Return to Work after Traumatic Brain Injury: Cohort Comparison and Economic Analysis

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On behalf of the study team*

Background and purpose
Returning to work or education is a major goal for many people who sustain a traumatic brain injury (TBI) but only about 41% are in work at one and two years post injury (van Velzen et al 2009). Although support to enable people to return to and remain in work is a quality indicator in the National Service Framework for Long Term Neurological Conditions and high on the UK Government and College of Occupational Therapists agenda, there is no consensus about the most effective way of doing this and little evidence to inform practice. In some areas people with TBI have access to specialist support, known as vocational rehabilitation (VR) but UK service provision is patchy (Gibson et al 2011). Few UK studies have been conducted to determine whether providing VR increases the TBI person’s chances of returning to or remaining in work.

The purpose of this study was threefold. Firstly, to determine whether a TBI specialist team with VR delivered by an occupational therapist was better at returning people with TBI to work or education and keeping them there than usual care; Secondly, to determine the feasibility of measuring and calculating the cost and cost effectiveness of this specialist service; Thirdly, to record and describe the VR occupational therapy intervention.

Method
A pilot cohort comparison design was used as the presence of a small NHS non-medically led specialist TBI service in Nottingham (NTBIS) enabled TBI people who received this service (Specialist Group) to be compared to TBI people from adjacent areas with no access to specialist support (Usual Care Group). People aged 16 years or over admitted to Nottingham hospitals for 48 hours or more with a TBI, and who were in or intending to work (paid or unpaid) or in full time education prior to their injury, were asked to take part. Those not intending to work, living more than an hour from Nottingham or with a documented drug, alcohol or psychiatric history, were excluded.

Intervention
People with moderate or severe TBI and a Nottingham GP received support from the NTBIS, a mixed discipline team comprising case managers, an occupational therapist (OT) who delivered VR, a cognitive behavioural therapist, a clinical neuropsychologist and an administrator. Case managers saw TBI people whilst still in hospital, acted as care coordinators and provided support, education and advice to patients, family and others e.g. solicitors, sometimes remaining in contact with the TBI person for up to 2 years. Work goals were addressed by the team but primarily by the OT. The VR was based on best practice guidelines (Tyerman and Meehan, 2004) and delivered in the community. As only people with moderate and severe injuries were eligible for NTBIS, those with minor TBI were seen only by the OT. Together, they formed the Specialist group. People living outside the NTBIS catchment area received whatever was available to them. This was the usual care group.

Outcome Assessment
Baseline data (before support was provided) was collected at 4 weeks post hospital discharge. Outcomes were collected by postal questionnaire supported by telephone assistance, at 3, 6, 12 and 18 months. The primary outcome was return to work/education at 12 months; Secondary outcomes were functional ability, mood and health-related quality of life. Health and social resource use was self reported and used in the base case analysis. A broader perspective captured participant and carer lost wages, additional expenses, Department for Work and Pensions (DWP) appointments and some costs to employers.

Results
94 people (40 Specialist group and 54 Usual Care group) took part. Their mean age was 34 years and 80% were men. There were no significant differences between the groups in injury severity, age or sex or on any secondary outcome measure. However, people in the Specialist group spent significantly less time in hospital (mean 11 days) than those in Usual Care, irrespective of disability.
Primary outcomes
At one year post hospital discharge 15% more people in the Specialist group were working, 27/36 (75%) compared to those in Usual care 27/45 (60%). This difference was even more pronounced in those with moderate and severe TBI-27% more were in work (specialist group 16/23 (70%) versus 9/21 (43%) - though not statistically significant. Specialist group participants started work sooner, particularly those with minor injuries (13/14 (93%) of the Specialist group had returned by 3 months compared to only 14/25 (56%) of the Usual care group).

Secondary outcomes
There were no significant differences between the groups on any secondary outcome measure. However, people who were working were significantly less anxious and depressed and had significantly better health-related quality of life.

Economic evaluation
When the cost of providing the Specialist support was calculated from a health and social care perspective, which includes the intervention costs plus the cost of appointments with consultants, GPs, therapists, and social workers and medication in the 12 months following hospital discharge, the mean cost difference was £75 (95% CI -£1200.00, £1350.00) per person -about the cost of one therapy session (mean cost £2107.00 for the Specialist intervention compared to £2352.00 for Usual care). However, from the broader perspective (which included lost patient and carer wages, personal expenses, employer costs and DWP Services) the mean cost difference was -£1,863 (95% CI -£9000.00, £5275.00) per person (mean Specialist group cost £8,786 minus mean Usual care group cost £10,648.00) i.e. an average cost savings of £1,862.00 per person in the Specialist group - a difference resulting mainly from lost wages among Usual care participants.

The mean difference in QALYs (1 QALY = 1 year of perfect health) as measured using the EQ-5D over the study period was 0.0175 (95% CI -0.108, 0.107) with a mean of 0.1938 in the Specialist group and 0.1763 for Usual care. Therefore the cost per QALY was £4,287.00 from a health and social care perspective. When taking account of the number of people successfully employed at one year, the cost of returning one extra person to work with specialist support was £502.53. In addition 13% fewer people in the Specialist group were claiming benefits at one year.

Recording intervention
Most of the OTs time was spent on activities directly targeted at returning a person to work. For every hour of face to face contact with participants, an additional two were spent in liaison and travel. Not everybody needed a work place visit (Phillips 2010).

Conclusion
More people in the specialist group returned to work and returned sooner. Those with moderate or severe TBI appeared to benefit most. This positive trend was achieved without large increases in health costs and resulted in taxpayer savings. However, as the study was small we cannot be certain that the successful outcomes were wholly attributable to the specialist intervention. Therefore a randomised controlled trial is needed.

References

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