos Nordt, Helene Haker, Nicolas Rüsch and Michael P. Hengartner

Background

The most effective rehabilitation model for job (re-)entry of people with mental illness is supported employment. A barrier to introducing supported employment into standard care is its temporally unlimited provision, which conflicts with health and social legislation in many European countries.

Aims

To test the impact of different 'placement budgets', i.e. a pre-defined maximum time budget for job seeking until take-up of competitive employment.

Method

Participants (116) were randomly assigned to 25 h, 40 h or 55 h placement budgets in an intent-to-treat analysis. We applied the individual placement and support model over 24 months, following participants for 36 months. Primary outcome was employment in the labour market for at least 3 months.

Results

The proportion of participants obtaining competitive employment was 55.1% in the 25 h group, 37.8% in the 40 h group and 35.8% in the 55 h group. In a Cox regression analysis, time to

employment was slightly lower in the 25 h group relative to the 40 h (hazard ratio 1.78, 95% CI 0.88–3.57, $P = 0.107$) and 55 h groups (hazard ratio 1.74, 95% CI 0.86–3.49, $P = 0.122$), but this was not statistically significant. The vast majority of all participants who found a job did so within the first 12 months (80.4%).

Conclusion

A restricted time budget for job finding and placement does not affect the rate of successful employment. In accordance with legislation, a restriction of care provision seems justified and enhances the chances of supported employment being introduced in statutory services.

Declaration of interest

None.

Keywords

Supported employment; individual placement and support; placement budget; serious mental illness; unemployment rates.

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Unemployment rates among people with mental disorders are high despite their willingness to work.[1] In Europe, the most common vocational services in the community are sheltered workshops, which aim at preparing affected persons to enter the competitive job market.[2] Unfortunately, sheltered workshops often turn out to be a dead end for those affected because the step to competitive employment is too large.[2,3] Currently, the most effective vocational rehabilitation model for job (re-)entry is supported employment according to the individual placement and support (IPS) model.[4–7] In supported employment, people with disabilities are employed in the primary job market under a regular employment contract and a corresponding regular salary according to their preferences and without prior training, receiving whatever unlimited support is needed for the search for and maintenance of their position.[8]

Cost-efficiency of supported employment

Supported employment has proven to be highly cost-effective compared with sheltered workshops.[7,9] However, one of the major barriers to introducing supported employment into standard care in European countries is the unlimited provision of supported employment, which does not comply with health and social service legislation in many of those countries. Health insurance in European countries usually does not provide institutional services, but remunerates services in a 'fee for service' system. If supported employment is to be introduced throughout Europe as a regular service paid for by health insurance, empirical evidence is needed to justify a certain budget, defined in terms of hours, provided for successful placement. A previous trial suggested that time-limited supported employment is feasible and effective.[10] This trial found no

difference between standard IPS and constrained IPS with regard to working for at least 1 day or for at least 13 weeks. In our multicentre randomised controlled trial we therefore wanted to test the impact of different 'placement budgets', i.e. a pre-defined budget for job seeking with a maximum number of hours of help provided for job search (25 h, 40 h or 55 h) on the time until take-up of competitive employment lasting for at least 3 months. The duration of the three different time budgets was based on our longstanding practical experience with supported employment.

Because successful employment appears to be more likely during the first few months,[4,7] our primary hypothesis was that lower placement budgets would lead to faster placement into competitive employment. Thus, we assumed that time restriction would be an incentive to become more actively involved in finding a job, which is congruent with our extensive clinical experience with supported employment. However, we also introduced a 55 h budget into our trial, so as not to unduly constrain the budgets and, in turn, the participants' chances of finding employment. Moreover, given that IPS is cost-effective, it was not justifiable to restrict this service to people with schizophrenia, but to extend supported employment to people with severe mental disorders from other diagnostic categories.

Methods

Participants

Participants were recruited from six out-patient clinics in the canton of Zurich, Switzerland, between June 2010 and May 2011. Participants were enrolled with six different job coaches, who

were exclusively responsible for the supported employment programme in each of the participating services. Inclusion criteria were as follows: current psychiatric treatment in one of the six participating psychiatric out-patient clinics, at least 1 year of unemployment, no participation in a vocational integration programme during the past 3 months, being of working age (i.e. 18–60 years), having a desire to obtain employment in the competitive job market, being willing and capable of giving informed consent and being a resident of the canton of Zurich. Exclusion criteria were severe organic illness and insufficient knowledge of the German language. All participants provided written informed consent. The Consolidated Standards of Reporting Trials (CONSORT) flow chart is shown in Fig. 1. Altogether, 116 participants started the intervention and were included in our intent-to-treat analysis. At a group size of $N = 33$ for each placement budget, the minimal detectable hazard ratio for two-group comparison is 2.3, with a power of 0.8, a significance level of 0.05 (two sided), an accrual interval of 12 months, a follow-up interval of 24 months and a median time of 12 months.

Intervention

The specific intervention chosen for this trial is the IPS model.[8,11] The job coaches supported the clients for up to 2 years, or until the placement budget had run out for those who failed to find competitive employment. If clients ended their initial employment before reaching the 3-month period they were helped to find further employment.

Our practical experience with supported employment dates back to 2003, when the IPS model was implemented within a European trial.[4] The newly employed job coaches were instructed on the goals of our trial, which they were to approach neutrally, i.e. not giving preference to any of the three time budgets. The job coaches had to work with clients from all three budgets. They were trained in the IPS model by experienced job coaches and had weekly meetings with supervision at the Supported Employment Department of the Psychiatric University Hospital of Zurich. To reduce stress due to time pressure resulting from the restricted budgets, a web-based software programme was tailored for the job coaches with a scheduling tool that automatically computed their remaining placement budgets. Fidelity to the principles of IPS was assessed for each job coach every 3 months with the Supported Employment Fidelity Scale[12] throughout the whole trial. This 15-item scale is a well-researched tool that evaluates the compliance of the service to the IPS principles. High fidelity to the approach was indicated if a job coach reached a score between 66 and 75. Showing an average of 68 points, job coaches as a group met criteria for good IPS treatment fidelity in this study. In the unlikely case that a client whose time budget was running out was about to find a job, the plan was for the client to drop out of the trial and for the supported employment department to assume further responsibility for his or her support. However, this did not occur.

In accordance with the IPS model, the job coaches assisted the participants in two ways: first by assisting with placement (engagement, assessment and finding a job that matched a client's skills and interests), and second by providing support (help in maintaining competitive employment). The time restriction applied to assistance with the job search only. Independently of their assignment to different placement budgets, all participants received unlimited support with job maintenance once they successfully started competitive employment.

Randomisation

Block randomisation with a block size of six was chosen so that, for each job coach, all three budget groups were similarly sized.

Participants were assigned to either 25 h, 40 h or 55 h placement budgets based on a 1:1:1 allocation ratio. We used PROC FACTEX from SAS statistical software for Windows to generate a random order for the placement budgets, which was applied in each participating out-patient clinic. No allocation concealment mechanism was used. The allocation to placement budget could not be blinded to both participants and job coaches, because job coaches and participants had to discuss how best to invest the allocated budget. The research associates who conducted the interviews were blind to group allocation.

Measures

Irrespective of whether participants were still being supported by their job coach, trained research associates carried out assessments every 6 months over a total period of 3 years via computer-assisted, face-to-face interviews. Employment status, duration of employment and job description over the past 6 months were assessed in detail via participants' self-report. The pre-specified primary outcome was the time to first competitive employment lasting for at least 3 months. The 3-month cut-off was used to ensure that any introductory employment or 'probation' period had ended, which in Switzerland usually lasts 1–3 months. Sociodemographic and clinical characteristics at baseline were derived from the German version of the Client Sociodemographic and Service Receipt Inventory[13] and from the Central Psychiatric Register of the Canton of Zurich, which includes the following information from clinical records: diagnosis according to ICD-10 (1992), Global Assessment of Functioning score, and Clinical Global Impression score.

Ethics

The trial was preregistered with the International Standard Randomised Controlled Trials Number registry (trial number: ISRCTN89670872) and the study protocol was freely available online.[11] The study protocol was approved by the Zurich Cantonal Ethics Committee, reference number E-51/2009.

Statistical analysis

The time to first employment lasting at least 3 months (primary outcome) was modelled with Kaplan–Meier survival analysis, and the corresponding hazard ratio estimating the difference in survival time between the experimental groups was calculated by Cox regression analysis. For overall comparisons we applied the Mantel–Cox log-rank test. Statistical significance was set at $\alpha = 0.05$ (two tailed). We conducted intent-to-treat analysis, where people who dropped out were considered as censored cases. In the terminology of survival analysis, 'survival' describes the time to the occurrence of the primary outcome, which is referred to as the 'terminal event'. 'Censoring' captures all people who dropped out and participants who did not experience the terminal event before the end of the study observation period; accordingly, all unaffected participants who remain in the study are considered to be 'at risk'. All analyses were conducted with SPSS version 24 for Windows.

Results

Retention was good, with 96 (82.8%) people participating in the 12-month follow-up, 93 (80.2%) participating in the 18-month follow-up, 86 (74%) participating in the 24-month follow-up and 77 (66%) participating in the 36-month follow-up. Drop-out rates were comparable between experimental groups, with 33.3% in the 25 h group, 28.9% in the 40 h group and 38.5% in the 55 h group ($\chi^2 = 0.78$, d.f. = 2, $P = 0.676$). Those who dropped out of the study did not
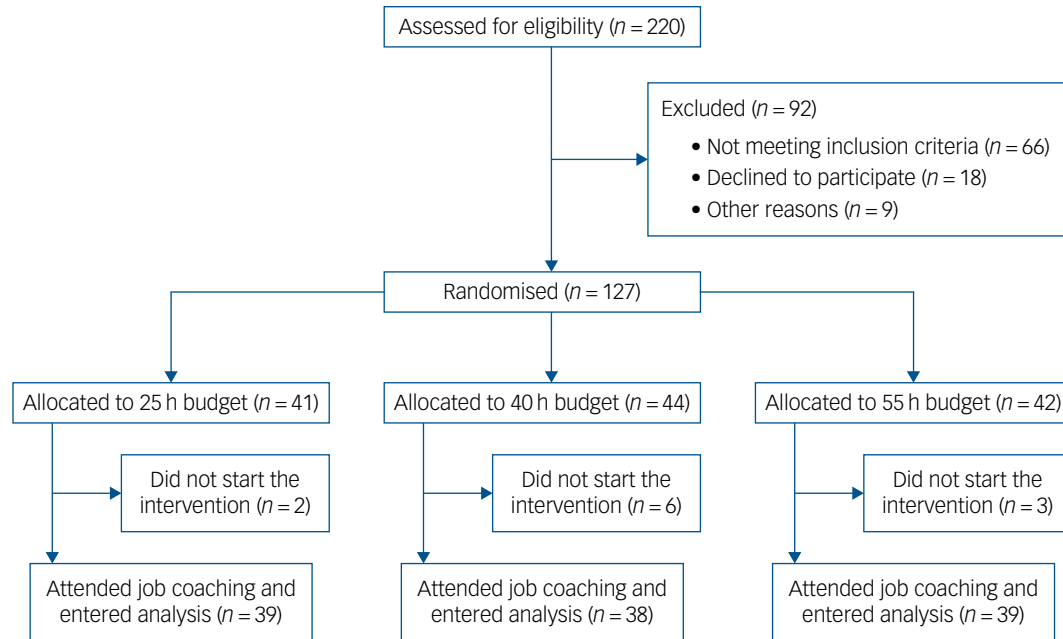
Fig. 1 Consolidated Standards of Reporting Trials (CONSORT) participant flow chart.

differ from study completers in terms of the baseline characteristics reported below (all $P > 0.1$). Out of 20 participants who dropped out at the 12-month follow-up, 2 had already been employed for 3 months; at the 18-month follow-up, 3 of 23 participants who dropped out and, at the 36-month follow-up, 12 of 39 participants who dropped out had been employed for at least 3 months.

The baseline characteristics are shown in Table 1. Depressive disorders (F3) were more prevalent in the 25 h group (56.4%) than in the 40 h (39.5%) or 55 (33.3%) groups, but that difference was statistically not significant ($P = 0.103$). The distribution of personality disorders (F6) varied significantly across groups ($P = 0.029$), with the lowest prevalence in the 25 h group (2.6%), intermediate prevalence in the 40 h group (15.8%) and high prevalence in the 55 h group (23.1%). However, according to Cox regression analysis, neither depressive disorders ($\chi^2 = 0.07$, d.f. = 1, $P = 0.797$) nor personality disorders ($\chi^2 = 0.67$, d.f. = 1, $P = 0.413$) were associated with obtaining competitive employment in the primary job market. The proportion of participants who obtained

competitive employment for at least 3 months, stratified by diagnosis was: 33.3% (4 of 12) for those with substance-use disorders (F1), 27.3% (3 of 11) for those with schizophrenia and other psychotic disorders (F2), 38.0% (19 of 50) for those with affective disorders (F3), 57.1% (12 of 21) for those with anxiety and stress-related disorders (F4), 31.3% (5 of 16) for those with personality disorders and 50% (3 of 6) for those with other diagnoses ($\chi^2 = 4.39$, d.f. = 5, $P = 0.495$).

Details of the Kaplan–Meier survival analysis are shown in Table 2, and the corresponding survival function is shown in Fig. 2. According to the Cox regression analysis, participants in the 25 h group were slightly more successful at getting their first employment relative to the 40 h (hazard ratio 1.78, 95% CI 0.88–3.57, $P = 0.107$) and the 55 h groups (hazard ratio 1.74, 95% CI 0.86–3.49, $P = 0.122$), but that difference was statistically not significant. At the end of the study, the cumulative proportion of participants who obtained a competitive employment was 51.3% in the 25 h group, 34.2% in the 40 h group and 33.3% in the 55 h group.

Table 1 Baseline characteristics across study groups

	25 h budget (N = 39)	40 h budget (N = 38)	55 h budget (N = 39)	Group differences
Continuous	Mean (s.d.)	Mean (s.d.)	Mean (s.d.)	
Age (in years)	40.8 (10.4)	41.7 (10.4)	41.3 (10.7)	$F = 0.06$, d.f. = 2, $P = 0.943$
Education (in years)	11.8 (3.5)	11.5 (3.2)	10.9 (2.3)	$F = 0.91$, d.f. = 2, $P = 0.404$
GAF score	57.3 (10.5)	56.7 (11.7)	54.2 (13.79)	$F = 0.73$, d.f. = 2, $P = 0.486$
CGI score	4.8 (1.0)	4.7 (1.4)	5.1 (0.8)	$F = 1.76$, d.f. = 2, $P = 0.176$
Categorical	N (%)	N (%)	N (%)	
Female gender	23 (59.0)	19 (50.0)	17 (43.6)	$\chi^2 = 1.86$, d.f. = 2, $P = 0.394$
Mental and behavioural disorders due to psychoactive substance use (ICD-10 F1)	4 (10.3)	3 (7.9)	5 (12.8)	$\chi^2 = 0.50$, d.f. = 2, $P = 0.777$
Schizophrenia, schizotypal, delusional and other non-affective psychotic disorders (ICD-10 F2)	3 (7.7)	4 (10.5)	4 (10.3)	$\chi^2 = 0.22$, d.f. = 2, $P = 0.895$
Mood disorders (ICD-10 F3)	22 (56.4)	15 (39.5)	13 (33.3)	$\chi^2 = 4.54$, d.f. = 2, $P = 0.103$
Anxiety, dissociative, stress-related and somatoform disorders (ICD-10 F4)	8 (20.5)	9 (23.7)	4 (10.3)	$\chi^2 = 2.57$, d.f. = 2, $P = 0.277$
Personality disorders (ICD-10 F6)	1 (2.6)	6 (15.8)	9 (23.1)	$\chi^2 = 7.09$, d.f. = 2, $P = 0.029$

The median for age, education, GAF and CGI was almost identical to the mean and therefore not separately shown. P-values for group differences in age, education, GAF and CGI were almost identical to those reported above when an independent samples Kruskal–Wallis test was applied instead of a one-way analysis of variance. GAF, Global Assessment of Functioning score; CGI, Clinical Global Impression score.

Table 2 Persons at 'risk' (of obtaining employment), censoring (those who dropped out before obtaining employment) and number of 'terminal events' (employment for at least 3 months)

Budgets	Interval start	At risk entering interval (N)	Censoring during interval (N)	Terminal events during interval (N)
25 h	0	39	0	10
	6	29	5	7
	12	17	0	2
	18	15	1	1
	24	13	0	0
	30	13	1	0
	36	12	12	0
40 h	0	38	0	5
	6	33	5	4
	12	24	2	3
	18	19	0	1
	24	18	2	0
	30	16	0	0
	36	16	16	0
55 h	0	39	0	7
	6	32	5	4
	12	23	2	1
	18	20	1	1
	24	18	0	0
	30	18	3	0
	36	15	15	0

the time that participants were in contact with the job coaches did not differ between groups; $F(2, 113) = 0.889$, $P = 0.414$. The mean duration in months (with s.d. and range) for the 25 h, 40 h and 55 h groups were 16.1 (8.1, 0–26), 18.4 (7.1, 2–30) and 16.8 (8.2, 0–24), respectively.

No harms to individuals or unintended effects were recorded.

We conducted three sensitivity analyses. First, we tested via multivariable Cox regression whether major depression or a personality disorder diagnosis moderated the main effect of treatment group, and found that adjusting for a mood disorder (ICD-10 F3) and personality disorder (ICD-10 F6) diagnosis did not alter the results. Second, we examined whether gender and age were related to gaining competitive employment, independent of placement time budget. Entering both gender and age together with treatment group as predictor variables in a multivariable Cox regression model provided no evidence of moderator effects. Because treatment fidelity did not differ between job coaches (scores were invariably high), we were not able to test the effect of treatment fidelity on the outcome. Third, when working for at least 1 day was used as the outcome, the proportion of participants who obtained competitive employment was 64.1% in the 25 h group, 55.3% in the 40 h group and 53.8% in the 55 h group. According to the Cox regression model, these group differences were statistically not significant ($\chi^2 = 1.86$, d.f. = 2, $P = 0.394$). Of the 67 participants who were employed for at least 1 day, 46 (68.7%) were able to retain the job for at least 3 months, whereas 21 (31.1%) lost the job prematurely.

Irrespective of the assigned placement budget, about half of all participants who found a job did so within the first 6 months (22 out of 46; 47.8%), and the vast majority did so within the first 12 months (37 out of 46; 80.4%). The median time to employment in those participants who held a job for at least 3 months was 6.0 months (interquartile range [IQR] 1.2–10.8) in the 25 h group, 6.7 months (IQR 2.1–11.3) in the 40 h group and 4.5 months (IQR 1.7–7.3) in the 55 h group.

Based on a one-way analysis of variance, the amount of support time effectively used for job placement in participants who obtained a job did not differ between groups, $F(2, 42) = 0.786$, $P = 0.462$. The means in hours (with s.d. and range) for the 25 h, 40 h and 55 h groups were 12.2 (6.4, 3.3–24.4), 15.7 (9.4, 2.5–32.5) and 14.9 (9.5, 3.3–39.2), respectively. That is, although more resources were available in the 40 h and 55 h groups compared with the most restricted 20 h group, these larger time budgets were not used up. Moreover,

Discussion

Unrestricted supported employment

The positive effects of work on mental health have been known for centuries and are used in psychiatric rehabilitation.[3,12] A cost-effective method for bringing people with mental illness into competitive employment is via supported employment.[6,7] Participation in supported employment programmes not only increases the chances of finding and keeping competitive employment,[4] but those who find work also show gains in self-esteem, social integration, relationships, reduced substance use and increased quality of life.[1,8,14] Those who found long-term employment through supported employment also had improved cognition and better symptom control.[1,8] In spite of these obvious advantages, most European countries continue to
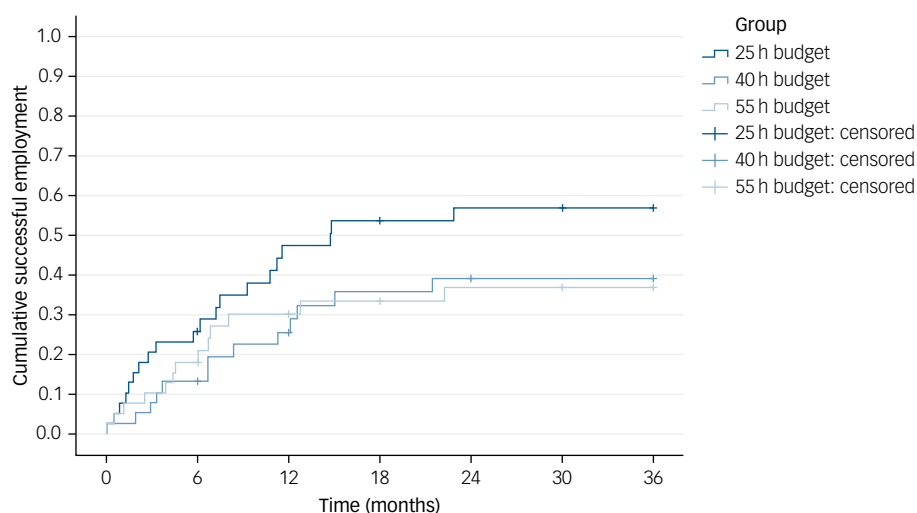
Fig. 2 Time to obtaining competitive employment in relation to three different placement budgets.

invest in costly traditional services like sheltered workshops, which are neither evidence based nor person centred.[2]

One of the barriers to be overcome is that the IPS model, which demands indefinite support for the search and maintenance of competitive employment, is incompatible with health and social statutory service legislation in Europe. This is what our study was designed to investigate, i.e. whether having a restricted time budget to search for a position on the competitive labour market is feasible and, if yes, what the necessary time frame would be. Thus, we introduced three different placement budgets of 25 h, 40 h and 55 h and hypothesised that restricted placement budgets would increase the probability of obtaining competitive employment in the primary job market lasting for at least 3 months. This is possibly an important modification of the IPS model, given that financial resources available for vocational rehabilitation are limited. Moreover, by including participants with affective disorders, we also aimed at demonstrating that the IPS is useful in people with diagnoses other than schizophrenia. As our data show, a restricted placement budget of just 25 hours is probably not a barrier to helping clients gain employment in a competitive job that they retain for at least 3 months, and this holds true for people with both primarily affective and non-affective disorders. A placement budget, i.e. a time restriction on the provision of supported employment, is thus feasible and desirable in the light of current health and social statutory service legislation in most European countries.

Restricted support for job finding

About half of all participants who found a competitive job did so within the first 6 months of the programme, and about 80% did so within the first 12 months. Roughly half to a third of people with severe mental disorders were capable of obtaining and retaining competitive employment for at least 3 months, with no significant differences between restrictions on time budgets available for job seeking. It is remarkable that so many participants found a competitive job for at least 3 months independently of their corresponding placement budget, because the favourable outcome of many previous trials focused on just 1 day of competitive employment. We think that at least 3 months of employment is a much more realistic and robust outcome criterion than 1 day of employment.

Although, contrary to our expectations, a restricted placement budget did not relate significantly to higher employment rates, we consider it reassuring that restricting support does not worsen the outcome. We cannot exclude that the job coaches could have subconsciously been more committed or passionate in providing support for clients with smaller time budgets and, as such, were more successful – which generally could be regarded as a highly desirable side-effect. But when speculating about the motives of the job coaches, we would rather assume that they prefer having more time helping their clients find a job as people generally prefer more comfortable working conditions, which in this case would be represented by longer support time. All job coaches had to support equal numbers of clients from all placement budgets and became acquainted with working under different time budgets, so we cannot conclude from our data that they changed their attitudes in supporting clients who had different time budgets. In accordance with previous work,[10] we therefore believe that good work outcomes can be achieved even with limited resources devoted to finding and obtaining a job. These savings can then be invested in supporting patients in retaining their jobs. A larger trial with high statistical power is needed to test whether restricted placement budgets could possibly improve work outcomes or whether there is a lower bound of budget constraint where the outcome becomes significantly worse.

Strengths and limitations

This study has several strengths such as thorough randomisation; a robust primary outcome that exceeds the minimum time of employment compared with most other studies in the field; and a long-term follow-up over 3 years, i.e. a significantly longer follow-up time than other European studies showing high retention rate. The 18-month drop-out rates correspond to rates found in other high-quality European studies.[4,10] However, we also acknowledge the following major limitations. First, and most importantly, the trial was powered to detect at least medium-sized effects. Therefore, the modest group differences found in this trial did not reach statistical significance according to conventional two-tailed tests. Second, because of the small number of participants, the representativeness of the sample is uncertain. This may also restrict the generalisability of our findings to some unknown degree. Third, we do not know if an even more restricted time budget, i.e. lower than 25 h, would be similarly successful. There are some hints that this might be so, as in many cases the full budget was not used. Fourth, for practical reasons we did not use the latest version of the fidelity scale, as our IPS supervisors were trained and experienced in a previous version. Moreover, we did not conduct formal full fidelity reviews because job coaches, supervisors and independent research assistants were in close contact over the whole trial. Fifth, given that each job coach supported participants from all experimental groups, treatment contamination may have biased our results.

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