

ORIGINAL ARTICLE

Implementation of a leisure reintegration programme for people with acquired brain injury in a community rehabilitation programme: a feasibility study

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Abstract

Background: Participation in leisure activities is significantly impacted following acquired brain injury (ABI). Despite this being a common community rehabilitation goal, re-engagement with leisure activities following ABI is poorly addressed within Australian community rehabilitation services, which often cater to a mixed-diagnostic group of both ABI and non-ABI clients.

Objectives: To evaluate the feasibility and effect of a leisure reintegration group programme within a community rehabilitation service.

Method: A single-site, pre- and post-test feasibility study was conducted. Three cohorts of a semi-structured leisure group programme were offered, each conducted over eight sessions within 4 weeks. The Nottingham Leisure Questionnaire (NLQ) and Leisure Satisfaction Measure (LSM) were used as primary outcome measures. Measures of acceptability, including adherence, and a post-intervention participant survey were also completed.

Results: Of the 14 consenting participants, 9 completed all outcome measures. Mean change score for the NLQ was -3.63 ($p = 0.11$) and the LSM 4.25 ($p = 0.46$). The programme was well attended (79%), acceptable for ABI and non-ABI participants and able to be implemented within an existing community rehabilitation service.

Conclusion: Providing a leisure reintegration group programme met an identified need, developed client and carer capacity and could be delivered within a community rehabilitation service for clients with mixed diagnoses including ABI. A larger trial is warranted to examine the effectiveness and cost-effectiveness of this intervention for people with ABI.

Keywords: Rehabilitation; leisure; occupational therapy; community integration; brain injury

Acquired brain injury (ABI) is a leading cause of disability in Australia, with an estimated 1 in 45 Australians living with the condition (Australian Institute of Health and Welfare [AIHW], 2007). ABI may result from stroke, trauma, hypoxia or infection (Turner-Stokes, Pick, Disler & Wade, 2015) and can impact on several areas of a person's physical, cognitive and/or sensory function, leading to disruptions in a person's ability to participate in activities and life roles of importance. The associated disability arising from ABI leaves many people experiencing lower levels of independence in daily living skills, as well as social and leisure activity participation (McLean, Jarus, Hubley & Jongbloed, 2014). The role of the occupational therapist following discharge from inpatient settings should ideally focus on redressing these impacts on function so as to increase

independence, not only in personal and domestic activities of daily living, but also community integration domains such as social activities, work and leisure.

Community integration is a key focus of occupational therapy rehabilitation when working with adults with ABI. Several definitions of community integration exist in the literature, with most including aspects of developing independent living, social connectivity and being engaged in meaningful occupations (including productivity and leisure) (Shaikh, Kersten, Siegert & Theadom, 2019; McColl et al., 1998). Many people living with ABI report poor outcomes in community integration, often being unable to return to previous activities at work or within their community (Mitchell, Veitch & Passey, 2014; Sandhaug, Andelic, Langhammer & Mygland, 2015). Furthermore, decreased participation in meaningful activity and leisure has been shown to lead to social isolation and a lack of friendships, with subsequent detrimental effects on self-reported quality of life and psychological wellbeing (Mitchell et al., 2014; McLean et al., 2014). Clients of ABI community rehabilitation programmes identify key goals related to leisure, highlighting the importance of resuming leisure activity participation after brain injury (Kuipers, Foster, Carlson & Moy, 2003). Whilst evidence supports community rehabilitation with a focus on leisure participation after brain injury (Fleming et al., 2011), the key focus of traditional community rehabilitation services has namely been on remediating impairments in personal care, mobility and cognition (McCabe et al., 2007; Mitchell et al., 2014; Fleming et al., 2011). Community rehabilitation services are an ideal setting for addressing goals of leisure reintegration and community participation, given they are provided within the community.

Few studies have explored the effectiveness of community-based leisure reintegration programmes. Mitchell et al. (2014) conducted a week-long, residential leisure reintegration programme based on Peterson and Gunn's Leisure Education Content Model (1984) which included a combination of education and practical sessions incorporating leisure awareness, leisure resources, social interaction skills and leisure activity skills. Participants of this programme were found to have significant improvements in measures of leisure satisfaction, quality of life and self-esteem (Mitchell et al., 2014). Employing a similar approach, Geurtsen, Martina, Van Heugten & Geurts (2008) developed a community reintegration programme comprising three modules of independent living, social-emotional wellbeing and work (with the work module including an exploration of leisure activities). Similarly, this study reported improvements in participant's quality of life, community integration, employability and decreases in depression. In a randomised controlled trial, Desrosiers et al. (2007) evaluated the efficacy of a home-based leisure education programme (with leisure awareness, self-awareness and competency development components) for stroke survivors. Results from this trial were a greater increase in, and satisfaction with, active leisure participation for the intervention group (Desrosiers et al., 2007). Although these studies had a small number of participants, they support the use of a structured community-based programme to address leisure reintegration in the ABI population (Mitchell et al., 2014; Geurtsen et al., 2008; Desrosiers et al., 2007). Of particular importance is all of these programmes included a combination of education and practical sessions, to foster collaborative problem solving and address common barriers to participation in activities. Despite the variety in the type of leisure activities included in the practical component of these aforementioned studies, the underpinning key factor is access to support to promote the initial engagement in an identified activity. This suggests that leisure reintegration programmes can allow for individualisation of participants activities of interest, which is an important indicator in determining a positive influence on quality of life (McLean et al., 2014). Furthermore, linking participants with existing community-based activities or programmes, and accessing disability support or funding has also been shown to lead to sustainable leisure engagement (Tate, Wakim & Genders, 2014), thus should be an important consideration as formal rehabilitation services are generally time-limited, despite community integration being a lifelong need after ABI.

Whilst the importance of leisure participation for persons with ABI has been identified, and research suggests ways to deliver this effectively, community rehabilitation services have not

consistently offered leisure programmes. Additionally, there is limited evidence to inform *how* community services should provide interventions targeted at increasing leisure participation for this client group. Other important factors for consideration include the time-limited nature of community rehabilitation services, high clinical demand on staff and the mixed-diagnostic group of many services (i.e. they are not ABI-specific services).

This paper will evaluate the feasibility of providing a semi-structured community-based leisure reintegration programme, offered within a typical, time-limited community rehabilitation service with a mixed-diagnostic group that included ABI.

The aims of this study were to: (i) describe a leisure reintegration programme offered in a community rehabilitation service, (ii) evaluate changes in self-reported leisure participation and satisfaction of participants before and after the programme, (iii) to examine acceptability of the leisure reintegration programme.

Method

Design

This quasi-experimental study, which employed a prospective, single-group, pre- and post-test design was conducted at a community rehabilitation programme on the Gold Coast, Australia. Recruited participants engaged in eight sessions of the structured leisure group programme (intervention) over 4 weeks. Outcomes were measured before (session one; baseline) and after the intervention (session eight; end of intervention). The Gold Coast Hospital and Health Service Human Research Ethics Committee waived the need for ethics approval on the basis that the project is recognised as not being research in accordance with the definition of Research on page 6 of the National Statement of Ethical Conduct in Human Research (2007) Update May 2015. All recruited participants provided written informed consent.

Setting

The study was conducted in a community rehabilitation service, which provides outpatients (a mixed-diagnostic group, including ABI) with up to 12 weeks of multidisciplinary rehabilitation intervention. Referrals to the service are most commonly received from inpatient rehabilitation or acute hospital settings, of which most require rehabilitation following an ABI. Services are provided either at the centre or within the client's home/local community.

Participants

Participants were selected from existing community rehabilitation service clients who identified goals of engaging in leisure activities or increasing their community integration. Potential participants were identified by their treating allied health professional and invited to attend the leisure reintegration programme as a part of their usual 12-week community rehabilitation programme.

Participants were considered eligible to participate in the leisure programme if they had: a) returned to living in the community post inpatient rehabilitation/hospital admission; b) identified leisure participation goals and; c) the ability to participate in a group programme. Potential participants were excluded if they were considered to have: a) significantly impaired cognition; b) behaviours of concern; or c) acute mental health concerns that meant they were not able to participate in a group setting. This was determined by the treating clinician's previous assessments and observations of the clients, and resulting opinion of their ability to participate in a group programme. Participants with receptive or expressive language impairments were included if the treating team determined that they could be appropriately supported to participate in a group programme. Examples of this are described below under intervention.

Intervention

The leisure reintegration programme was a 4-week programme run twice a week (Monday and Wednesday, 1–3 pm), providing a total of eight sessions. An occupational therapist was the lead facilitator of the programme and was present for all eight sessions. Other allied health disciplines co-facilitated the programme on a rotating basis. This included physiotherapists (four sessions), social workers (two sessions), clinical psychologists (one session), neuropsychologists (one session) and allied health assistants (four sessions). Speech pathologists attended sessions where participants with language impairments required additional support (sessions 1, 2, 5 and 8). These participants were also supported by the provision of an aphasia friendly version of the participant handbook. All staff attended 2 × 1-h sessions of face-to-face training with the lead facilitator prior to the commencement of the pilot. A staff handbook and session run sheets were available to support training and facilitation of group sessions.

Three cohorts of the programme were run for the purpose of this feasibility study. A maximum of eight participants were invited to attend each cohort, with the expectation that one to two participants would not attend; the goal being to have a minimum of six participants attend each session. The programme, called 'Leisure Seekers', was modelled off Peterson and Gunn's Leisure Education Content Model (Peterson & Gunn, 1984) consisting of four components: leisure awareness, leisure resources, social interaction skills and leisure activity skills. The programme aim was to increase engagement in leisure activities and community integration by supporting participants to develop independent leisure participation skills. The programme objectives were to enable participants to:

- Identify leisure activities and problem solve barriers to participation to enable ongoing, independent participation after completing the programme, and
- Have improved quality of life as a result of increased community integration through leisure participation.

Four education and planning sessions (sessions 1, 2, 5 & 8) were attended at the community rehabilitation centre where participants developed their goals for the programme, selected which leisure activities they wanted to try during the programme, planned those activities as a group, problem solved barriers and made action plans for how they would continue to engage in their chosen leisure activities after programme completion. These sessions were facilitated by two therapists (occupational therapist and another discipline). The other four sessions (sessions 3, 4, 6 & 7) were practical sessions, in which the group attended a leisure activity together with the facilitating therapists (occupational therapist, physiotherapist and allied health assistant). Participants were required to agree as a group, which four leisure activities they would trial in these practical sessions. Participants were provided with a workbook to record their goals, plan and record the information needed for the practical sessions, and record their plans for continuing leisure participation after they completed the programme. See Appendix A for an outline of programme sessions.

Outcome measures

Clinical outcome measures were collected by the group facilitators at session one and eight. Given the nature of the staffing profiles, it was not possible to blind these therapists to the aims of the group programme. Secondary outcome measures were collected by the lead author (S.A-S), who was also the lead facilitator of the programme.

Clinical outcomes

To explore leisure participation rates and satisfaction with leisure activities, each participant completed the Nottingham Leisure Questionnaire (NLQ) and the Leisure Satisfaction Measure before and after the eight-session intervention programme. The NLQ was designed to measure the

impact of rehabilitation interventions targeted at leisure participation. The questionnaire lists 30 leisure activities and asks respondents to score their frequency of participation in each activity on a 3-point scale: 0 - never, 1 - occasionally, 2 - regularly; where a higher total score indicates higher frequency of leisure activity participation (range = 0–60). Examples of listed leisure activities include: watching TV, reading, attending sporting events and crafts. The original measure asks respondents to record their leisure participation ‘in the last few weeks’. Due to the length of the intervention (4-week programme), participants of the leisure programme were asked to consider their participation in each activity over the preceding week. The NLQ was developed for a stroke population. It has been identified as a valid and reliable measure of leisure participation with a test–retest reliability of fair to excellent (kappa values between 0.44 and 0.94) across the 30 items included in the measure. The author’s applied the Wilcoxon Test to the change in score between test and retest with nil significant difference from zero ($z = -1.383$, $p = 0.167$) demonstrating this measure is appropriate for use in detecting change following intervention (Drummond, Parker, Gladman & Logan, 2001).

The Leisure Satisfaction Measure (LSM) was designed to identify if personal needs were met through participation in leisure activities. The 24-item questionnaire asks respondents to rate each statement regarding their leisure satisfaction on a 5-point scale: 1 - almost never true, 2 - seldom true, 3 - somewhat true, 4 - often true, 5 - almost always true; where a higher total score indicates higher levels of satisfaction (range = 24–120). The items are grouped into six subscales (psychological, education, social, relaxation, physiological and aesthetic) as a way to identify factors influencing leisure satisfaction. An example statement for the psychological subscale is ‘my leisure activities give me a sense of accomplishment’. The measure was developed and validated for use with a general population and was found to have an alpha reliability coefficient of 0.96 indicating good internal consistency. External reviewers of the measure agreed that it was a valid measure for leisure satisfaction (Beard & Ragheb, 1980).

Secondary outcomes

To explore acceptability of the intervention, participant adherence (number of sessions attended as a proportion of the total number of sessions) was measured. Participants were also invited to provide feedback by completing a survey in session eight (see Appendix B). To explore demand for the leisure intervention programme, recruitment rate (number of participants who agreed to participate as a proportion of number invited to attend) was calculated. To evaluate implementation and practicality, data is reported for staffing requirements for intervention delivery and time for staff training (Bowen *et al.*, 2009). Participant diagnosis and impairment types are reported to determine if a programme that is designed to support people with ABI, can be provided to a mixed-diagnostic group.

Data analysis

Demographic data and secondary outcomes were collected and analysed descriptively. Participant demographic data included: age, gender, type of injury and type of impairment. Paired t-tests were used to determine whether there were statistically significant changes in the mean scores between baseline and end-of-study for both the NLQ and LSM. Due to the aims of this feasibility study, the leisure programme was piloted with three cohorts; a formal sample size calculation was not performed.

Results

Characteristics of participants

In total, 14 participants completed the 4-week programme (nine male, five female). Five participants attended cohort 1, five attended cohort 2 and four attended cohort 3. The mean age of

Table 1. Participant Demographics

| Variable | Mean (SD) | Range |
|---|----------------------------------|-------|
| Injury type (<i>n</i> , %) | | |
| Stroke | 10 (71%) | |
| Other ABI | 1 (7%) (hypoxic brain injury) | |
| Spinal cord injury | 2 (14%) | |
| Other | 1 (7%) (fractured neck of femur) | |
| Time since injury (months) | 6.2 (3.24) | 2–13 |
| Time since hospital discharge (weeks) | 16 (8.76) | 4–44 |
| FIM motor score at hospital discharge | 77 (6.49) | 69–91 |
| FIM cognitive score at hospital discharge | 30 (4.58) | 23–35 |
| Documented impairments (<i>n</i> , %) | | |
| Mobility | 7 (50%) | |
| Upper limb | 12 (86%) | |
| Language | 7 (50%) | |
| Visual perception | 2 (14%) | |
| Cognition | 2 (14%) | |

ABI = Acquired Brain Impairment.

Table 2. Scores on Primary Outcome Measures

| Variable | Mean T0 (SD) | Mean T1 (SD) | Mean change | <i>p</i> -value |
|----------|---------------|---------------|-------------|-----------------|
| LSM | 94.5 (22.12) | 98.75 (13.07) | 4.25 | 0.457 |
| NLQ | 22.65 (10.95) | 19.0 (5.53) | –3.63 | 0.107 |

T0 = Session 1 of programme; T1 = Session 8 of programme; LSM = Leisure Satisfaction Measure; NLQ = Nottingham Leisure Questionnaire.

participants was 49 years ($SD = 14.29$, range: 26–73 years), with the majority (79%) having a diagnosis of ABI. All participants completed the programme within 13 months of their injury. Participants had a variety of neurological impairments including mobility, upper limb, cognitive, speech and language, and visual perception impairments. Four had expressive and/or receptive aphasia, five required assistance for mobility or the use of a wheelchair and five had significantly reduced functional use of one or both upper limbs. Demographic information for the participants is shown in Table 1.

Clinical outcomes

Five participants were unable to attend the final session of their respective group programme and did not return their post-intervention questionnaires. Therefore, nine complete data sets were used to explore mean score change pre- and post-intervention. Table 2 shows the mean score at commencement and at completion of the programme for the NLQ and LSM. There was no significant difference between mean scores for the NLQ pre-intervention ($M = 22.65$, $SD = 10.95$) and post-intervention ($M = 19.0$, $SD = 5.53$); $t(7) = 1.85$, $p = 0.11$. There was a moderate correlation between pre- and post-scores ($r = 0.794$). There was no significant difference between mean scores for the LSM pre-intervention ($M = 94.5$, $SD = 22.12$) and post-intervention

($M = 4.2598.75$, $SD = 13.07$); $t(7) = -0.79$, $p = 0.46$. There was a moderate correlation between pre- and post-scores ($r = 0.537$).

Secondary outcomes

Seventeen community rehabilitation clients were invited to participate in the programme and initially consented to attending. Of those 17, two did not attend any sessions and one participant attended the first session and then declined to participate further. This resulted in 14 participants (82%) completing the programme.

On average, participants attended six out of the eight sessions, with the reasons for missing sessions due to conflicting medical appointments or difficulties with transport. With a total of 14 participants included in an eight session programme, there were a total of 112 possible attendances across the three cohorts ($14 \times 8 = 112$). Participants attended 89 of the 112 total possible attendances (79% attendance rate).

Nine participants completed the feedback survey. The feedback identified the topics and content which participants found most useful to be: understanding the importance of leisure ($n = 7$, 78%), planning the leisure activities ($n = 7$, 78%), the practical sessions ($n = 6$, 67%) and reflecting on their experiences ($n = 6$, 67%). All participants ($n = 9$, 100%) felt they had sufficient support available from staff, and seven of the nine (78%) respondents did not feel they required a support person or carer to attend any of the sessions. The remaining two participants felt they required a support person for the practical sessions only. A consistent theme of the feedback was participant enjoyment of socialising with the group members. Suggestions for improvement included providing transport to the activity venues or practicing using public transport within the programme. In regards to safety, there was one adverse event reported (out of the total 24 group sessions) where a participant with sensory loss to his stroke-affected upper limb sustained a superficial burn from having his hand too close to the barbeque during a cooking activity.

All allied health professionals and allied health assistants at the community rehabilitation programme were trained as co-facilitators of the programme (a total of 12 staff not inclusive of programme lead facilitator). All disciplines, except neuropsychology, at this community rehabilitation programme had two staff, allowing each discipline member to alternate facilitating a cohort. Training for these staff to be co-facilitators of the group consisted of 2×1 -h face-to-face sessions. This resulted in a total of 20 health professional hours and 4 allied health assistant hours of staff training. As the lead facilitator was the project lead and developed the programme content, they did not receive any training. Over the 4-week programme, there were a total of 56 health professional hours, and 12 allied health assistant hours required to facilitate the programme. This included travel time to/from activities (1 h per session), and session preparation time for the lead facilitator (1 h per session).

Discussion

The results of this feasibility study support the implementation of a leisure reintegration programme embedded in a community rehabilitation service. Acceptability and demand for such a programme was demonstrated by the high recruitment and attendance rates of participants from a mixed diagnostic group, including those with ABI. Additionally, the group-based mode of delivery provided the benefit of social connectedness, and the multidisciplinary facilitation allowed for an integrated approach to care. Participants placed high value on both intervention *content* and *how* it was provided, suggesting that rehabilitation services should offer group interventions targeted at leisure to meet participant needs.

Change scores for the primary outcome measures (NLQ and LSM) were not statistically significant and thus, no conclusion can be made about the leisure programme's effectiveness. Whilst not surprising given the small and mixed diagnostic sample, the mean scores for each measure did

change from pre- to post-intervention, with the LSM trending in the direction of participant improvement suggestive of increased satisfaction. Change in mean score for the NLQ, however, decreased. It is possible that completing the outcome measures in the final session of the programme did not allow for participants to implement their newly acquired leisure participation skills which may have influenced scoring on this participation measure. Future studies may therefore consider moving the primary measure end point to 1-month or longer post-programme completion, which may allow for integration and personal reflection. Alternatively, the programme could be delivered on a fortnightly basis, to provide participants the opportunity to establish meaningful leisure engagement between sessions. Another important factor to consider was the lost to follow-up rate (36%; 5 out of 14 participants), as these participants were unable to attend the final programme session. This study design weakness could be overcome in future programme evaluations by collecting the outcome measures as a telephone follow-up. Given the nature of this small feasibility study, it was not powered to provide evidence of effect, but rather to determine whether the patient improvements observed from the LSM warrant further investigation in a larger, randomised-controlled trial.

Community rehabilitation aims to support a client's transition from inpatient rehabilitation to community living, empower skill development within functional context and build capacity for engaging in daily activities post-injury or disease (World Health Organization et al., 2010). A key objective of this leisure programme was to scaffold and support participant's capacity for independent leisure reintegration. Achievement of this objective was evidenced by the proportion of participants who self-reported they did not require a support person to participate in the practical sessions. As aforementioned, little attention has been given to leisure reintegration in published research to date (Wise et al., 2010), however the skills and personal capacities built through leisure reintegration programmes may generalise to other domains of community life, such as return to work. This supposition is consistent with Mitchell et al. (2014) who suggested engagement in leisure could potentially support the development of skills required for the workplace. In further support, Geurtsen et al.'s (2008) earlier study found their leisure programme led to improvements in employability. Taken together, leisure integration programmes and their relationship with transferrable return to work skills should be considered and further explored in future studies; with return to work rates included as secondary outcome measures.

The capacity for this programme to cater to a range of clients was demonstrated by the programme participants having a variety of diagnoses and impairments that included upper limb, mobility, visual perception and language impairments. The delivery structure of the programme has the flexibility to accommodate for the specific needs of its participants. For example, the four participants with expressive and receptive language impairments were supported by aphasia-friendly handbooks and by the presence of a speech pathologist (additional facilitator) deliberately scheduled during group education and planning sessions (sessions 1, 2, 5 and 8). Another way this programme offered flexibility was through allowing and encouraging participant choice of leisure activities completed within the programme. This adaptable approach to accommodate individual needs and preferences appears key to maximising the applicability of the group programme to community rehabilitation participants. This is consistent with the findings of Mitchell et al. (2014) who attributed the success of their leisure programme to participants having choice of which activities were trialled. Additionally, the programme's adaptability has important implications for wider applicability and uptake. It allows the programme to remain contextually relevant, accommodating for locally available services and accessible activities (relative to the administering rehabilitation service). This is consistent with findings from previous studies of leisure programmes in which supporting collaboration with existing community services and/or local organisations increases sustainability (Tate et al., 2014).

Emerging evidence supports the need for a multidisciplinary approach in community rehabilitation (Turner-Stokes et al., 2015). While the programme was led by an occupational therapist, a strength of the programme structure was that it included members of the multidisciplinary

treating team. This allowed for a holistic approach to addressing the varying barriers participants may have to engaging in leisure activities. In addition to the immediate input from an alternative allied health professional (such as strategies and/or prompting), these individual barriers could be further explored during discipline specific therapy sessions. For example, if anxiety was identified as a barrier towards leisure engagement during a group reflection activity, this could be further explored and addressed during that participant's individual clinical psychology sessions. Informal observations from staff identified a strong crossover between the skills practiced in the group programme, and goals brought to individual therapy sessions. Although benefits exist for providing a multidisciplinary group programme, it does have the potential to be a resource-intensive intervention. With service efficiency in mind, it is important to ensure that therapists' clinical time is maximised by maintaining high attendance rates to support the programme's clinical feasibility. Another consideration for service feasibility is cost-effectiveness. As cost is an important consideration for any health service (Detsky & Laupacis, 2007), future studies should explore the cost-effectiveness of delivering the group leisure programme. Not only will this provide insight into staffing costs, but could also explore the longer-term economic benefits of improving independence in community participation and quality of life.

There are inherent limitations associated with a single-site feasibility study, some of which have been already acknowledged along with suggestions for future studies. Additional considerations need to be made for the type of outcome measures used. A particular challenge noted was the abstract and lengthy descriptors of the LSM items. For example, 'I associate with people in my free time who enjoy doing leisure activities a great deal'. This may impact on responses for clients with poor attention, cognition or language skills; challenges often faced after ABI. Additionally, the self-reporting nature of the outcome measures also need to be taken into consideration, as they do not account for change in circumstance. For example, it was noted that the NLQ result showed (on average) a decrease in participation in leisure activities over the 4-week programme. Potentially, this could be attributed to the participants spending a greater amount of time attending rehabilitation appointments (including the time spent in the programme) thus having less time for their existing leisure activities. Alternatively, focusing on leisure within the group could have reminded participants of lost leisure interests which may not have been recalled at baseline. It would therefore be beneficial for future studies to explore the types of leisure activities participants engaged in, and any change over the duration of the programme. Perhaps recording the achievement of individual goals for leisure participation may be a more person-centred means of measuring the success of a leisure reintegration programme. Qualitative data may also provide an opportunity to better explore the perceived barriers to leisure participation and how the group programme may or may not have addressed these. Despite these acknowledged study limitations, the results provide some support for the implementation of leisure programmes within community rehabilitation for adults with ABI.

Overall, this programme evaluation demonstrated that providing a leisure reintegration group programme within a community rehabilitation service may be an effective means of addressing leisure participation. Furthermore, this intervention can address the unmet need of leisure participation interventions for an ABI population who are receiving services in a typical community rehabilitation service. This was supported by high attendance rates and positive feedback from participants and staff. Despite a small sample size, there were some improvements seen in leisure satisfaction, however there is insufficient data to comment on the significance of this improvement. A larger study is recommended to further investigate the efficacy of this programme and determine if it can produce significant improvements in both leisure participation and leisure satisfaction.

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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. Gold Coast Hospital and Health Service Human Research Ethics Committee reviewed this project.

References

- Australian Institute of Health and Welfare** (2007). Disability in Australia: Acquired brain injury. Bulletin no. 55. Retrieved from <https://www.aihw.gov.au/getmedia/1f719b27-6b93-434a-b0e6-997b4ead061a/bulletin55.pdf.aspx?inline=true>
- Beard J. G., & Ragheb M. G.** (1980). Measuring leisure satisfaction. *Journal of Leisure Research*, 12(1), 20–33.
- Bowen D. J., Kreuter M., Spring B., Cofta-Woerpel L., Linnan L., Weiner D., & et al.** (2009). How we design feasibility studies. *American Journal of Preventive Medicine*, 36(5), 452–457. doi: 10.1016/j.amepre.2009.02.002
- Desrosiers J., Noreau L., Rochette A., Carbonneau H., Fontaine L., Viscogliosi C., & Bravo G.** (2007). Effect of a home leisure education program after stroke: A randomized controlled trial. *Archives of Physical Medicine and Rehabilitation*, 88(9), 1095–1100.
- Detsky A. S., & Laupacis A.** (2007). Relevance of cost-effectiveness analysis to clinicians and policy makers. *Journal of the American Medical Association*, 298(2), 221–224.
- Drummond A., Parker C., Gladman J., & Logan P.** (2001). Development and validation of the Nottingham Leisure Questionnaire (NLQ). *Clinical Rehabilitation*, 15(6), 647–656.
- Fleming J., Braithwaite H., Gustafsson L., Griffin J., Collier A., & Fletcher S.** (2011). Participation in leisure activities during brain injury rehabilitation. *Brain Injury*, 25(9), 806–818.
- Geurtsen G., Martina J., Van Heugten C., & Geurts A.** (2008). A prospective study to evaluate a new residential community reintegration programme for severe chronic brain injury: The brain integration programme. *Brain Injury*, 22(7–8), 545–554.
- Kuipers P., Foster M., Carlson G., & Moy J.** (2003). Classifying client goals in community-based ABI rehabilitation: A taxonomy for profiling service delivery and conceptualizing outcomes. *Disability and Rehabilitation*, 25(3), 154–162.
- McCabe P., Lippert C., Weiser M., Hilditch M., Hartridge C., & Villamere J.** (2007). Community reintegration following acquired brain injury. *Brain Injury*, 21(2), 231–257.
- McColl M. A., Carlson P., Johnston J., Minnes P., Shue K., Davies D., & Karlovits T.** (1998). The definition of community integration: Perspectives of people with brain injuries. *Brain Injury*, 12(1), 15–30. doi: 10.1080/026990598122827
- McLean A., Jarus T., Hubley A., & Jongbloed L.** (2014). Associations between social participation and subjective quality of life for adults with moderate to severe traumatic brain injury. *Disability and Rehabilitation*, 36(17), 1409–1418.
- Mitchell E., Veitch C., & Passey M.** (2014). Efficacy of leisure intervention groups in rehabilitation of people with an acquired brain injury. *Disability and Rehabilitation*, 36(17), 1474–1482.
- National Health and Medical Research Council.** (2007, updated 2015). The National Statement on Ethical Conduct in Human Research. Retrieved from <https://www.nhmrc.gov.au/about-us/publications/national-statement-ethical-conduct-human-research#block-views-block-file-attachments-content-block-1>.
- Peterson C., & Gunn S.** (1984). *Therapeutic recreation design: Principles and procedures*. Englewood Cliffs, NJ: Prentice Hall.
- Sandhaug M., Andelic N., Langhammer B., & Mygland A.** (2015). Community integration 2 years after moderate and severe traumatic brain injury. *Brain Injury*, 29(7–8), 915–920.
- Shaikh N. M., Kersten P., Siegert R. J., & Theadom A.** (2019). Developing a comprehensive framework of community integration for people with acquired brain injury: A conceptual analysis. *Disability and Rehabilitation*, 41(14), 1615–1631. doi: 10.1080/09638288.2018.1443163
- Tate R., Wakim D., & Genders M.** (2014). A systematic review of the efficacy of community-based, leisure/social activity programmes for people with traumatic brain injury. *Brain Impairment*, 15(3), 157–176.
- Turner-Stokes L., Pick A., Disler P. B., & Wade D. T.** (2015). Multi-disciplinary rehabilitation for acquired brain injury in adults of working age. *Cochrane database of systematic reviews*, 12, CD004170. doi: 10.1002/14651858.CD004170.pub3
- Wise E. K., Mathews-Dalton C., Dikmen S., Temkin N., Machamer J., Bell K., & Powell J. M.** (2010). Impact of traumatic brain injury on participation in leisure activities. *Archives of Physical Medicine and Rehabilitation*, 91(9), 1357–1362.
- World Health Organization, UNESCO, International Labour Organization, & International Disability Development Consortium** (2010). Community-based rehabilitation: CBR guidelines. Retrieved from <https://apps.who.int/iris/handle/10665/4440>

Appendix A: Session Content Outline

Session 1: Introduction and goal setting

| | |
|---|---|
| <p>Objectives</p> <ul style="list-style-type: none"> • Understand the role and importance of leisure • Understand the purpose, aims and objective of the program • Identify current leisure participation • Set individual goals for the program | <p>Content</p> <ul style="list-style-type: none"> • Introductions and ice-breaker activity • Introduce purpose of group and program schedule • Set group rules • Complete outcome measures • Goal setting • Preparation for next session |
|---|---|

Session 2: Choosing and planning activities 1 and 2

| | |
|--|--|
| <p>Objectives</p> <ul style="list-style-type: none"> • Identify which 4 activities to try during the program • Plan the first 2 activities that will be done during the program | <p>Content</p> <ul style="list-style-type: none"> • Choosing activities to try • Planning the first 2 chosen activities |
|--|--|

Session 3: Activity one

| | |
|---|--|
| <p>Objectives</p> <ul style="list-style-type: none"> • Develop confidence in activity participation • Identify barriers to participation | <p>Content</p> <ul style="list-style-type: none"> • Participate in chosen leisure activity |
|---|--|

Session 4: Activity two

| | |
|---|--|
| <p>Objectives</p> <ul style="list-style-type: none"> • Develop confidence in activity participation • Identify barriers to participation | <p>Content</p> <ul style="list-style-type: none"> • Participate in chosen leisure activity |
|---|--|

Session 5: Problem solving barriers and planning activities 3 and 4

| | |
|---|---|
| <p>Objectives</p> <ul style="list-style-type: none"> • Identify potential barriers to leisure participation • Identify solutions to address barriers • Develop action plans to facilitate addressing barriers • Plan next 2 activities, implementing identified strategies | <p>Content</p> <ul style="list-style-type: none"> • Identify and problem solve barriers to leisure participation, reflecting on previous 2 activities • Discuss available community resources to support leisure participation • Plan next 2 activities |
|---|---|

Session 6: Activity 3

| | |
|--|--|
| <p>Objectives</p> <ul style="list-style-type: none"> • Develop confidence in activity participation • Implement solutions and strategies to address barriers to participation | <p>Content</p> <ul style="list-style-type: none"> • Participate in chosen leisure activity |
|--|--|

Session 7: Activity 4

| | |
|--|--|
| <p>Objectives</p> <ul style="list-style-type: none"> • Develop confidence in activity participation • Implement solutions and strategies to address barriers to participation | <p>Content</p> <ul style="list-style-type: none"> • Participate in chosen leisure activity |
|--|--|

Session 8: Plans for the future

| | |
|--|---|
| <p>Objectives</p> <ul style="list-style-type: none"> • Reflect on, and identify key learnings from the program • Identify long-term leisure participation goals • Develop action plans to support achievement of leisure participation goals | <p>Content</p> <ul style="list-style-type: none"> • Reflection on previous activities • Completion of outcome measures • Reflection of leisure program • Developing future plans to continue leisure participation |
|--|---|

Appendix B: Participant Feedback Survey

1. Which content did you find most helpful – you can choose more than one

| |
|--|
| Understanding the importance of leisure |
| Goal setting |
| Planning leisure activities |
| Trying out activities (practical sessions) |
| Reflecting on your experiences |
| Problem solving challenges |
| Planning future leisure activities and making action plans |

2. Was the handbook helpful?

| | | | | |
|------------|---|---|---|----------------|
| 1 | 2 | 3 | 4 | 5 |
| Not at all | | | | Really helpful |

3. Did you feel you had enough support from the staff?

| | | | | |
|------------|---|---|---|-------------------|
| 1 | 2 | 3 | 4 | 5 |
| Not at all | | | | Definitely enough |

4. Did you feel you needed a support person or family member to attend?

| |
|-----------------------------|
| All of the sessions |
| Only the practical sessions |
| None of the sessions |

5. What did you like most about the program?

6. What did you like least about the program?

7. Any suggestions for how we can improve the program?

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