


ORIGINAL ARTICLE

Clinician perspectives of ABI vocational rehabilitation in Queensland

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Abstract

Introduction: Services to support adults with acquired brain injury (ABI) and return to work goals are varied. In Queensland, Australia, return to work goals may be addressed through private or publicly funded rehabilitation services or through publicly funded employment programs. No set frameworks or processes are in place to guide clinicians in providing vocational rehabilitation to adults with ABI, and the extent to which services address clients' vocational goals and/or provide vocational rehabilitation is unknown.

Method: This qualitative study investigated the clinical practice and experiences of allied health rehabilitation clinicians (n = 34) to identify current practice in providing vocational rehabilitation to adults with ABI, including pathways and services; models, frameworks and tools; and recommendations for ideal services. Focus groups and online surveys were conducted, with data analysed via content analysis.

Results: ABI vocational rehabilitation was inconsistently delivered within and across services in Queensland, with differences in access to services, aspects of vocational rehabilitation provided and timeframes for rehabilitation. Five key themes were identified regarding ABI vocational rehabilitation and service delivery in Queensland: Factors influencing ABI and return to work; Service provision; ABI vocational rehabilitation processes (including assessment tools and interventions); Service gaps; and Ideal ABI vocational rehabilitation services.

Discussion: These findings can inform clinical practice and development, and current and future service delivery models for ABI vocational rehabilitation.

Keywords: Vocational rehabilitation; return to work; brain injuries; delivery of healthcare

Introduction

Rehabilitation aims to optimise function, reduce disability and maximise independence to enable participation in meaningful life roles including work (World Health Organisation, 2020). Rehabilitation for adults with acquired brain injury (ABI), including traumatic brain injury (TBI) is complex, influenced by medical, psychosocial and pre- and post-injury factors. Providing rehabilitation to address return to work following brain injury is even more complex (Jeyaraj et al., 2013) with additional employment factors related to the social and physical environment, task and role pressures. Returning to work is a high priority for adults of working age who experience an ABI, yet rates of employment post-ABI are poor (around 40%) (van Velzen, van Bennekom, Edelaar, Sluiter, & Frings-Dresen, 2009).

Following ABI, return to work is influenced by a range of factors. These include pre-injury factors (e.g., mental health status, drug and alcohol use, education level, ethnicity) (Donker-Cools, Schouten, Wind, & Frings-Dresen, 2018; Shames, Treger, Ring, & Giaquinto, 2007),

changes to skills and functioning post-injury (Libeson, Downing, Ross, & Ponsford, 2018; van Velzen, van Bennekom, van Dormolen, Sluiter, & Frings-Dresen, 2011) and employment related factors (e.g., access to previous or new work, workplace supports) (Donker-Cools *et al.*, 2018; Macaden, Chandler, Chandler, & Berry, 2010; Rubenson, Svensson, Linddahl, & Björklund, 2007). Available social and community supports (Donker-Cools *et al.*, 2018; Libeson *et al.*, 2018) and service / system factors including access to specialised vocational rehabilitation (Libeson *et al.*, 2018; Shames *et al.*, 2007; van Velzen *et al.*, 2011) also influence return to work following ABI.

Engaging in vocational rehabilitation improves employment outcomes for adults with ABI (Tyerman, Meehan, & Tuner-Stokes, 2004). The growing evidence base supporting ABI vocational rehabilitation includes research into approaches and models for vocational rehabilitation service provision (Fadyl & McPherson, 2009; Holzberg, 2001; Tyerman, 2012; Van Velzen, Van Bennekom, & Frings-Dresen, 2020), vocational evaluation processes (Stergiou-Kita, Dawson, & Rappolt, 2011), interventions (Donker-Cools, Daams, Wind, & Frings-Dresen, 2016; Graham *et al.*, 2016; Mani, Cater, & Hudlikar, 2017; O'Keefe, Stanley, Adam, & Lannin, 2019), barriers and facilitators for return to work (Bould & Callaway, 2021; Schwarz, Claros-Salinas, & Streibelt, 2018) and developing pathways to employment (Bould & Callaway, 2021). While no gold standard model or intervention has been identified, findings from these studies include service delivery recommendations to maximise return to work outcomes for adults with ABI.

Studies have also investigated the experiences of employers and the lived experience of people with ABI who have returned or attempted to return to work post-injury, to identify factors that influence return to work and practices to improve vocational rehabilitation service provision (Bould & Callaway, 2021; Donker-Cools *et al.*, 2018; Gilworth, Eyres, Carey, Bhakta, & Tennant, 2008; Hooson, Coetzer, Stew, & Moore, 2013; Levack, McPherson, & McNaughton, 2004; Libeson *et al.*, 2018; McRae, Hallab, & Simpson, 2016). Research examining the experiences and clinical practice methods of health professionals and rehabilitation clinicians regarding ABI vocational rehabilitation is more limited.

Prior studies have investigated the provision of ABI vocational rehabilitation to identify service models and clinical practice across different services and settings. This has involved identifying: program philosophies, assessment methods and intervention components of dedicated ABI vocational rehabilitation services (as reported by program managers) (Hart *et al.*, 2006); the clinical assessments, tools and processes used by vocational rehabilitation providers (including vocational rehabilitation counsellors, rehabilitation providers and educators) (Dillahunt-Aspillaga *et al.*, 2015) and availability and provision of vocational rehabilitation in ABI rehabilitation units (Van Velzen *et al.*, 2020). Occupational therapists' perceptions of factors that influence work readiness evaluations in ABI vocational rehabilitation (identifying client and workplace / environment factors) (Stergiou-Kita, Yantzi, & Wan, 2010) have also been investigated. Clinicians' views of providing rehabilitation to adults with ABI have been studied (Jeyaraj *et al.*, 2013; Pagan *et al.*, 2016); however, this did not specifically investigate return to work or vocational rehabilitation services (Jeyaraj *et al.*, 2013) or separate provision of return to work from school transition supports (Pagan *et al.*, 2016).

Overall, the clinical practice, service delivery methods and experiences of health professionals in providing ABI vocational rehabilitation services (e.g., timing, processes, service transitions) have received limited investigation. Currently, the clinical practice methods and experiences of clinicians working in services with varied access to dedicated vocational rehabilitation are unknown. Clinician-focussed research can identify clinical practice methods to support future service development, particularly in areas with an emerging evidence base. Investigating clinician factors including expertise, knowledge and experience provides 'expert opinion'. This is a key component of evidence-based practice (EBP) (Hoffman, Bennett, & Del Mar, 2017) and provides level V evidence (clinician expert opinion) (OCEBM Working Group, 2009).

Investigation and identification of these areas has not occurred within Australia, or within the local context of Queensland-based services. However, investigation into related areas has occurred. Australian studies have identified assessments and interventions used by specialised ABI vocational rehabilitation clinicians in an Australian Commonwealth Rehabilitation Service team (O'Brien, 2007) and ABI consumer views of vocational rehabilitation and return to work (Libeson et al., 2018; McRae et al., 2016; Watter et al., 2021). Consumer (adults with ABI) experiences with ABI vocational rehabilitation and return to work in Queensland have been investigated, identifying positive and negative experiences with public and private service providers, across areas including access to services, therapeutic interventions and supports for return to work (Watter et al., 2021).

Research has also identified Australian health professionals TBI rehabilitation practice, with 71% of respondents reporting they provided return to work / school transition support as a component of TBI rehabilitation (Pagan et al., 2016). Recently, an Australian study used a co-design approach to develop a pathway to employment for adults with ABI who have access to insurance funding (Bould & Callaway, 2021). It investigated the views of multiple stakeholders regarding return to employment following ABI, including six allied health professionals with experience in ABI. While this study did not separate the views of health professionals from other stakeholders (e.g., consumers, employers, insurers) it provided a foundation on which to build further knowledge in this area.

Service access and availability of vocational rehabilitation is a significant barrier to returning to work internationally (Libeson et al., 2018). While reduced access to rehabilitation tends to be associated with low- and middle-income countries (World Health Organisation, 2020), an unmet need for ABI vocational rehabilitation is present in high-income countries (Libeson et al., 2018; Van Velzen et al., 2020), with differences in vocational rehabilitation service provision ranging from no vocational rehabilitation services to access to funded, intensive programs. Within Australia, ABI vocational rehabilitation services are provided through publicly (state) funded rehabilitation services (e.g., hospital and/or community rehabilitation services) and privately funded services (e.g., through insurance schemes). National funding for employment services for unemployed adults resides with the Commonwealth government, which is delivered via Disability Employment Services (DES). Across Australia, reported limitations of vocational rehabilitation include providers with limited brain injury experience and insufficient advice to employers (Libeson et al., 2018). Further, access to specific ABI vocational rehabilitation is varied, and dependent upon factors including location, injury type and availability of funding, with improved access reported for insurance-funded clients (McRae et al., 2016).

Within Queensland, there is no dedicated public ABI vocational rehabilitation service provider. Public rehabilitation services for adults with ABI are provided differently between and within health districts, including provision of ABI vocational rehabilitation. The need to improve patient access to vocational rehabilitation and increase delivery of vocational rehabilitation by health-based services is identified in the current state-wide ABI rehabilitation health service plan (Queensland Health, 2016). Private provision of ABI vocational rehabilitation occurs through insurance-funded services with specific admission criteria (e.g., National Injury Insurance Scheme Queensland (NIISQ), Workcover, National Disability Insurance Scheme (NDIS)); however, there are limited private providers with this clinical speciality. Service provision for ABI vocational rehabilitation is anecdotally varied and ad hoc, with no set framework or model used to govern service provision in Queensland.

Study overview

This study occurred as a component of a larger project that is developing an evidence-based framework for the provision of early, interdisciplinary ABI vocational rehabilitation in Queensland. The framework aims to inform clinical practice and address an identified state-wide

need for ABI vocational rehabilitation (Queensland Health, 2016). To achieve this, the EBP-4 model (Hoffman *et al.*, 2017) was adopted to guide investigation of the evidence base. This involved investigating: the *research evidence* via a systematic scoping review (Murray *et al.*, 2021); *client values and circumstances* through a qualitative study examining client experiences with ABI vocational rehabilitation and return to work within the *practice context* of Queensland-based services (Watter *et al.*, 2021); and *clinical expertise* within the *practice context* of Queensland-based services for ABI vocational rehabilitation through this study, which is detailed below.

Study aim

This study aimed to investigate and identify the clinical practice, service delivery methods, and experiences and views of clinicians regarding the provision of ABI and vocational rehabilitation services in Queensland (i.e., at a state-wide level), with national level input sought from experienced ABI vocational rehabilitation clinicians from other states. This would identify: contextually rich information on current ABI vocational rehabilitation services and pathways; service gaps and needs; and help establish key recommendations and direction for future service delivery for ABI vocational rehabilitation in Queensland. National-level input would provide information from clinicians working within established ABI vocational rehabilitation services in other Australian settings and potentially identify areas of practice or experiences not reported by Queensland-based clinicians.

Given the noted knowledge gap in this area and the importance of obtaining expert opinion in achieving evidence-based practice (Hoffman *et al.*, 2017), this study will provide level V evidence (OCEBM Working Group, 2009) and address two components of the EBP-4 model (Hoffman *et al.*, 2017) – clinician expertise and practice context.

Method

This qualitative study investigated the clinical practice, service delivery methods and experiences of health professionals regarding ABI vocational rehabilitation in Queensland. Target participants were clinicians with experience in ABI and/or vocational rehabilitation. Due to geographical distances and participant availability, a pragmatic approach to data collection was taken, with two modalities used. Participants either attended a focus group or completed an online survey regarding ABI vocational rehabilitation. The same open-ended questions were asked of all participants, and all data were analysed via inductive content analysis (Green & Thorogood, 2004; Vaismoradi & Snelgrove, 2019). This study has ethical clearance from Metro South Health and Griffith University Human Research Ethics Committees (HREC/18/QPAH/497; GU Ref: 2018/998).

Participants and procedure

Allied health clinicians with self-identified experience in ABI and / or vocational rehabilitation were recruited through email and word-of-mouth from local, state-wide and national professional networks in Australia, including from the service conducting this research (Acquired Brain Injury Transitional Rehabilitation Service (ABITRS)). Participants were invited to undertake either an online survey or participate in an in-person focus group regarding their clinical practice and experiences with vocational rehabilitation and ABI vocational rehabilitation. The two methods of data collection were chosen to maximise clinician participation, given the large geographical area for recruitment. Study questions were open-ended, with the same questions asked of all participants, irrespective of participation method. Survey participants provided free-text written responses to the study questions and focus group participants responded verbally and through discussion. All

participants completed the same demographic questionnaire. Vocational rehabilitation was defined to participants as rehabilitation targeting work, study and/or volunteering.

Participants self-selected their method of participation. The online survey was completed by those unable to attend the focus groups in person, including participants from regional areas and national participants. The survey participants were sent a link to the electronic survey, which was hosted through the online electronic survey system Survey Monkey®. The focus groups occurred in-person at a Queensland Health facility in Woolloongabba, Brisbane. Three focus groups lasting 60-90 minutes were conducted. As the ABITRS has been developing new vocational rehabilitation services in Queensland as part of a time-limited funded pilot project, it was determined that reporting on this practice could contaminate usual practice findings. Consequently, ABITRS staff were allocated to separate focus groups and were instructed to discuss their vocational rehabilitation experiences external to ABITRS. Focus group facilitators were members of the research team (group one – authors JV, SE; groups two and three – author KW) and were experienced clinicians, with 5–21 years clinical experience.

Focus group recordings used a video recorder (Sony handycam DHR-XR160E) and two digital audio recorders (Olympus DS-30 and Olympus DM-7); data were transcribed verbatim for analysis. Online survey data (free text responses) were downloaded into Microsoft Excel® for data analysis. Participants were deidentified for transcription and analysis; location identifiers were kept for survey participants to identify responses from non-Queensland based participants ($n = 2$). Demographic data of all participants were entered into a database (Microsoft Excel®) for data analysis.

Question development

The study questions were developed by the research team, which involved experienced ABI and vocational rehabilitation clinicians and researchers. The questions aimed to identify participants' clinical practice, service delivery methods and experiences of delivering ABI vocational rehabilitation to provide expert opinion (Hoffman et al., 2017) at both a local and national level. Questions were based on clinician experience, contextual service knowledge, local and national service delivery recommendations for ABI (Australasian Faculty of Rehabilitation Medicine, 2014,2019; Queensland Health, 2016) and findings from the literature regarding clinical practice and provision of vocational rehabilitation for adults with ABI (e.g., see (Dillahunt-Aspillaga et al., 2015; Fadyl & McPherson, 2009; Hart et al., 2006; Stergiou-Kita et al., 2010)).

The study questions were designed to provide specific content and process-based information as well as personal views and opinions, across the following areas: providing ABI vocational rehabilitation; pathways and services; frameworks and models; approaches and roles; tools and indicators and service gaps. The non-ABITRS participants were asked to identify views on ideal services for ABI vocational rehabilitation in Queensland. Participants were also asked about their vocational rehabilitation experiences with non-ABI client groups; however, this data has been excluded from this analysis, as this study is investigating ABI vocational rehabilitation only. The study questions are presented in Table A1.

Data analysis

Focus group data was transcribed and deidentified; online survey data was deidentified and compiled question by question. All qualitative data (transcribed deidentified focus group data (three groups) and compiled deidentified survey responses) were analysed using inductive content analysis (Green & Thorogood, 2004; Vaismoradi & Snelgrove, 2019). Content analysis was chosen as the study aimed to identify both procedural information on clinical practice and service delivery and identify participants' views, opinions and experiences regarding ABI vocational rehabilitation. This could result in data requiring manifest (i.e., descriptive or surface level) analysis

(e.g., procedural information on clinical practice) and latent (i.e., interpretative or deeper level) analysis (e.g., views and opinions) (Hsieh & Shannon, 2005; Vaismoradi & Snelgrove, 2019).

The process of content analysis involved data familiarisation, initial coding of all data, reviewing codes to organise into categories and themes, and reviewing coding and themes across all data sets (Green & Thorogood, 2004; Vaismoradi & Snelgrove, 2019; Vaismoradi, Turunen, & Bondas, 2013). Initial coding was undertaken by author KW.

Data were compared across the data sets (i.e., focus group and survey data), with participant responses found to be similar in content (i.e., involving both opinions and specific process information on practice and service delivery) and response length (i.e., phrase to multiple-paragraph responses) across all data sets. As the data sets were comparable, all data were combined into a spreadsheet to facilitate comparison across the entire data set and to aid in determining final themes of the content analysis. Data involving conflicting opinions was included, as recommended for focus group analysis (Onwuegbuzie, Dickinson, Leech, & Zoran, 2009).

Inductive coding occurred to identify a range of experiences and new areas / insights from participants, with level of analysis (i.e., latent or manifest) and resultant categories and themes influenced by the nature of the questions and aims of the study (e.g., identifying experiences versus identifying specific processes used in ABI vocational rehabilitation) (Green & Thorogood, 2004; Vaismoradi *et al.*, 2013). It was predicted that latent (interpretive) analysis may occur for data involving participants' views, experiences and opinions, and that manifest (descriptive) data analysis would occur for data involving content-based and procedural information related to clinical service delivery (Hsieh & Shannon, 2005; Vaismoradi & Snelgrove, 2019). While specific *a priori* themes were not set for the inductive content analysis, themes arising from manifest analysis were influenced by the study aims and the specific questions asked.

The primary author (KW) analysed all data, with consensus coding of 50% of the data conducted by authors SE and AM. Consensus coding involved initial coding, and organising codes into themes and categories, with consensus reached for each stage. Focus group facilitators JV and SE also reviewed the final code set, with full consensus reached. Data saturation of manifest content was also reached (Onwuegbuzie *et al.*, 2009; Saunders *et al.*, 2018). Demographic data were analysed using descriptive statistics.

Ethical considerations

Participant confidentiality and privacy were maintained throughout the study, as governed by ethics procedures. Processes utilised included de-identification of data for analysis and reporting of results. Professional relationships exist between the research team and many participants, given the related work and service areas. These relationships were acknowledged during participant recruitment and data collection (as per standard practice and ethics requirements), with participants informed that participation was voluntary, and participation or non-participation, including information provided for the study, would not alter or impact existing professional relationships. In addition, ABITRS participants were asked to report their experiences prior to their current workplace. These processes were used to minimise any power differential between the researchers and participants and maintain confidentiality and ongoing professional relationships.

Results

Participant demographics

Thirty-four clinicians were recruited and participated in either an online survey ($n = 12$) or one of three focus groups ($n = 22$ (8; 10; 4)). At the time of the study, 32 participants worked in Queensland; two (survey) participants were from other Australian states. Clinicians included allied health professionals (clinical psychology ($n = 2$), exercise physiology ($n = 2$),

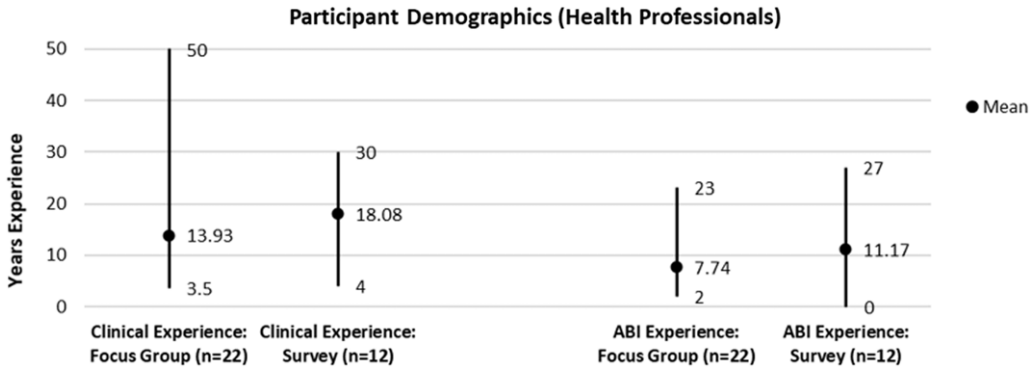


Figure 1. Participant Demographics.

neuropsychology ($n = 1$), occupational therapy (OT) ($n = 12$), physiotherapy ($n = 2$), social work ($n = 1$), speech pathology ($n = 6$), allied health assistants ($n = 2$), vocational rehabilitation counsellors ($n = 2$), managers ($n = 2$; qualifications – occupational therapist ($n = 1$), physiotherapist ($n = 1$)), a rehabilitation coordinator ($n = 1$, qualification - speech pathologist) and a rehabilitation physician ($n = 1$). Participants worked across public and private rehabilitation settings, not-for-profit organisations and for state-wide insurance schemes (e.g., support planners).

The average clinical experience of participants was 15.39 years (range: 3.5–50+ years), and average experience in ABI rehabilitation was 8.98 years (range: 0–27 years). Thirty-three of the thirty-four participants reported clinical experience in ABI rehabilitation. One participant reported no clinical ABI rehabilitation experience but was an experienced vocational coordinator and vocational rehabilitation case manager for people with disability in Queensland. Thirty-three participants reported experience in providing ABI vocational rehabilitation, including working with clients on return to work goals and/or providing vocational rehabilitation as a component of ABI rehabilitation. These participants reported experience in providing ABI vocational rehabilitation across a range of settings in Australia ($n = 33$) (Queensland ($n = 32$), New South Wales ($n = 1$), South Australia ($n = 1$), Victoria ($n = 1$), Western Australia ($n = 1$)) and international settings (United Kingdom ($n = 2$) and New Zealand ($n = 1$)). Nine of the thirty-four participants also reported vocational rehabilitation experience in non-ABI populations (disability, mental health and spinal cord injury).

Demographic data of survey participants ($n = 12$) and focus group participants ($n = 22$) were compared using descriptive statistics for (i) clinical experience (years) and (ii) experience in ABI rehabilitation (years) – see Figure 1. Both groups included participants with a wide range of experience (years) in overall clinical practice and in ABI rehabilitation. While the survey group had higher mean values across both experience areas, both groups (i.e., focus group and survey participants) contained experienced practitioners in both clinical practice and in ABI rehabilitation, as demonstrated by the group mean values.

Content analysis

Inductive content analysis of the qualitative data identified manifest content across all data which primarily related to information on clinical practice and procedures for ABI vocational rehabilitation. Increased latent content was identified in focus group data when compared to the survey data, due to discussion between participants.

Five key themes were identified from the qualitative data (i.e., focus groups and surveys) detailing clinicians' ABI vocational rehabilitation experiences, views and clinical practice methods. Theme one, *Factors influencing return to work after ABI*, involved increased latent content, with a

majority of data from focus group participants; data primarily arose from responses to question one. The remaining four themes were identified from primarily manifest content. Theme two, *ABI vocational rehabilitation service provision in Queensland*, and Theme three, *Processes for ABI vocational rehabilitation*, detail current clinical practice methods used to provide ABI vocational rehabilitation in Queensland and predominantly involved data from questions two to five. Theme four, *Service gaps* and Theme five, *Ideal ABI vocational rehabilitation services*, identify participant views and experiences with ABI vocational rehabilitation and arose from data primarily from questions six and seven respectively. The five themes are reported below, alongside exemplar participant quotes. Due to participant de-identification, exemplar quotations are not assigned to individual participants. A small amount of data is reported from the two non-Queensland participants demonstrating differences in clinical service provision; this is specifically identified in the results.

Theme 1. Factors influencing return to work after ABI

Participants reported five key factors that influenced return to work for adults with ABI. These were related to: the injury; the person; the environment; the workplace; and services, systems and processes. The factors, their categories and components are detailed in Table 1.

Theme 2. Provision of ABI vocational rehabilitation in Queensland: service delivery and pathways

Clinicians from public and privately funded services reported providing rehabilitation to address client goals of return to work (i.e., vocational rehabilitation); however, this was inconsistent both within and across services.

ABI vocational rehabilitation teams and models. Team members reported to be involved in ABI vocational rehabilitation in Queensland included: rehabilitation staff, including the multidisciplinary team (MDT): OT, neuropsychology, physiotherapy, speech pathology, social work, exercise physiology, clinical psychology, medical consultant (e.g., rehabilitation physician, geriatrician), specialised ABI vocational rehabilitation OT, a case coordinator (often vocational OT) and general practitioner (GP); insurer; case manager (usually from the funding body); employer; workplace return to work coordinator and/or human relations (HR) officers; plus other providers (e.g., DES, education supports). Additional team members were reported to be involved in ABI vocational rehabilitation in other states, including vocational rehabilitation counsellors, education tutors and recreational officers.

Service delivery of ABI vocational rehabilitation ranged from individual practice through to team-based, coordinated interventions across both public and private services. Individual practice involved delivery of specific roles and activities (e.g., vocational OT), case management services, sole clinician practice and siloed services within a multidisciplinary team. Coordinated team-based interventions were provided in both public services (coordinated by OT, psychologist, neuropsychologist, medical specialist or case manager) and private services (coordinated by ABI vocational OT or a funded case manager) and through teams involving both public and private clinicians working across services and service transitions.

The majority of Queensland participants described providing vocational rehabilitation prior to return to work / job placement, with a focus on pre-vocational rehabilitation, unpaid meaningful roles (e.g., volunteering) and skill development for work. Handover to other services usually occurred for active involvement / support during return to work, including to private vocational OT (through funded services), funded case managers and service coordinators (e.g., NISSQ, NDIS), workplace HR, the GP and / or to specific community-based ABI rehabilitation for case management and monitoring. Post-placement / post-return to work vocational rehabilitation including provision of longer term supports was less frequently described by participants; use of a place and train approach was not reported. Discipline-specific models (e.g., Person,

Table 1. Identified Factors Impacting Return to Work after ABI

<p>Factor</p> <p><i>'Exemplar quote(s)'</i></p> <ul style="list-style-type: none"> • Category <ul style="list-style-type: none"> – Components
<p>Injury related factors</p> <p><i>'On the surface, he was functioning really well, but when he had a real high processing sort of a job, he was like, "I just can't do it."</i></p> <p><i>'Five, six years, you know, really before people are back on their feet'</i></p> <ul style="list-style-type: none"> • Severity and timeframes: <ul style="list-style-type: none"> – All severities impact return to work, including mild – Mild ABI: appear to do well on the surface but 'hidden' deficits – Long timeframes needed for recovery and return to work – Return to work viewed as complicated and difficult – Return to work not always achieved: have potential to be successful versus not realistic that all will return to work • Impact of ABI on vocational rehabilitation and return to work: <ul style="list-style-type: none"> – Individual differences influence recovery and return to work; high variance in readiness and insight – Skills and deficits impact return to work (including insight, awareness, overconfidence, expectations, literal interpretations) – Difference between functional performance and work performance – Negative client perception of meaningful activities other than paid work – Break in employment relationship following long hospital stay
<p>Person related factors</p> <p><i>'Indigenous patients have the most appalling results as far as we're concerned'</i></p> <ul style="list-style-type: none"> • Pre-injury disadvantage • Social factors and psychosocial issues • Poorer outcomes and service gaps for indigenous people with injury • Service gaps and disadvantage for regional people with injury
<p>Environmental factors</p> <p><i>'Families ring up - there are so many other things that are going on ... as well as just getting back to work'</i></p> <ul style="list-style-type: none"> • Family – impact of other issues / events on client and family • Multifactorial and psychosocial issues
<p>Workplace and employment factors</p> <p><i>'But I think readiness too sometimes comes from the employer ... you've got to look at the other end and go, is this employer able, is this situation able to be changed or altered or supportive of this particular client?'</i></p> <ul style="list-style-type: none"> • Employment status • Return to work facilitators <ul style="list-style-type: none"> – Access to prior job – Employer education re: ABI and return to work – Importance of environmental fit and modifications with employer – Early voluntary work (meaningful activity) to gain confidence • Return to work barriers: <ul style="list-style-type: none"> – Early resignation from job / role (e.g., while in hospital) – Not having a job to return to – Job seeking new roles is challenging – Employer awareness of ABI, addressing cognitive issues in workplace
<p>Services, systems, processes</p> <p><i>'Across the river ... people don't necessarily have access to [specialised ABI rehabilitation services]'</i></p> <p><i>'Brain injury is not well understood outside of our community'</i></p> <ul style="list-style-type: none"> • No service access <ul style="list-style-type: none"> – No dedicated ABI vocational rehabilitation public service in Queensland – Loss of previous ABI vocational rehabilitation service (commonwealth funded) • Reduced service access <ul style="list-style-type: none"> – To specialised ABI rehabilitation and ABI vocational rehabilitation (including for milder clients), and non-specialised rehabilitation services – For long-term return to work – Separation of systems (community, hospital)

(Continued)

Table 1. (Continued)

<ul style="list-style-type: none"> • Community understanding of ABI <ul style="list-style-type: none"> – Reduced knowledge of ABI from other providers (e.g., General Practitioner (GP), Traditional vocational rehabilitation providers) – Focus on physical > cognitive factors, including for GP clearance for return to work – Negative experiences with non-ABI service providers and pathways – Low expectations of clients from providers • Funding <ul style="list-style-type: none"> – Impact of denied claims / lack of funded options for vocational rehabilitation – Financial incentives / disincentives may preclude return to work (e.g., income protection)
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Environment and Occupation Model (Law *et al.*, 1996), Canadian Model of Occupational Performance (Townsend & Polatajko, 2007)) were also reported to inform clinical practice.

Publicly funded service delivery. Opinions differed regarding the role of publicly funded rehabilitation services in providing ABI vocational rehabilitation, following the cessation of federally funded ABI vocational rehabilitation services in 2015. As one participant identified: *‘An alternative model or approach for Queensland Health has never been articulated to my knowledge, nor has any training been coordinated to help Health fill the gap. Nor has Health been necessarily funded to fill the gap’*. While some Queensland clinicians identified ABI vocational rehabilitation as a component of their rehabilitation by *‘working with patients who identify vocational goals, assisting to explore options or enablers to achieve these goals’*, other clinicians reported *‘clear boundaries on how involved we become’* in ABI vocational rehabilitation. This included the vocational rehabilitation activities undertaken: *‘in fact we clearly state that (work-site assessment) is not part of our role’*.

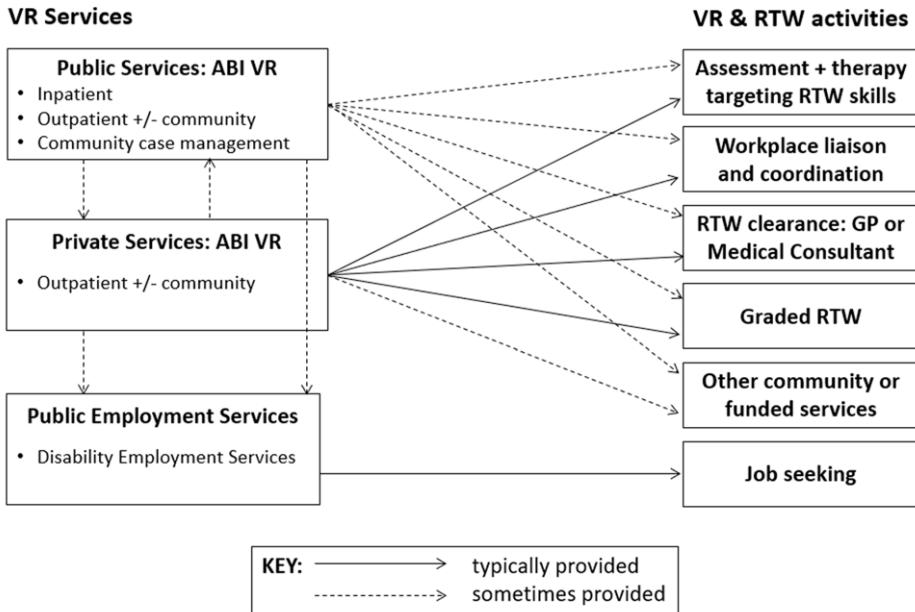
Health-based services provided vocational rehabilitation as a component of a rehabilitation program across the rehabilitation continuum, including during inpatient, outpatient and community rehabilitation and/or through case management services. Other government-funded services involved in return to work included the DES; however, these were reported to have limited scope, were not ABI specific, and focussed on *‘job seeking’* rather than vocational rehabilitation. These services were typically involved later post-injury. Experiences with DES from other states included restrictive client eligibility requirements (e.g., a minimum number of work hours).

Privately funded service delivery. Privately funded services were engaged through insurance schemes, including NIISQ, NDIS, non-Queensland schemes (e.g., icare NSW), Workcover and compulsory third party. A range of health practitioners were funded to address vocational goals as a component of rehabilitation or for specific vocational activities. Privately funded vocational rehabilitation services typically commenced post-hospital discharge and after a period of publicly funded rehabilitation. One participant described *‘a loop, not a pathway’* following private vocational rehabilitation, where clients were referred back to specialist public ABI services for comprehensive MDT review to further inform return to work processes.

Involvement of other organisations in vocational rehabilitation was also reported, including using volunteer services and linking with educational facilities (e.g., vocational training). GP involvement also occurred for service coordination and return to work clearance for some community / outpatient clients from both public and private rehabilitation services. Reported services, activities and referral pathways for vocational rehabilitation in Queensland are presented in Figure 2; solid lines represent those reported as typically provided by participants, dashed lines indicate those reported as being inconsistently provided by participants.

Theme 3. Reported ABI Vocational Rehabilitation Processes in Queensland

ABI vocational rehabilitation provision involved a range of specific processes with an over-arching process of vocational rehabilitation coordination described. Reported processes and their specific components are detailed below. Not all processes were reported by all participants or services.



Key: ABI – acquired brain injury; DES – disability employment service; GP – general practitioner; RTW – return to work; VR – vocational rehabilitation

Figure 2. Reported ABI vocational rehabilitation pathways and activities in Queensland.

Vocational rehabilitation coordination. ‘(In the) ABI context where it tends to need one person to coordinate it, (it’s) been an OT’. This was led by a member of the MDT (typically OT), and involved overall coordination of vocational rehabilitation, including coordinating the MDT for vocational rehabilitation provision, coordinating return to work processes, liaising with and providing education to stakeholders, and overseeing onward referrals. Use of a designated vocational rehabilitation coordinator was more frequent in privately funded services.

Liaison. ‘Liaison [...] where required’. Liaison and education occurred with all stakeholders (e.g., client, family, workplace / employer / HR, medical team, MDT, funder and other service providers) and included providing education on readiness for return to work and return to work processes. Family liaison involved providing education plus identifying family perceptions of readiness for return to work and other home-based factors for consideration. Liaison with employers / workplaces was provided inconsistently across services and timeframes in public rehabilitation.

Assessment

We assess them based on what skills they need to do that job, doing a task analysis and that could include standardised assessments but [...] we’re wanting to find out how much of their job they can do by setting them up as much as we can.

Participants performed a range of specific assessment components in their management of ABI vocational rehabilitation. These included: client interview; assessment of pre-vocational skills; formal assessment by MDT; functional assessments; task analysis (of workplace role, activities and duties); assessment of specific work skills and work simulation tasks; workplace / worksite assessment; other assessment information (including compliance with recommendations and family input); analysis and interpretation; determination of readiness for return to work; plus

Table 2. Indicators of Readiness for Return to Work post-ABI

Category	Exemplar Quote • Components
Client features	<p><i>'So for me, it's about function, it's about are they doing their self-cares, are they back into the home activities that they're responsible for ... that pre-vocational stuff ... can you get your kids to and from school ... catching the bus ... work hardening'.</i></p> <ul style="list-style-type: none"> • Insight and awareness; compliance with team recommendations / activities / rehabilitation • Pre-vocational skills / activity performance: independence with self-management, home / family / community roles • Functional performance plus performance on workplace tasks • Emotional readiness
Rehabilitation team assessment	<p><i>'Comparison of function ... insight and work role, to say is that an appropriate thing to be working on at this time?'</i></p> <ul style="list-style-type: none"> • Clinical impression of insight and awareness plus clinical judgement • Medically stable • Observation and MDT feedback on client: health condition, motivation, insight; function and role with regard to appropriateness for vocational rehabilitation • Performance on set assessments and tasks (team / neuropsychology assessment)
Workplace	<p><i>'The workplace ... lent him a laptop with that software so we could then do therapy activities with the software he was going to need to be able to do to get back to work'.</i></p> <ul style="list-style-type: none"> • Meet specific employer processes, advice and requirements for return to work • Employer flexibility: ability to change situation / support client, look at alternate duties within role, change goals / tasks, provide support • Workplace supports available
Funder	<p><i>'Timing often insurer dependent'.</i></p> <ul style="list-style-type: none"> • Insurer-dependent with regard to specific timing of vocational rehabilitation and return to work
Family	<p><i>'Talking with family members and significant others ... to get their perspective on things ... (if) that person is ready ... for the return to work'.</i></p> <ul style="list-style-type: none"> • Family perspective of readiness • Family insight and awareness

work assessment trials (reported by non-Queensland participants). Additional detail on these components is reported in Table A2. Participants also specifically reported indicators for return to work readiness, which are detailed in Table 2.

Goal setting and rehabilitation planning. *'(The vocational rehabilitation) plan was coordinated through goal setting across allied health, involving the patient ... generally led by the OT'.* Goal setting occurred between the client, clinician and/or MDT and was informed by vocational assessments. For funded vocational rehabilitation, a case manager brought the MDT together. Coordinated vocational rehabilitation approaches involved the development of an MDT vocational rehabilitation plan and were often led by OT or coordinated by the medical consultant.

Rehabilitation planning was identified as a component of vocational rehabilitation interventions: *'It's looking at what they can do, not what they can't do'.* This involved identifying specific employer processes and requirements for return to work, exploring enablers to achieve goals / strength-focused approaches, agreement with client regarding workplace tasks they are able to perform, providing therapy guided by cognitive rehabilitation principles and guidelines, and reviewing behavioural factors.

Intervention / therapy. Interventions were informed by assessment tasks and processes. Across all rehabilitation timepoints, interventions involved: provision of education; stakeholder liaison; feedback to the client; involvement of family in rehabilitation (including education); consideration of the home environment; providing social and emotional support for return to work and linking with peer networks. Specific intervention activities were reported for pre-vocational rehabilitation, vocational rehabilitation (including early vocational rehabilitation) and for supporting return to work, these are detailed below.

Pre-vocational rehabilitation. Activities included ongoing monitoring, building insight with assessments and tasks, focussing on pre-vocational skills and activities (self-management, community access, work hardening), and meaningful activities and roles, including *'how to live and involve themselves . . . without working 40 hours per week'*. Clients received feedback and education to link self-management skills with future return to work. This included steps for return to work, redirection of appropriate vocational rehabilitation goals and team feedback regarding assessment and readiness for return to work.

Vocational rehabilitation. Views on addressing vocational rehabilitation early in recovery varied. This ranged from: starting vocational rehabilitation *'from day 1'*; to acknowledging return to work as a future goal and *'keeping it on the table'*, including linking early rehabilitation activities and therapy to return to work goals; to not providing early vocational rehabilitation and only addressing vocational rehabilitation during outpatient therapy and when functionally independent with daily activities. One clinician identified: *'we're not really that worried about it if they've got deficits. Because if they can do things, using strategies . . . that's the most important thing, to get them back to work or part of their role'*.

Participants provided vocational rehabilitation via single and joint MDT therapy sessions. This included: (i) Task selection. *'Tailoring therapy tasks to that particular skill that they need to have at work'*. This was informed by clinical reasoning, linked to task analysis and involved therapy tailored to work tasks and skills, transferrable job skills, plus strategies to perform part of a work role, including embedding communication strategies for the workplace. (ii) Contextualised and salient rehabilitation. *'(Therapy) in the environment doing what this person needed to do'*. This involved practise of specific work tasks / simulation tasks, role plays, using workplace tools / equipment / software where possible, building skill and safety over time, including graded tasks and use of therapeutic assessment. (iii) Other vocational roles. *'Finding volunteering positions and community-based positions to link people in preparation for return to work'*. Interventions involved targeting skills for volunteering or study, assisting clients to find positions, providing education and liaison to other services, linking with DES.

Return to work coordination and linking with employer. *(He) was ready to go back to work . . . so I came in for a meeting with the Work Cover rep, plus the client, plus the (ABI rehabilitation) team, and have since taken that fellow through based on that initial return to work suitable duties (plan).*

Return to work coordination was undertaken by a member of the MDT (usually OT) or the vocational rehabilitation coordinator. Tasks included: specific sign-off processes for return to work (including medical and workplace clearance); stakeholder liaison, communication and education (e.g., client, workplace, insurer, GP, MDT, other services) including realistic information and expectations for return to work; developing and documenting a graded return to work plan; implementing supports (as able / available) and providing detailed handover and education to ongoing services and supports (e.g., vocational OT, workplace HR, employer) including education on ABI. The importance of supporting clients through planned, realistic and graded return to work was also identified.

You can't let them catastrophically fail, going back to work, because that throws them into total chaos again . . . you can't let them struggle with everything. You have to keep some of those challenges back to let them chip away at the smaller ones . . . like graduated return to work. You can't let them take on the biggest dragon straight away.

In some public services, employer liaison was considered the responsibility of the client and / or GP; rehabilitation clinicians did not always liaise directly with the workplace while providing vocational rehabilitation. Other variations involved workplace HR implementing and monitoring the return to work plan in conjunction with the GP, after liaison with the MDT. Providing

concurrent ABI vocational rehabilitation therapy during return to work was reported as valuable but was less commonly provided.

Onward referrals. *‘To effectively hand over from service to service’.* Referrals were made: for clients undertaking service transitions (e.g., public to private rehabilitation, return to work transitions); to access specific members of the MDT for vocational rehabilitation (e.g., by a funded case manager); for future MDT review to track progress (e.g., following transition back to work); and to community participation-based services to establish community and peer connections beyond health services. Referrals were undertaken by single disciplines, the MDT and / or vocational rehabilitation coordinators, with early referrals reported to improve access and reduce barriers to accessing follow-up services.

Theme 4. Identified gaps in ABI vocational rehabilitation

Current service gaps for ABI vocational rehabilitation were identified by participants in the areas of: access and availability; pathways, service transitions and service delivery; system / policy / legislation; community supports and community knowledge / training in ABI and ABI vocational rehabilitation. These are reported in Table 3.

Theme 5. Ideal services for ABI vocational rehabilitation in Queensland

Features of ideal future ABI vocational rehabilitation services were specifically identified by non-ABITRS participants across the rehabilitation and return to work continuum. Recommendations were made in five key areas: service access; service delivery; team and clinician features; service pathways and supports; and system-level changes for ABI vocational rehabilitation in Queensland. These are reported below in Table 4.

Ideal service provision and service delivery pathways for ABI vocational rehabilitation in Queensland are presented in Figure 3, informed by findings across the study and detailing core vocational rehabilitation activities, timing of services, and service access across all phases of recovery. Key features include the provision of vocational rehabilitation across the rehabilitation continuum, from early in recovery through to long-term services; involving a range of vocational activities and interventions, including pre-vocational interventions to support meaningful activity and other vocational roles, specific interventions to support skill building and readiness for return to work, providing vocational coordination, interventions to support clients during return to work, plus addressing job seeking and job maintenance. Being able to re-engage with services to meet changing needs across a person’s vocational journey or career are also addressed.

Discussion

This study has identified the clinical practice, service delivery methods, experiences and views of health professionals regarding ABI vocational rehabilitation in Queensland. Five themes were identified: factors influencing return to work, service delivery, clinical processes, service gaps and ideal practice. Overall, ABI vocational rehabilitation was inconsistently provided, with varied processes, service access and rehabilitation timeframes reported; while identified service gaps and views on ideal services were similar across participants and services. Findings align with previous studies that identified adults with ABI have varied and limited access to specialised vocational rehabilitation (Libeson *et al.*, 2018; McRae *et al.*, 2016; Van Velzen *et al.*, 2020) which negatively impacts return to work (Libeson *et al.*, 2018).

Facilitators of return to work

Given the identified differences in service provision, it is pertinent that the factors clinicians identified as impacting return to work (in theme 1) were consistent with the international literature.

Table 3. Identified Gaps in ABI Vocational Rehabilitation

<p>Access & Availability to ABI Vocational Rehabilitation / specialised services <i>'There are services available, you know, post injury, but ... the patients often aren't ready to return to work three months after injury'.</i></p> <ul style="list-style-type: none"> • For clients with milder injury, non-funded clients, clients not seen by state-wide services; access to community transition services to support early vocational rehabilitation gains • Service provision and scope of ABI vocational rehabilitation (including early ABI vocational rehabilitation) from public services • Intensity of funded services; duration of public ABI rehabilitation; numbers of experienced providers (public and private) • Long-term referral pathways and vocational rehabilitation supports, including for clients ready to return to work years post-injury • Service access for regional and rural clients, and for disadvantaged populations
<p>Pathways, service transitions and service delivery <i>'It can look quite disjointed ... for patients, and that it causes frustration'.</i> <i>'They don't sort of see that pathway. I think we could do better at making that clearer ... he's looking at me going, so, you're going to be my person? And I'm like, "Yeah. I'll be your person".'</i></p> <ul style="list-style-type: none"> • Clear pathway / loop for ABI vocational rehabilitation, plus clinician and client knowledge of pathway and roles • Continuity of care and communication between stakeholders regarding: (i) return to work processes, recommendations, clearances; (ii) pathways, services and roles • Vocational rehabilitation included as standard handover • Clinician knowledge of return to work processes, engaging and accessing vocational rehabilitation providers • Evidence base for ABI vocational rehabilitation / best practice – for complex populations, ABI specific tools and assessments • Clinician skill / training – in vocational rehabilitation; confidence for worksite assessment • Integrating DES with health services; consistency between DES providers for return to work activities / supports
<p>System / policy / legislation <i>'Lack of policy / law around supporting people with ABI / disability RTW [return to work] with a previous employer, no legal obligations to assist RTW as in other countries ... (no) Government incentives ... for employers to employ people with ABI/disability'.</i></p> <ul style="list-style-type: none"> • Governance and regulation of DES sector, to better meet the needs of people with ABI • Policy / incentives to support return to previous employer; or to employ / re-employ people with disability and severe ABI • Increased access to funding schemes (e.g., supported wage scheme)
<p>Community Supports <i>'It's a community problem ... Service clubs, church groups, all the people we used to use, they're just not ... getting (involved)'.</i></p> <ul style="list-style-type: none"> • For other vocational roles (volunteering, study / education) and from community services / groups / clubs • Workplace Supports: for supported work assessment / return to work trials, in situ supports, long-term supports • Personal community and social supports – decline over time
<p>Community knowledge / training in ABI and ABI Vocational Rehabilitation <i>'Knowledge of ABI by voc [vocational] providers and employers'</i></p> <ul style="list-style-type: none"> • GPs • Traditional vocational providers • Employers / Workplace • Education services • DES (and DES providers); other government services – e.g., Centrelink

This included factors related to the injury (Bould & Callaway, 2021; Libeson et al., 2018; van Velzen et al., 2011), the individual (Donker-Cools et al., 2018; Donker-Cools, Daams, Wind, & Frings-Dresen, 2016; Shames et al., 2007), the workplace (Bould & Callaway, 2021; Donker-Cools et al., 2018; Macaden et al., 2010; Rubenson et al., 2007), services/systems and policies (Libeson et al., 2018; McRae et al., 2016; Shames et al., 2007; van Velzen et al., 2011) and environmental factors (Donker-Cools et al., 2018; Libeson et al., 2018). As the contextual experiences of study participants align with those reported across wider services and settings, this strengthens the relevance of study findings to clinicians and services outside of Queensland. This includes those who provide healthcare and rehabilitation within similar frameworks, such

Table 4. Ideal ABI Vocational Rehabilitation Services in Queensland

<p>Access to services for ABI vocational rehabilitation: <i>'[to have] some more resources ... to be able to see them for a little bit longer ... more flexibility in the model'</i> <i>'Ideally, a dedicated VR [vocational rehabilitation] team ... with capacity to extend to wherever the clients live'.</i></p> <ul style="list-style-type: none"> • ABI vocational rehabilitation provided: <ul style="list-style-type: none"> ○ State-wide, either within established services or through (new) dedicated vocational rehabilitation services; with (new) specific funding for provision of vocational rehabilitation ○ Across the continuum, from early in recovery (including in-hospital), during outpatient and community rehabilitation, and for long timeframes post-injury • More access to ABI vocational rehabilitation and transitional rehabilitation • Flexible service timeframes, involving monitoring of clients, long-term follow-up and supports • Facilitate access to other return to work supports (e.g., DES, traditional vocational rehabilitation, other government services) as required across all timeframes.
<p>ABI vocational rehabilitation service delivery: <i>'The entire RTW [return to work] process (takes time). So if ... staff were to commence RTW activities ... such as workplace assessment, designing graduated RTW programs, etc., then this would need to be handed over to another service'.</i></p> <ul style="list-style-type: none"> • Coordination of ABI vocational rehabilitation: either through (i) one informed contact or advocate throughout a client's rehabilitation or (ii) using a specific vocational rehabilitation coordinator within each service, for stakeholder liaison from early post-injury and to coordinate vocational rehabilitation and return to work / volunteering / work trials within each service. • Better <i>'bridging between the services'</i> with planned transitions, increased communication, consistent information provision and handovers, and having vocational rehabilitation handover as standard practice at all timepoints. • Early ABI vocational rehabilitation activities: providing education, having a positive future focus, dedicated early vocational rehabilitation goal planning, addressing career and vocational options, focus on meaningful activities, maintaining contact with employers from early in recovery. • Vocational rehabilitation activities: direct liaison with employers; workplace assessment and clear RTW planning; supporting volunteering trials and post-placement services (e.g., job monitoring); access to vocational counsellors to assist goal planning and career path options; conducting team-based workplace assessments / worksite visits; working with clients to support their engagement and participation with DES providers.
<p>Features of ABI vocational rehabilitation teams and clinicians: <i>'It needs to be "the right person for the job" - this is absolutely crucial. Someone who's passionate about work and truly believes that it's possible for anyone, regardless of severity of injury or work background, to find their niche in employment'.</i></p> <ul style="list-style-type: none"> • MDT involving public, private or mixed service providers, including vocational counsellors, providing client-centred, flexible services • Clinicians skilled in ABI and vocational rehabilitation, with knowledge of supports, systems and employer • Clinician features: an openness regarding return to work; friendly, approachable and positive; forming therapeutic relationships; good communication skills with all stakeholders
<p>Service pathways & supports: <i>'It's good to know what we all can do and what we all can offer because I think that's part of then understanding that whole process as well ... this is how I can fit into this pathway or this process'.</i> <i>'Networking between clinicians would be useful to support us'</i></p> <ul style="list-style-type: none"> • Developing dedicated pathways for ABI vocational rehabilitation in Queensland, including having a <i>'loop, rather than just a straight pathway'</i>, with clear referral pathways and processes, and improved service transitions • Forming partnerships and formal links with other vocational rehabilitation service providers • Developing clinician networks for ABI vocational rehabilitation in Queensland • Specific clinician training, improved resourcing and upskilling for clinicians, and access to staff supports for vocational rehabilitation decisions. • Dedicated leadership and direction for state-wide ABI vocational rehabilitation • A framework for ABI vocational rehabilitation in Queensland and training in implementation
<p>System level changes: <i>'A service would need access to insurance for volunteer and paid work trials and placements, access to the employment support systems that facilitate things like employer incentives, equipment, supported wage scheme'.</i></p> <ul style="list-style-type: none"> • Employer incentives and access to supported wage schemes for adults with ABI • Access to funding for work / volunteering trials and to fund on-the-job supports. • Informed and supportive employers

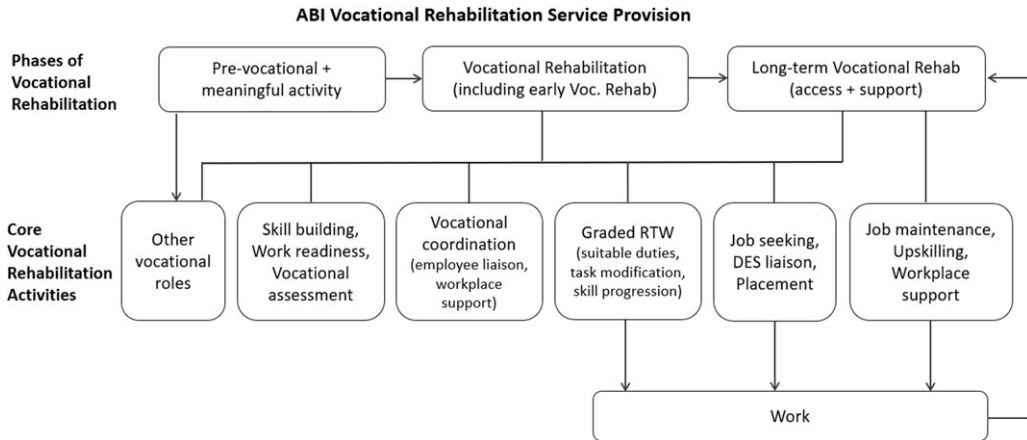


Figure 3. Ideal ABI Vocational Rehabilitation Service Provision.

as the World Health Organisation's International Classification of Functioning, Disability and Health (ICF) (World Health Organisation, 2001).

Access to previous employment was an identified facilitator of return to work, supporting findings from other national and international studies (Macaden et al., 2010; McRae et al., 2016; Shames et al., 2007). However, early job separation influenced clients' access to employment. Facilitating communication with employers early post-injury to maintain employment relationships and utilising a key person for all vocational rehabilitation communication (e.g., a vocational rehabilitation coordinator) were strategies identified by participants, yet these were not reported to be commonly provided in practice. This is likely influenced by reported service limitations, views on scope of practice and an absence of processes to support implementation. Addressing this in clinical practice may require changes to views of professional role and scope across clinicians and services, and be assisted through evidence-based behaviour change and implementation processes (Atkins et al., 2017; Michie, van Stralen, & West, 2011). Employing these strategies may positively influence service delivery and potentially impact client transitions and outcomes long term.

Engaging clients in meaningful community activities and volunteering were also identified facilitators for returning to work (across several themes), aligning with prior research findings (Levack et al., 2004; Macaden et al., 2010). However, clients' reluctance to initially engage in pre-vocational activities (versus return to paid work) was an identified barrier, impacting long-term vocational outcomes. Clinicians reported addressing this issue in clinical practice, by using meaningful activity as a component of ABI vocational rehabilitation, particularly in pre-vocational and early vocational rehabilitation, and as a specific component of vocational rehabilitation in future ideal service pathways. By explicitly linking early rehabilitation activities and community-based meaningful activities to long-term return to work goals, this may assist clients to adjust their expectations and improve engagement in this component of vocational rehabilitation.

ABI vocational rehabilitation service delivery

Overall, provision of ABI vocational rehabilitation varied in Queensland, with differences in service delivery and activities / components provided (themes two and three). This aligns with international research that identified the delivery of ABI vocational rehabilitation is influenced by service-specific features, including context, policies and systems (Donker-Cools, Wind, & Frings-Dresen, 2016; Shames et al., 2007; Van Velzen et al., 2020). Delivery of specific or dedicated

ABI vocational rehabilitation was most consistently reported by community-based private practitioners in conjunction with supportive employers, for insurance-funded rehabilitation. Most public-service participants reported providing rehabilitation to address return to work goals as a component of a rehabilitation program, from inpatient to community rehabilitation, but overall provided vocational rehabilitation less consistently and with fewer components. These findings support those of McRae *et al.* (2016) who reported better access to return to work and vocational rehabilitation services in Australia for clients with ABI receiving funded rehabilitation, and also align with newly developed models of employment pathways in Australia for adults with ABI who have access to ongoing insurance-funded rehabilitation (Bould & Callaway, 2021).

Even with limitations and variation in service delivery, the vocational rehabilitation components delivered reflect international practice (Dillahunt-Aspillaga *et al.*, 2015; Stergiou-Kita *et al.*, 2010; Van Velzen *et al.*, 2020), including those most commonly delivered (e.g., education, assessment, therapy, determining readiness for return to work). Components less commonly provided included those involving the workplace and active return to work (e.g., employer contact, worksite visits and facilitating return to work) which were regularly undertaken by privately funded clinicians but not commonly performed by public rehabilitation staff. While no set model or framework for delivery of ABI vocational rehabilitation was reported by public or private practitioners, it appears that public services use models similar to program-based vocational rehabilitation (Fadyl & McPherson, 2009) with private services utilising aspects of both case management and program-based approaches (Fadyl & McPherson, 2009). Even with these differences, Queensland clinicians are providing a range of vocational rehabilitation components in line with current international practice (Dillahunt-Aspillaga *et al.*, 2015; Stergiou-Kita *et al.*, 2010; Van Velzen *et al.*, 2020).

With the advent of insurance schemes (e.g., NISQ, NDIS) that support clients' goals of returning to work, access to funding for privately provided ABI vocational rehabilitation services should improve. For clients who access public rehabilitation to support return to work, the smaller scale services provided and service delivery limitations may impact successful transition to work and employment outcomes. Given the low rate of return to work globally for adults with ABI, around 40% (van Velzen *et al.*, 2009), supporting clients during this critical phase is crucial, and should be considered a priority for future service development. Further, as maintaining employment is a recognised difficulty post-injury (Hart *et al.*, 2006), the lack of longer term supports from both public and private services may negatively influence job retention for those individuals who do initially return to work. Developing services and processes to support clients with longer term return to work needs was identified by participants as a component of ideal services and is a future direction for clinical service delivery. Additionally, developing processes to support transitions across services and between different funding pathways and providers is warranted, aligning with emerging models of employment support in Australia (Bould & Callaway, 2021) and previously identified need for transitional supports for ABI in Queensland (Queensland Health, 2016).

Recommendations for future practice

In the absence of funding for dedicated public ABI vocational rehabilitation services and with limited experienced private providers, improving access to ABI vocational rehabilitation within current services in Queensland is challenging. However, several recommendations can be made from the findings in this study, which may also have relevance to clinicians in other settings with similar service delivery models or constraints. Firstly, as adults with ABI typically commence rehabilitation in the public system, improving the delivery of vocational rehabilitation as a component of ABI rehabilitation across public services and increasing the range of vocational rehabilitation components provided would significantly expand service delivery. This has previously been recommended in other sectors (Burns *et al.*, 2018) and would improve the delivery of vocational

rehabilitation from early in recovery (Kendall, et al., 2006; Radford et al., 2018) through to post-job placement (Hart et al., 2010; Kendall et al., 2006; Ownsworth, 2010).

Secondly, clinician confidence and views on scope of practice may be improved by supporting clinicians to develop skills and experience in ABI vocational rehabilitation, since this is considered a specialised rehabilitation area (Libeson et al., 2018; Shames et al., 2007; van Velzen et al., 2011). Additional supports may be provided by developing ABI vocational rehabilitation clinician networks across both public and private services, as identified by participants as part of ideal future services. Thirdly, it is recommended that inequitable access to specialised ABI rehabilitation services (from inpatient to community) be addressed. The need for increased specialist ABI services is acknowledged within Queensland Health's state-wide plan for ABI rehabilitation (Queensland Health, 2016) and is in part attributed to geographical factors. Improving access to specialist ABI rehabilitation is required not only for those in regional and remote areas but also for those with longer-term rehabilitation needs, as participants reported that the timing of rehabilitation did not always align with client readiness for return to work.

If access to specific ABI rehabilitation increases, then improving provision of vocational rehabilitation by these services will better address client goals of returning to work. Improving access to ABI vocational rehabilitation long term, including recurrent access, is a system-level recommendation, supporting previous recommendations from other national and international studies (Hart et al., 2010; Kendall et al., 2006; Libeson et al., 2018; Ownsworth, 2010; Shames et al., 2007; van Velzen et al., 2011). This can occur at many levels, including through service expansion or redesign, upskilling of existing services, increasing the number of specialised ABI services, increasing client access to funded insurance services and expanding service delivery methods to optimise services to regional and rural areas.

The fourth recommendation is to address other factors identified as contributing to varied service provision of ABI vocational rehabilitation. This involves improving vocational rehabilitation service delivery, including promoting team-based over siloed approaches, implementing a vocational rehabilitation coordinator role and broadening service boundaries for specific vocational rehabilitation activities (e.g., scope to conduct workplace visits). Addressing service-level factors to support the delivery of vocational rehabilitation may require district-level negotiation on tasks able to be performed within current workplaces (e.g., worksite visits), development of frameworks, procedures and tools to support delivery of consistent vocational rehabilitation processes across and between services, implementing new roles within rehabilitation teams (e.g., vocational rehabilitation coordinators) and improving handover of vocational information at all timepoints, both between and across services. This should improve the consistency of vocational rehabilitation activities provided and improve client access to vocational rehabilitation as part of ABI rehabilitation across the state.

The fifth and final recommendation involves improving transitions across services and developing partnerships outside of rehabilitation services for ABI vocational rehabilitation. Actively fostering partnerships with other services and continuing to provide education to external and community partners (e.g., DES) will help to improve service provision from other return to work service providers, to positively influence vocational outcomes for people with ABI in Queensland.

Limitations

The use of two different methods of data collection with participants (i.e., surveys and focus groups) may be considered a limitation. While this allowed clinicians from multiple locations to participate, including those in regional areas, it influenced the type of information collected and resulting level of data analysis. For example, focus groups resulted in richer discussion of topics, with resultant increased latent content on analysis; however, this impacted the ability to quantify specific findings through descriptive statistics, as may have arisen through solely individual survey completion. Secondly, generalisation of study results to other settings and services

may be limited, due to the focus on Queensland-based service delivery and practice. However, given the similarities between study results and the international literature, findings may generalise to other similar service delivery settings, including rehabilitation services with limited access to dedicated ABI vocational rehabilitation, and the suggested recommendations for practice may have relevance and applicability outside of Queensland-based services.

Conclusion

Overall, Queensland clinicians are delivering aspects of vocational rehabilitation to people with ABI and supporting return to work through varied service provision, whilst working within the boundaries of their service. Findings and future clinical directions have been identified from this study, including providing increased components of vocational rehabilitation in practice and providing coordinated team-based vocational rehabilitation, advocating for broader vocational rehabilitation activities to be conducted within services and increasing staff skills in ABI vocational rehabilitation. Study findings also inform state-wide practice and future service improvements, including improving service transitions and strengthening linkages to existing external services, as well as identifying clinician level and system-level change. These findings may also translate to other Australian and international services that provide rehabilitation within similar healthcare frameworks (i.e., ICF) (World Health Organisation, 2001) and where access to dedicated ABI vocational rehabilitation is limited, or methods of service provision are varied or ad hoc. Incorporating study findings into clinical and service-level development at a local level and beyond is expected to improve overall services and longer term outcomes for adults with ABI. This is an identified future research direction.

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Conflicts of interest. None.

Ethical standards. The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, as revised in 2008.

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Table A1. Participant Questions (Focus Groups and Surveys)

Topic area	Question
1. Experiences with Vocational Rehabilitation	What are your previous experiences in providing vocational rehabilitation with: (i) Adults with ABI; (ii) Non-ABI populations? Please comment on timing of these services.
2. Vocational Rehabilitation pathways / services	Are you aware of, or had experience with vocational rehabilitation pathways or dedicated vocational rehabilitation services for adults with ABI? Please describe the type of service / pathway, features (e.g., staffing, access), timing, location / area.
3. Vocational Rehabilitation frameworks and models	If you have experience in providing ABI vocational rehabilitation, how would you describe the framework or model used?
4. Vocational Rehabilitation approaches and roles	If you have experience in providing vocational rehabilitation, please describe the rehabilitation approach and roles, and the population targeted.
5. Tools for Vocational Rehabilitation	What tools and indicators do you use to determine client readiness for ABI vocational rehabilitation and return to work? What tools do you use to determine ABI vocational rehabilitation activities and timing of activities?
6. Service gaps	What are the gaps in current services and frameworks for: (i) ABI vocational rehabilitation? (ii) Early ABI vocational rehabilitation (i.e., early post-hospital discharge)?
7. Ideal Service [asked to non-ABITRS participants only]	What would an ideal ABI vocational rehabilitation service entail? (e.g., processes, coordination, timing, staffing)

Key: ABI – acquired brain injury

Table A2. ABI Vocational Rehabilitation Assessment Components

Assessment Component	Features
Client interview	Initial semi-structured interview
Assessment of pre-vocational skills	<ul style="list-style-type: none"> • Self-management in the home / family / community / in rehabilitation • Functional observation, task performance (e.g., fatigue, completion and tolerance of multiple activities, community access), client compliance; activity tolerance guides capacity (hours) for future work trials
Formal assessment by MDT	<ul style="list-style-type: none"> • Conducted by single disciplines and / or MDT • Neuropsychology assessment for higher level roles / professional registration board requirements • Assessment areas: cognitive processes, processing speed, self-awareness and self-regulation, communication and cognitive-communication, emotional state / readiness, behaviour, physical skills, social and emotional supports • Assessments used: screening assessments (for communication and cognition); IQ scales; Myers Briggs test; Cognitive Assessment of Minnesota; City of Toronto cognitive / behavioural job demands analysis; Workability support scale; TBI work instability scale; Canadian Occupational Performance Measure; Perceive, Recall, Plan, Perform (PRPP) system; Goal attainment scaling
Functional assessments	<ul style="list-style-type: none"> • Clinical observation and judgements; functional assessments of skills and return to work skills; informal communication assessments • Some preference for functional work-based assessment over formal assessment
Task analysis	Identify workplace activities, specific duties, definitions of role / tasks, suitable duties (particularly for complex workplaces)

(Continued)

Table A2. (Continued)

Assessment Component	Features
Assessment of specific work-skills plus work simulation tasks	<ul style="list-style-type: none"> • Formal assessment of specific work skills (e.g., physical skills / dexterity, processing speed, fatigue) and functional capacity assessments (e.g., push/pull loads) • Specific work simulation tasks (graded activities and assessment) to aid determination of readiness for return to work • For risk-based workplace roles and activities
Workplace assessment	<ul style="list-style-type: none"> • By vocational OT, vocational rehabilitation coordinator, return to work coordinator or MDT • Assessment of the employer, workplace adaptability (including supports and alternate duties), advice from the employer
Other assessment information	<ul style="list-style-type: none"> • Client compliance with activities / tasks and recommendations • Family perspective regarding readiness for return to work • Use of vocational counsellor assessments and specific vocational tools (e.g., transferable skills analysis, Readiness for Return to Work (RRTW) scale, literacy screening) – recommended by non-Queensland ABI vocational rehabilitation and Queensland vocational rehabilitation (non-ABI) providers.
Analysis and interpretation	Clinical reasoning, observation, clinical judgement and experience to complement assessment analysis
Determination of return to work	<ul style="list-style-type: none"> • MDT discussion of results and next steps • Review client's health condition, motivation, insight, skills and abilities, work role and supports, and risk management • Return to work readiness is informed by 'a combination' of factors - see Table 3.
Work assessment trials	<ul style="list-style-type: none"> • Not reported in Queensland rehabilitation services • Occur in collaboration with DES; risk management if team disagreement on readiness; clients supported to commence trials if limited risk to safety, self and others (occurred in non-Queensland services)

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