

# **The Community Integration Questionnaire-Revised: Australian normative data and measuring electronic social networking.**

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## **Accompanying documents to this report**

***Title:***

***Community Integration Outcomes:  
A comparison of people with TBI and non-  
disabled Australians***

***Report number:***

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# Executive Summary

## Key messages

- This study has revised and extended the CIQ, an internationally used measure of community integration, to incorporate an assessment of electronic social networking.
- The project has also gathered normative data for Australian adults of working age. To date, normative data for the CIQ has been lacking. The normative data collected in this project informs understanding of current participation of able-bodied Australians of working age in the area of home, social and economic participation, as well as incorporating measurement of electronic social networking as a factor contributing to community integration.
- This data provides a benchmark against which to measure the impact of disability on participation in home and community life, information that is relevant to individuals living with neurotrauma, their support networks, researchers, service providers, and funding and government bodies.
- This measurement and benchmarking is particularly pertinent in the context of a launch of a National Disability Insurance Scheme, and, in the future, a National Injury Insurance Scheme, both of which are designed to impact the social and economic participation of Australians living with significant and permanent disability.
- The findings from this research can assist funding bodies with targeted service planning, development and resource allocation, measuring and impacting participation outcomes and the use of relevant resources to maximise recipients' quality of life outcomes.
- The normative data gathered allows for the meaningful comparison to the CIQ-R data of people with severe traumatic brain injury funded by the Transport Accident Commission (TAC) or Victorian Workcover Authority (VWA), and can be used to examine Scheme impact and client outcomes over time.

## Purpose

This project had four key aims:

1. To develop an extended CIQ, the CIQ-Revised, which measures the use of electronic social networking (ESN).
2. To gather normative data on a non-disabled Australian population using the CIQ-R.
3. To pilot the CIQ-R with 20 people with TBI.
4. To compare the relevant normative data from the CIQ-R with CIQ data of 45 TAC and Victorian Workcover Authority clients with TBI living in shared supported accommodation (data previously gathered by the research group, via ISCRF-funded research).

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## Rationale

Community Integration is considered a cornerstone of rehabilitation endeavours. There are various frameworks that have been used to describe it; however there is agreement that community integration extends beyond self-care and physical function to include engagement in home, social and economic participation. Increasingly, electronic communication has been recognised as providing a means of social networking, impacting upon social integration. Current research has highlighted the need for technology-enabled participation to be incorporated into measures of community integration.

To date there have been few studies that have examined the community integration outcomes of the general adult population that would allow for meaningful comparisons to be made across a wide variety of population groups living with disability, including persons with neurotrauma in receipt of compensation from TAC or the Victorian Workcover Authority (VWA). Given the importance of rehabilitative endeavours in the domain of community integration, the ability to compare rehabilitation outcomes to normative data appears essential.

The findings of this research project offer the opportunity to enhance understanding of the community integration outcomes of Australian adults of working age, to incorporate electronic social networking into a well-known measure of community integration (the Community Integration Questionnaire) and make meaningful comparisons to the lives of people who have sustained neurotrauma or other disability. This information is important in enabling identification of key factors that impact on the integration of this group.

## Methods

In consultation with a group of clinical, research and statistical key informants, potential test questions to assess Electronic Social Networking (ESN) as a method of community integration in a TBI population were initially developed. These items were tested for clarity and utility with an able-bodied convenience sample (n=124). Ultimately three ESN questions were retained and added to the CIQ. The revised questionnaire was then used to collect the normative data.

A nationally representative sample of 2000 Australian adults of working age, recruited through a research-only panel, was then surveyed. Data from 27 participants who self-reported having an acquired brain injury or intellectual disability were excluded from subsequent analyses. The sample was stratified by gender, age, metro/regional residence and state/territory based on Australian Bureau of Statistics data categories, and to reflect the demographics of the broader Australian population. A subset of 78 of the remaining 1973 participants completed the CIQ-R again four months post the original administration, to examine test-retest reliability of the revised measure.

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The CIQ-R was then piloted with an initial 20 people with TBI in receipt of TAC funding and is now being used across a range of ISCRR-funded research lead by Libby Callaway and being undertaken with people with neurotrauma. To compare the relevant normative data from the CIQ-R with CIQ data of 45 TAC and VWA clients with TBI (data previously gathered within ISCRR-funded research by our project team).

## Research findings & implications

### Research findings

Three questions of electronic social networking were added to the Community Integration Questionnaire, forming the Community Integration Questionnaire-Revised (CIQ-R). Confirmatory factor analysis found a four-factor solution to the structure of the CIQ-R, thus resulting in a measure of Community Integration that incorporated Home Integration, Social Integration, Productivity and Electronic Social Networking.

In line with the findings of Sander et al<sup>1</sup>, Modification Indices (MIs, i.e., Lagrange Multiplier statistic) suggested that item 6 of the CIQ should be loaded onto the Home factor (MI = 234.35,  $\lambda = .73$ ), rather than the social integration subscale as was recommended in the original measure. For subsequent analyses, scores for items 6 were therefore included in the calculation of the Home Competency subscale instead of the Social Integration subscale. Consequently, the CIQ-R Home Integration subscale comprise the sum of items 1-6 (scores range from 0-12), the Social Integration subscale comprise the sum of items 7-11 (scores range from 0-10), the Productivity subscale comprise the sum of item 12 and the job-school variable (scores range from 0-7), and the Electronic Social Networking (ESN) subscale comprise the sum of items 16-18 (scores range from 0-6). The total CIQ-R score comprise the sum of all items (1-18) with potential scores ranging from 0-35. Data analyses confirmed the ESN items captured an additional aspect of community integration not previously assessed. Furthermore, these items were found to be very reliable over time.

The CIQ-R normative data indicated that there were significant demographic predictors to various CIQ-R subscales and the Total CIQ-R score. Gender, age, education, income, location of residence and living situation all made various contributions to the level of community integration of the non-disabled Australian population.

To compare the relevant normative data from the CIQ-R with CIQ data of 45 TAC and VWA clients with TBI living in shared supported accommodation (data previously gathered within a 2011-2012 ISCRR Development Grant). Refer to Table 1 below for a brief summary.

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<sup>1</sup> Sanders et al ref

	<b>Normative group (N=1973)</b>	<b>SSA TBI group (N=45)</b>	
CIQ-R total	22.33 (4.74)	11.57 (5.78)	$t=14.98$ (df,2016) $p<0.0001$
Home Integration	7.69 (2.72)	3.95 (3.48)	$t=9.058$ (df,2016) $p<0.0001$
Social Integration	6.70 (2.00)	5.16 (2.57)	$t=5.07$ (df,2016) $p<0.0001$
Productivity	4.73 (1.77)	2.33 (1.22)	$t=9.05$ (df,2016) $p<0.0001$
ESN	3.21 (1.57)	1.20 (1.30)	$t=8.52$ (df,2016) $p<0.0001$

**Table 1**

## Research Implications

Key implications for service planning and implementation stemming from this project are listed below:

- The current research assists funding and government bodies to prioritise funding to make real changes to the person beyond acute rehabilitation, particularly looking forward to “life ongoing”. The normative data provides valuable information about home, social and economic participation of a non-disabled population in Australia, which may influence community integration outcomes.
- Normative data highlights performance in different areas of community integration varies throughout the life span. At one point in time the person may expand from one area of integration into another; for example, they may return to work, which will increase the Productivity subscale, but then participate less in home activities, thus decreasing the Home subscale.
- The data collected provides insights to the aspects of community integration that are relevant to and valued by people of different gender, age, socio-economic and educational backgrounds, and those that reside in rural, as opposed to metropolitan areas.
- Existing TBI studies have provided us with clues to some of these areas, however we now have normative data to which this TBI literature can be compared to, and its significance and implications can be considered.
- The impact of technology-enabled community participation in community integration has also become clearer given the data provided.

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- This research, and comparison of normative data with CIQ data gathered with TAC clients with TBI, further highlights the need for implementation of proactive strategies with people who have a TBI in order to maximise community integration outcomes and assist them to return to meaningful participation post injury. However, further research is necessary to evaluate the impact of targeted and proactive interventions on improved integration outcomes for people with TBI and high and complex care needs, especially within the realms of technology use and outcomes. The role that technological resources may play in sourcing, using and maintaining social links requires further exploration.
- Following this, further research is required to fully understand the size, density and multiplicity of social networks available to people with TBI. In addition information on how people with a TBI work to maintain existing social networks post injury or develop new networks over time is needed.
- Strategies to increase community based productivity roles for people with TBI is also needed (e.g., supported employment, serious leisure or volunteerism roles, or study) however this requires tenacity, ongoing monitoring, and evaluation of outcomes. This is because often the cognitive behavioural sequelae of TBI may impact a person's ability to secure or maintain participation in such roles. Further research is required to understand the influence of personal, environmental and attitudinal factors on outcomes for this group.
- The normative data provided here is for those of working-age only. As the TBI population ages, normative data for those beyond working age will also prove invaluable. Further research needs to be conducted in this area to inform us how to prioritise funding in the future.

## Use of the research

The normative data provided by this study has wide implications for a variety of settings and research and clinical work. It will be of great benefit for the TAC, VWA and other funding bodies to compare normative scores to that of Scheme claimants, both at an individual and a population level.

At an individual level it could be used to identify goals with the person, in light of what is known about the non-disabled Australian population of working age. It will also allow for tracking of progress and comparison of outcomes over time with that person.

At a population level, tracking the outcomes of populations with neurotrauma will contribute valuable information following policy changes, thus affording opportunities for policy development.

Finally, the question of how able-bodied persons are integrated into society is a question rarely asked. The findings are likely to have implications in the study of the development, structure, interaction and collective behaviour of individuals in general.

Normative data also raises questions about specific populations within the community, such as Indigenous and immigrant populations. Sub-populations may have different needs, values

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and objectives; high-risk groups could potentially be identified. This will undoubtedly lead to ongoing research in a variety of sociological and rehabilitative spheres.

### **Potential impact of the research**

A key focus of any research is to disseminate the knowledge and translate research findings to inform the wider community and influence future practice for those with TBI and other disability groups. This research will be of particular interest to the National Disability Insurance Agency, in the context of the launch of a National Disability and National Injury Insurance Scheme. The research project group have begun and will continue to report project findings at several national and international conferences (Australasian Society for the Study of Brain Impairment Conference in Fremantle, W.A., May 2014, National Acquired Brain Injury Conference in Bendigo, Victoria, August 2014; American Congress of Rehabilitation Medicine in Toronto, Canada, October 2014). One journal publication has already been submitted to an international peer reviewed journal.

Extending beyond the project deliverables, the Summer Foundation has now applied considerable additional funds to produce and launch a CIQ-R Normative Data Booklet to be made available (soft copy without charge, hard copy with cost of printing and postage) to government bodies, clinicians, and researchers. This booklet will be made available in October 2014, once approved by ISCRR and project sponsors at the TAC.

It is anticipated that dissemination of the results of this project can be used to influence change in allied health, service provider and direct support worker practice with those who have sustained a TBI, thereby influencing the health status, and independence and participation outcomes. However, further research is also required and has been pointed to in other sections of this report.

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