

Minerva Access is the Institutional Repository of The University of Melbourne

Author/s:

Callaway, L;Winkler, D;Tippett, A;Herd, N;Migliorini, C;Willer, B

Title:

The Community Integration Questionnaire - Revised: Australian normative data and measurement of electronic social networking

Date:

2016-06-01

Citation:

Callaway, L., Winkler, D., Tippett, A., Herd, N., Migliorini, C. & Willer, B. (2016). The Community Integration Questionnaire - Revised: Australian normative data and measurement of electronic social networking. Australian Occupational Therapy Journal, 63 (3), pp.143-153. <https://doi.org/10.1111/1440-1630.12284>.

Persistent Link:

<https://hdl.handle.net/11343/291167>

Article Type

Original research article

Title

The Community Integration Questionnaire-Revised: Australian normative data and measurement of electronic social networking.

Short title

The Community Integration Questionnaire-Revised.

Authors

Libby Callaway MOT

Department of Occupational Therapy

Monash University and Summer Foundation Ltd

Frankston, Australia

Dianne Winkler PhD

Summer Foundation Pty Ltd

Blackburn, Australia

Alice Tippet MSc (Research)

This is the author manuscript accepted for publication and has undergone full peer review but has not been through the copyediting, typesetting, pagination and proofreading process, which may lead to differences between this version and the [Version of Record](#). Please cite this article as [doi: 10.1111/1440-1630.12284](#)

Summer Foundation Pty Ltd

Blackburn, Australia

Natalie Herd PhD

Empirica Research

Melbourne, Australia

Christine Migliorini PhD

Department of Occupational Therapy

Monash University and Summer Foundation Ltd

Frankston, Australia

Barry Willer PhD

Department of Psychiatry Medicine

University of Buffalo at New York, USA

Address of the author responsible for correspondence: Libby Callaway, Monash University and Summer Foundation Ltd, PO Box 208, Blackburn, 3130, Australia.

Source of Funding: Funding for this research was provided by the Transport Accident Commission (TAC) via the Institute for Safety, Compensation and Recovery Research (ISCRR).

Conflict of interest: None declared.

Author Manuscript

Received Date : 05-Feb-2015

Revised Date : 06-Jan-2016

Accepted Date : 18-Jan-2016

Article type : Feature Article

Corresponding author mail id: libby.callaway@monash.edu.au

Article Type

Original research article

Title

The Community Integration Questionnaire-Revised: Australian normative data and measurement of electronic social networking.

Short title

The Community Integration Questionnaire-Revised.

Source of Funding

Funding for this research was provided by the Transport Accident Commission (TAC) via the Institute for Safety, Compensation and Recovery Research (ISCRR).

Conflict of interest

This article is protected by copyright. All rights reserved

None declared.

Abstract

Consideration of the relationship between meaningful participation, health and wellbeing underpins occupational therapy intervention, and drives measurement of community integration following acquired brain injury (ABI). However, utility of community integration measures has been limited to date by lack of normative data against which to compare outcomes, and none examine the growing use of electronic social networking (ESN) for social participation. This research had four aims: 1) develop and pilot items assessing ESN to add to the Community Integration Questionnaire, producing the Community Integration Questionnaire–Revised (CIQ-R); 2) examine factor structure of the CIQ-R; 3) collect Australian CIQ-R normative data; and 4) assess test-retest reliability of the revised measure.

Method: *Setting:* Australia. *Participants:* A convenience sample of adults without ABI (N=124) was used to develop and pilot ESN items. A representative general population sample of adults without ABI aged 18 to 64 years (N=1973) was recruited to gather normative CIQ-R data. *Design:* Cross-sectional survey. *Main measures:* Demographic items and the CIQ-R.

Results: The CIQ-R demonstrated acceptable psychometric properties, with minor modification to the original scoring based on the factor analyses provided. Large representative general population CIQ-R normative data

have been established, detailing contribution of a range of independent demographic variables to community integration.

Conclusion: The addition of electronic social networking items to the CIQ-R offers a contemporary method of assessing community integration following ABI. Normative CIQ-R data enhances understanding of community integration in the general population, allowing occupational therapists and other clinicians to make more meaningful comparisons between groups.

Key Words: community integration; social participation; social networking.

Introduction

Community integration is considered a cornerstone of rehabilitation endeavours for people with disability (Gontovsky, Russum, & Stokie, 2009; Sander, Clark, & Pappadis, 2010; Sloan, Winkler, & Callaway, 2004). Willer and colleagues were amongst the first to address community integration in acquired brain injury (ABI) rehabilitation, defining community integration as “effective role performance in community settings” (Willer, Rosenthal, Kreutzer, Gordon, & Rempel, 1993, p.76). Various definitions of community integration have been proposed (McColl et al., 1998; Parvaneh & Cocks, 2012; Willer, Rosenthal, Kreutzer, Gordon, & Rempel, 1993; Wong & Solomon, 2002); however, most include three basic elements: relationships with others, independence in one’s own living situation and meaningful

activities in which to participate in order to fill one's time (McCabe et al., 2007; Parveneh & Cocks, 2012; Willer et al., 1993). In ABI research, each of these elements has been significantly and positively linked with well-being and quality of life outcomes (Doig, Fleming, & Tooth, 2001; Griffen, Hanks, & Meachen, 2010; McColl et al., 1998; Willer, Ottenbacher, & Coad, 1994; Wise et al., 2010).

Community integration of people with ABI is influenced by a number of factors including loss of, or inability to engage in, open employment (Wehman, Gentry, West, & Arango-Lasprilla, 2009), the presence of complex secondary sequelae such as cognitive behavioural or mental health issues (Winkler, Unsworth, & Sloan, 2006), changes in or loss of social networks (Doig et al., 2001; Linden, Crothers, O'Neill, & McCann, 2005; Sendroy-Terrill, Whiteneck, & Brooks, 2010) and the requirement for high levels of paid or informal support (McCabe et al., 2007; Sloan et al., 2004). There is evidence supporting the importance of social relationships as a key influence on community integration outcomes related to quality of life (Parveneh & Cocks, 2012; Sander et al., 2010; Stiers et al., 2012). Increasingly, electronic communication has been recognised as providing a means of social networking by decreasing isolation and consequently increasing social integration (Gutman, 2000; Todis, Sohlberg, Hood, & Fickas, 2005; Tsaousides, Matsuzawa, & Lebowitz, 2011; Vaccaro, Hart, Whyte, &

Buchhofer, 2007). Stiers and colleagues coined the term cyber-participation (Stiers et al., 2012, p.142), advocating that it be incorporated into measures of community integration.

Occupational therapy intervention following ABI takes a necessary focus on the long term, contextualised issues experienced as a person completes inpatient rehabilitation and returns to community living (Burleigh, Farber, & Gillard, 1998). Interventions that build social role participation within home and community settings and improve functional outcomes are necessary components of post-acute occupational therapy rehabilitation and often the focus of occupational therapy research (Burleigh et al., 1998; Huebner, Johnson, Bennett, & Schneck, 2003; Kim & Colantonio, 2010; Sloan et al., 2009b). Occupational therapists need to be able to work in a collaborative manner to facilitate the adaptation process of the person with brain injury (Kielhofner, 2008) and be knowledgeable about appropriate long-term planning and interventions which can be used to influence community integration outcomes (Burleigh et al., 1998). For occupational therapists to undertake comprehensive assessment, design community-based interventions and evaluate effectiveness of services provided, it is necessary to examine needs and describe changes in time use, community participation and integration outcomes using measures relevant to

occupational therapy practice (Farnworth, 2003; Huebner et al., 2003; Kim & Colantonio, 2010; Sloan et al., 2004).

The Community Integration Questionnaire (CIQ) (Willer et al., 1994) has become a widely used and comprehensive measure of community integration following ABI (Ritchie, Wright-St Clair, Keogh, & Gray, 2014; Sander et al., 1999; Seale et al., 2002). The CIQ has been used extensively in occupational therapy research and practice (Burleigh et al., 1998; Huebner et al., 2003; Kim & Colantonio, 2010; Parveneh & Cocks, 2012; Sloan, Callaway, Winkler, McKinley, & Ziino, 2012; Sloan et al., 2009b; Sloan, Winkler, & Anson, 2007; Sloan et al., 2004; Winkler, Farnworth, Sloan, Brown, & Callaway, 2010; Winkler, Sloan, & Callaway, 2010). The use of the CIQ has also expanded to other population groups including people with physical disability (Hirsh, Braden, Craggs, & Jensen, 2011), spinal cord injury (Gontovsky et al., 2009; Kratz, Chadd, Jensen, Kehn, & Kroll, 2015), aphasia (Dalemans, de Witte, Beurskens, van den Heuvel, & Wade, 2010), brain tumours (Kaplan, 2000), neurodegenerative conditions including Multiple Sclerosis (Negahban, Fattahizadeh, Salehi, Majdinasab, & Mazaheri, 2013) and burn injuries (Esselman et al., 2001). It has also been used in studies tracking longitudinal outcomes and predicting health-related quality of life after brain injury (Forslund, Roe, Sigurdardottir, & Andelic, 2013; Ritchie et

al., 2014; Sloan et al., 2009a, 2009b; Sloan et al., 2007; Tate, Broe, Cameron, Hodgkinson, & Soo, 2005; Winkler, Farnworth, & Sloan, 2006).

The CIQ has a total of 15 items across the three domains of Home Integration (active participation of the person in the operation of the home), Social Integration (participation in a variety of activities outside the home and interpersonal relations), and Productivity (involvement in employment, education and volunteer activities). The domains gauge the level or frequency of involvement in a range of home and community activities. Scores are created by self-report of performance frequency, with weighting given depending upon whether or not assistance was obtained.

The CIQ's strengths are that it is a brief, easily administered tool that can be reliably completed by a proxy (Cusick, Gerhart, & Mellick, 2000). It provides an objective measure of integration that focuses on behaviours rather than feelings (Willer et al., 1994). The CIQ items were designed to be value neutral and sensitive to a wide variety of living situations. However, despite its widespread use, the CIQ has not been without criticism, including problems in the distribution of the subscale scores (Corrigan & Deming, 1995; Dijkers, 1997; Hall et al., 1996), two items not falling neatly into the original factor structure (Hirsh et al., 2011; Sander et al., 1999), the factor

structure not being stable in specific populations over time (Kratz et al., 2015) and variations in inter-rater reliability (Sander et al., 1999; Tepper, Beatty, & deJong, 1996). The need for revision of the CIQ to examine internet-based social functioning has also been identified (Kratz et al., 2015).

Arguably however, the chief criticism has been the lack of normative data (Hirsh et al., 2011; Kaplan, 2001; Sander et al., 1999; Stiers et al., 2012).

A score from a scale measuring social factors is an absolute number that has little meaning in and of itself. Comparing scores to individuals living with various other disabilities is useful but limited. Norms provide an anchor for interpretation of an individual's score relative to the general population. Given the importance of rehabilitative endeavours to influence community integration, including those of the occupational therapy profession, the ability to compare rehabilitation outcomes to normative data becomes fundamental.

The aims of this research were to:

1. Revise and update the CIQ by developing and piloting questions that assess electronic social networking (ESN), producing the Community Integration Questionnaire – Revised (CIQ-R);
2. Examine factor structure of the CIQ-R;

3. Collect normative data for the CIQ-R, examining contribution of a range of independent demographic variables to community integration; and
4. Assess test-retest reliability of the revised measure.

Method

Ethics approval for all aspects of this study was gained from the Monash University Human Research Ethics Committee prior to project commencement.

Design

A cross-sectional survey design was used.

Measures

A customised demographic survey gathering information on gender, age, highest level of education completed, annual household income, area of residence, and living situation and presence/absence of disability was used. The authors initially developed an initial six potential test items designed to gauge current technology use, assess ESN as a function of community integration, and hold relevance to populations with cognitive impairment. These items were developed based on clinical expertise of the research group (across the fields of psychology, occupational therapy and social

work), coupled with consideration of previous research exploring, in part, data and telecommunications use by people living with cognitive disability (Hallgren, Nygard, & Kottorp, 2011; Rosenberg, Nygard, & Kottorp, 2009). Further modification by the authors resulted in three draft items being retained for testing. The three items, and a short customised questionnaire collecting feedback responses regarding item wording, were piloted with a convenience sample of 124 able-bodied adults aged 18-80years (90% ≤ 49 years), 62% female, >50% with university level education, and all with adequate English language skills. Feedback suggested further refinement of the ESN items, which was undertaken. The final items were then checked against the Question Appraisal System for survey construction (Willis & Lessler, 1999) to assess clarity and appropriateness of wording. These final three items were then appended to the CIQ to be used for the normative data sampling. The items were:

1. How often do you write to people for social contact using the Internet (e.g., email, social networking sites such as Facebook)?
2. How often do you talk to people for social contact using an online video link (e.g., Skype, FaceTime)?
3. How often do you make social contact with people by talking or text messaging using your phone?

These items were scored as: Everyday or most days = 2, Almost every week = 1, Seldom / never = 0.

Participants and procedures

Once the ESN items had been finalised, a nationally representative sample of 2000 Australian adults, aged 18-64 years, was recruited through a market research company. Measures administered with this group included the demographic survey, the original CIQ that was modified for the purposes of this normative study (described below), and the three ESN items. The normative sample was matched to broader Australian population demographics, with quotas specified for gender, age, state/territory, and metro/regional area of residence. Data from 27 participants who self-reported having an acquired brain injury or intellectual disability in the demographic survey were excluded from subsequent analyses. A demographic profile of the remaining 1973 participants is presented in Table 1. A subset of 78 of the 1973 participants completed the CIQ-R again three months after it was originally administered.

Insert Table 1 here.

For the purposes of this study, the response choices for item 10 of the original CIQ were modified to ensure that they were appropriate for the

normative population. Item 10 in the original CIQ asks 'When you participate in leisure activities do you usually do this alone or with others?'. The original response choice of 'Mostly with friends who have head injuries' was omitted and the option 'Mostly with friends who do not have head injuries' was modified to 'Mostly with friends'. The three new ESN items were appended to the end of the modified CIQ.

Data analyses

Confirmatory factor analysis was conducted to examine distribution of CIQ-R items using AMOS 22.0 (Arbuckle, 2012). All other analyses including correlation and multiple regression, were conducted using STATA 12.1 (Statacorp, 2012) and are detailed below.

Results

Factor Analysis

Confirmatory factor analysis revealed all CIQ-R items were normally distributed i.e., absolute values not exceeding 2.0 for skewness or kurtosis. Mardia's Multivariate Coefficient of Kurtosis indicated only slight deviation from multivariate normality. Maximum Likelihood Estimation was used to estimate the structure of the CIQ-R measure. A combination of fit indices were used to evaluate model fit: Comparative Fit Index (CFI) and Tucker

Lewis Index (TLI) $\geq .95$; Root Mean Square Error of Approximation (RMSEA) $\leq .05$; and Standardised Root Mean Residual (SRMR) = .06 indicating good fit (Hu et al., 1999). Differences between models were assessed using a practical difference test (i.e., TLI difference of .01 between models), to guard against Type II error.

The first model evaluated an oblique four-factor model, with the three original CIQ subscales (Home Integration, Social Integration, Productivity) and the three new ESN items loading onto a single factor. The fit between the model and the data was poor $\chi^2(98, N= 1073) = 1093.44, p < .001$; CFI = .865; TLI = .835; RMSEA = .072; SRMR = .080. Standardised factor loadings indicated that the pathway from item 6 (financial management) to the Social factor was weak ($p = .893$). Correlations between item 6 and other items loading onto the Social factor were also weak, ranging from $r = < .001$ to .069. The standardized residual covariance matrix also indicated that item 6 was a source of misfit in the model.

In line with the findings of Sander et al. (1999) and Hirsch et al. (2011), Modification Indices (MIs, i.e., Lagrange Multiplier statistic) suggested that item 6 should be loaded onto the Home factor (MI = 234.35, $\lambda = .73$).

Model 2 tested an oblique four-factor model in which item 6 was loaded

onto the Home factor instead of the Social factor. Although this model was significantly better than Model 1, model fit was still relatively poor $\chi^2(98, N=1073) = 843.82, p < .001$; CFI = .899; TLI = .876; RMSEA = .062; SRMR = .059; $\Delta\text{TLI} = .04$ (Model 2 - Model 1).

Additional sources of model misfit were identified through Modification Indices and the standardized residual covariance matrix. Two re-specifications were made sequentially and model re-estimation followed each re-specification. The first was a cross loading between item 7 (Shopping) and the Home factor ($\text{MI} = 69.91, \lambda = .30$), while maintaining the original loading on the Social factor. Given that the Home factor is concerned with domestic activity, it was deemed to be theoretically sound to have the shopping item loading onto this factor. The second re-specification was a free estimation of the error covariance between item 4 (childcare) and item 5 (social arrangements) ($\text{MI} = 64.73, \lambda = .028$). Both of these modifications generated significant improvements in model fit ($\Delta\text{TLI} > .01$). The final model (Model 4) demonstrated acceptable fit $\chi^2(96, N=1073) = 683.16, p < .001$; CFI = .921; TLI = .901; RMSEA = .056; SRMR = .051. Standardised factor loadings for Model 4 are presented in Table 2.

Insert Table 2 here

For subsequent analyses, scores for items 6 were included in the calculation of the Home Integration subscale instead of the Social Integration subscale. Given the study findings relating to this item, and that the task itself is consistent with other home-based activities (offering good face-validity), this approach is recommended for future CIQ-R scoring. This approach does however have implications for the scoring of item 4 (childcare), which is traditionally scored as a mean of other items in the Home Integration subscale when item 4 is not applicable. For the purpose of scoring the CIQ-R, it is recommended item 4 continue to be calculated as a mean of items 1, 2, 3 and 5 where it does not apply to the respondent. Given that the factor loading for item 7 was larger for the Social factor than the Home factor, scores from this item were used in the calculation of the Social Integration subscale, retaining original scale item distribution.

Consequently, the CIQ-R Home Integration subscale comprise the sum of items 1 to 6 (scores range from 0-12), the Social Integration subscale comprise the sum of items 7 to 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 ESN subscale comprise the sum of items 16 to 18

(scores range from 0-6). The total CIQ-R score comprises the sum of all items (1 to 18), with potential scores ranging from 0-35.

To further explore the extent to which the ESN items captured an additional type of community integration that is not already explored within existing CIQ items, total CIQ scores (excluding the ESN items) were compared with scores from the ESN subscale. The moderate positive correlation between the two scores ($r = .33$, $n = 1971$, $p < .001$) indicate that, while the two scores were related, they appeared to be capturing different aspects of integration suggesting that the new items were not redundant.

Standard multiple regression analyses were used to assess the relationship between the dependent variables of overall community integration, the subscales of home, social, productivity and ESN integration, with the independent demographic variables. Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity and homoscedasticity. The most parsimonious model (i.e., where independent demographic variables not displaying a statistically significant unique relationship with a dependent variable are omitted) is presented in Table 3.

Insert Table 3 here

Table 4 provides detail of CIQ-R normative data partitioned by demographic characteristics. Being female, aged 18-29 years, with a university degree, living alone in the city, and with an annual household income above \$150,000 had the highest levels of community integration. Males, aged 60-64 years, with high school education only, living with others in a rural/regional area, and an annual household income $\leq$ \$30,000 had the lowest levels of community integration.

Insert Table 4 here

Each independent demographic measure had a significant relationship in the expected direction with the overall CIQ-R, accounting for 19% of the variance. In contrast, living situation did not make a unique contribution to either the ESN subscale or the Social subscale, while holding the other demographic variables constant. Level of education did not make a unique contribution to the Home subscale or the Social subscale while holding the other demographic variables constant. The demographic variables made the least impact on the Home Integration subscale with only gender, age and

living situation displaying a significant unique relationship with the subscale.

Those variables accounted for 33% of the variance.

On the whole, the individual contribution that each of the independent demographic variables gave to the models were all in the expected direction. Living alone increased the likelihood of being integrated into the community as a whole, as well as specifically in the home. Older age groups were less integrated in the community overall but more integrated into the home. In contrast, the youngest age group (18-29 years) were the most integrated in social, ESN, and productivity, but least integrated in home. Living in a rural/regional area decreased the likelihood of being integrated socially, productively, and electronically and subsequently overall community integration was lower. As income increased, so too did social integration, productivity and overall community integration, holding the other demographic variables constant.

While the contribution of the independent variables was generally in the expected direction, the impact was not so orderly. Having a university degree education seemed to make a larger positive difference to integration, as did income levels of \$60,000 and above. The impact of age on integration was also not consistent. Age seems to have had a reverse bell-curved

relationship with social integration, with those aged 40-49 years being the least likely to be socially integrated, holding gender, income and area of residence constant.

Test-retest Reliability

Table 5 provides detail of test-retest reliability, indicating correlations were strong. Paired sample t-tests revealed that there was very little change over time in absolute scores. Although mean Home Integration subscale scores decreased significantly from time one to time two, the high correlation for this subscale suggests that decreases were relatively consistent across participants. A possible explanation for this uniform decrease is proposed in the discussion section.

Insert Table 5 here

Discussion

The CIQ-R is a revised and updated version of an internationally recognised measure of community integration. The additional items gauging contemporary ESN, the improved method of scoring, and the normative data increase the CIQ-R's utility for occupational therapists and other health professional clinicians and researchers alike. Confirmatory factor analysis

verified that the ESN items formed a unique factor. To date, there has been no standardised measure of ESN available in either the clinical or research setting. The information collected here supports the growing evidence that ESN plays an important contributing role in community integration (Gutman, 2000; Todis et al., 2005; Tsaousides et al., 2011; Vaccaro et al., 2007) and provides further direction for occupational therapy practice.

This study collected normative data from a large representative sample of the Australian general population. The normative data collected provide a significant insight into the way that various sub-groups use their time to integrate into various aspects of community living, a core component of occupational therapy practice (Farnworth, 2003). Studies using the CIQ with people with neurological disability have provided some clues (Dijkers, 1997); however, it is only now that relative comparisons can be made. The CIQ-R and associated normative data provide occupational therapists and other clinician researchers the opportunity to quantify the level of community integration experienced by an individual or group of clients, compared to the general population and when matched on a range of characteristics. This in turn provides directions for intervention planning to influence community integration, in addition to use of the tool for outcome measurement and program evaluation, which has previously been unavailable.

The CIQ-R normative data indicated that there were significant demographic factors associated with both various CIQ-R subscales and the CIQ-R as a whole. Gender, age, education, income, location of residence and living situation all made various contributions to the level of community integration. Community integration is not uniform across the spectrum even in the general population – integration is connected with life stages and resources. As people age and progress through various life stages, particular categories of integration become more prominent, in keeping with the life course perspective which is a central focus of occupational therapy (Hutchison, 2011; Wheeler, 2005). Similarly and perhaps unsurprisingly, availability of financial and educational resources was found to positively influence integration.

On the whole, the CIQ-R exhibited a high degree of test-retest reliability. However, the anomaly of Home Integration was unexpected. A possible explanation emerges when considering the relative effect size. The difference between the test and retest means was 0.23, the standard deviations for both the test and retest results were approximately 2.5 and potential score range of the subscale was 0-12. While the finding may be

statistically significant, it is arguable as to whether the difference is substantive.

This study holds some limitations. Nineteen percent of the variance in overall CIQ-R scores was explained by demographic variables. Clearly there are other factors that influence community integration and future exploration of those would be beneficial. The normative data were based on a large representative sample of the Australian population. This may impact upon the generalizability of the results, especially to people from non-English speaking backgrounds, within developing countries, or in countries experiences greater racial diversity (Lequerica et al., 2013). CIQ-R normative data is confined to adults of working age; expansion of this age range is required, particularly as the population ages. The test-retest period was three-months and only completed with a sub-set of the original respondents. Examination of CIQ-R test-retest reliability may therefore benefit from replication with a shorter test-retest timeframe and a larger sample. Further pilot of the CIQ-R is also necessary, including testing with population groups living with various disabilities, to confirm acceptability of its use by a range of populations. Finally, use of the CIQ-R concurrently with other scales measuring similar or opposite constructs would confirm convergent validity.

In conclusion, this study updated an already useful tool with additional items that gauge contemporary (electronic) ways of integrating into the community, forming the CIQ-R. The measurement of electronic social networking adds further valuable knowledge about how the general population incorporates technology into their life, providing directions for occupational therapy practice. Normative CIQ-R data were collected from a large representative general population sample in Australia, addressing a significant deficit that has existed in research and clinical settings. This study enhances understanding of community integration in the general population and allows researchers and clinicians to make more meaningful comparisons between the outcomes of people with disability in the context of these findings.

References

- Arbuckle, J. (2012). *Amoss 22.0 User's Guide*. Chicago, IL: SPSS.
- Burleigh, S., Farber, R., & Gillard, M. (1998). Community integration and life satisfaction after traumatic brain injury: long-term findings. *American*

Journal of Occupational Therapy, 52(1), 45-52. doi:

10.5014/ajot.52.1.45

Corrigan, J., & Deming, R. (1995). Psychometric characteristics of the Community Integration Questionnaire: replication and extension.

Journal of Head Trauma Rehabilitation, 10(4), 41-53. doi:

10.1097/00001199-199508000-00005

Cusick, C., Gerhart, K., & Mellick, D. (2000). Participant-proxy reliability in traumatic brain injury outcome research. *Journal of Head Trauma Rehabilitation*, 15, 739-749. doi: 10.1097/00001199-200002000-00012

Dalemans, R., de Witte, L., Beurskens, A., van den Heuvel, W., & Wade, D.

(2010). Psychometric properties of the Community Integration Questionnaire adjusted for people with aphasia. *Archives of Physical Medicine and Rehabilitation*, 91, 395-399. doi:

10.1016/j.apmr.2009.10.021

Dijkers, M. (1997). Measuring the long-term outcomes of traumatic brain injury: a review of the Community Integration Questionnaire. *Journal of Head Trauma Rehabilitation*, 12(6), 74-91.

Doig, E., Fleming, J., & Tooth, L. (2001). Patterns of community integration 2-5 years post-discharge from brain injury rehabilitation. *Brain Injury*, 15(9), 747-762. doi: 10.1016/j.apmr.2003.12.002

- Esselman, P., Ptacek, J., Kowalske, K., Cromes, G., deLateur, B., & Engrav, L. (2001). Community integration after burn injuries. *Journal of Burn Care Rehabilitation, 22*, 221-227.
- Farnworth, L. (2003). Time use, tempo and temporality: occupational therapy's core business or someone else's business. *Australian Occupational Therapy Journal, 50*(3), 116-126. doi: 10.1046/j.1440-1630.2003.00391.x
- Forslund, M., Roe, C., Sigurdardottir, S., & Andelic, N. (2013). Predicting health-related quality of life 2 years after moderate-to-severe traumatic brain injury. *Acta Neurologica Scandinavica, 128*, 220-227. doi: 10.1111/ane.12130
- Gontovsky, S., Russum, P., & Stokie, D. (2009). Comparison of the CIQ and CHART short form in assessing community integration in individuals with chronic spinal cord injury: a pilot study. *NeuroRehabilitation, 24*(2), 185-192. doi: 10.3233/NRE-2009-0467
- Griffen, J., Hanks, R., & Meachen, S. (2010). The reliability and validity of the Community Integration Measure in persons with traumatic brain injury. *Rehabilitation Psychology, 55*(3), 292-297. doi: 10.1037/a0020503
- Gutman, S. (2000). Using a computer as an environmental facilitator to promote post-head injury social role resumption: A case report.

Occupational Therapy in Mental Health, 15(2), 71-90. doi:
10.1300/J004v15n02_05

- Hall, K., Mann, N., High, J., Wright, J., Kreutzer, J., & Wood, D. (1996). Functional measures after traumatic brain injury: ceiling effects of FIM, FIM+FAM, DRS, and CIQ. *Journal of Head Trauma Rehabilitation*, 11(5), 27-39.
- Hallgren, M., Nygard, L., & Kottorp, A. (2011). Technology and everyday functioning in people with intellectual disabilities: a Rasch analysis of the Everyday Technology Use Questionnaire (ETUQ). *Journal of Intellectual Disability Research*, 55(6), 610-620. doi: 10.1111/j.1365-2788.2011.01419.x
- Hirsh, A., Braden, A., Craggs, J., & Jensen, M. (2011). Psychometric properties of the Community Integration Questionnaire in a heterogeneous sample of adults with physical disability. *Archives of Physical Medicine and Rehabilitation*, 92(10), 1602-1610. doi: 10.1016/j.apmr.2011.05.004
- Huebner, R., Johnson, K., Bennett, C., & Schneck, C. (2003). Community participation and quality of life outcomes after adult traumatic brain injury. *American Journal of Occupational Therapy*, 57(2), 177-185.
- Hutchison, E. (2011). *Dimensions of human behaviour: the changing life course*. Thousand Oaks: Sage Publications Inc.

- Kaplan, P. (2000). Community Integration Questionnaire for patients with brain tumor: A comparative study. *American Journal of Physical Medicine and Rehabilitation*, 79(3), 243-246.
- Kaplan, P. (2001). The Community Integration Questionnaire with new scoring guidelines: concurrent validity and need for appropriate norms. *Brain Injury*, 15(8), 725-731. doi: 10.1080/02699050010005913
- Kielhofner, G. (2008). *Model of Human Occupation: theory and practice* (4 ed.). Baltimore, MD: Lippincott, Williams and Wilkins.
- Kim, H., & Colantonio, A. (2010). Effectiveness of rehabilitation in enhancing community integration after acute traumatic brain injury: a systematic review. *American Journal of Occupational Therapy*, 64(5), 709-719. doi: 10.5014/ajot.2010.09188
- Kratz, A., Chadd, E., Jensen, M., Kehn, M., & Kroll, T. (2015). An examination of the psychometric properties of the Community Integration Questionnaire (CIQ) in spinal cord injury. *Journal of Spinal Cord Injury*, 38(4), 446-455. doi: 10.1179/2045772313Y.0000000182
- Lequerica, A., Chiaravalloti, N., Sander, A., Pappadis, M., Arango-Lasprilla, J., Hart, T., . . . Sherman, T. (2013). The Community Integration Questionnaire: factor structure across racial/ethnic groups in persons

- with traumatic brain injury. *Journal of Head Trauma Rehabilitation*, 28(6), E14–E22. doi: 10.1097/HTR.0b013e31826e3ca8
- Linden, M., Crothers, I., O'Neill, S., & McCann, J. (2005). Reduced community integration in persons following traumatic brain injury, as measured on the Community Integration Measure: An exploratory analysis. *Disability and Rehabilitation*, 27(2), 1353-1356. doi: 10.1080/09638280500164180
- 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. doi: 10.1080/02699050701201631
- McColl, M., Carlson, P., Johnston, J., Minnes, P., Shue, K., & Davies, D. (1998). The definition of community integration: perspectives of people with brain injuries. *Brain Injury*, 12(1), 15-30.
- Negahban, H., Fattahizadeh, P., Salehi, R., Majdinasab, N., & Mazaheri, M. (2013). The Persian Version of Community Integration Questionnaire in persons with multiple sclerosis: translation, reliability, validity, and factor analysis. *Disability and Rehabilitation*, 35(17), 1453-1459. doi: 10.3109/09638288.2012.741653
- Parveneh, S., & Cocks, E. (2012). Framework for describing community integration for people with acquired brain injury. *Australian*

- Occupational Therapy Journal*, 59(2), 131-137. doi: 10.1111/j.1440-1630.2012.01001.x
- Ritchie, L., Wright-St Clair, V., Keogh, J., & Gray, M. (2014). Community integration following traumatic brain injury: a systematic review of the clinical implications of measurement and service provision for older adults. *Archives of Physical Medicine and Rehabilitation*, 95(1), 163-174. doi: 10.1016/j.apmr.2013.08.237
- Rosenberg, L., Nygard, L., & Kottorp, A. (2009). Everyday Technology Use Questionnaire: Psychometric evaluation of a new assessment of competence in technology use. *Occupational Therapy Journal of Research*, 29(2), 52-62.
- Sander, A., Clark, A., & Pappadis, M. (2010). What is community integration anyway?: Defining meaning following traumatic brain injury. *Journal of Head Trauma Rehabilitation*, 25(2), 121-127. doi: 10.1097/HTR.0b013e3181cd1635
- Sander, A., Fuchs, K., High, J., Hall, K., Kreutzer, J., & Rosenthal, M. (1999). The Community Integration Questionnaire revisited: an assessment of factor structure and validity. *Archives of Physical Medicine and Rehabilitation*, 80(10), 1303-1308. doi: 10.1016/S0003-9993(99)90034-5
- Seale, G., Caroselli, J., High, J., Becker, C., Neese, L., & Scheibel, R. (2002). Use of the Community Integration Questionnaire (CIQ) to characterize

changes in functioning for individuals with traumatic brain injury who participated in a post-acute rehabilitation programme. *Brain Injury*, 16(11), 955-967. doi: 10.1080/02699050210155258

Sendroy-Terrill, M., Whiteneck, G., & Brooks, C. (2010). Aging with traumatic brain injury: a cross-sectional follow-up of people receiving inpatient rehabilitation over more than 3 decades. *Archives of Physical Medicine and Rehabilitation*, 91(3), 489-497. doi: 10.1016/j.apmr.2009.11.011

Sloan, S., Callaway, L., Winkler, D., McKinley, K., & Ziino, C. (2012). Accommodation outcomes and transitions following community-based intervention for individuals with acquired brain injury. *Brain Impairment*, 13(1), 24-43. doi: 10.1017/BrImp.2012.5

Sloan, S., Callaway, L., Winkler, D., McKinley, K., Ziino, C., & Anson, K. (2009a). Changes in care and support needs following community-based intervention for individuals with acquired brain injury. *Brain Impairment*, 10(3), 295-306. doi: 10.1375/brim.10.3.295

Sloan, S., Callaway, L., Winkler, D., McKinley, K., Ziino, C., & Anson, K. (2009b). The Community Approach to Participation: outcomes following acquired brain injury intervention. *Brain Impairment*, 10(3), 282-294. doi: 10.1375/brim.10.3.282

- Sloan, S., Winkler, D., & Anson, K. (2007). Long-term outcome following traumatic brain injury. *Brain Impairment*, 8(3), 251-261. doi: 10.1375/brim.8.3.251
- Sloan, S., Winkler, D., & Callaway, L. (2004). Community integration following severe traumatic brain injury: Outcomes and best practice. *Brain Impairment*, 5(1), 12-29. doi: 10.1375/brim.5.1.12.35399
- Statacorp. (2012). *Stata 12 Reference Manual*. College Station, TX: Stata Press.
- Stiers, W., Carlozzi, N., Cernich, A., Velozo, C., Pape, T., Hart, T., . . . Whiteneck, G. (2012). Measurement of social participation outcomes in rehabilitation of veterans with traumatic brain injury. *Journal of Rehabilitation Research Development*, 49(1), 139-154. doi: 10.1682/JRRD.2010.07.0131
- Tate, R., Broe, A., Cameron, I., Hodgkinson, A., & Soo, C. (2005). Pre-injury, injury and early post-injury predictors of long-term functional and psychosocial recovery after severe traumatic brain injury. *Brain Impairment*, 6(2), 75-89. doi: 10.1375/brim.2005.6.2.75
- Tepper, S., Beatty, P., & deJong, G. (1996). Outcomes in traumatic brain injury: self-report versus report of significant others. *Brain Injury*, 10(8), 575-581. doi: 10.1080/026990596124142

- Todis, B., Sohlberg, M., Hood, D., & Fickas, S. (2005). Making electronic mail accessible: Perspectives of people with acquired cognitive impairments, caregivers and professionals. *Brain Injury, 19*(6), 389-401. doi: 10.1080/02699050400003957
- Tsaousides, T., Matsuzawa, Y., & Lebowitz, M. (2011). Familiarity and prevalence of Facebook use for social networking among individuals with traumatic brain injury. *Brain Injury, 25*(12), 1155-1162. doi: 10.3109/02699052.2011.613086
- Vaccaro, M., Hart, T., Whyte, J., & Buchhofer, R. (2007). Internet use and interest among individuals with traumatic brain injury: A consumer survey. *Disability and Rehabilitation, 29*(2), 85-95. doi: 10.1080/17483100601167586
- Wehman, P., Gentry, T., West, M., & Arango-Lasprilla, J. (2009). Community integration: current issues in cognitive and vocational rehabilitation for individuals with ABI. *Journal of Rehabilitation Research Development, 46*(6), 909-918. doi: 10.1682/JRRD/2008.08.0105
- Wheeler, S. (2005). Transitions to adult life. In A. Cronin & M. Mandich (Eds.), *Human development and performance throughout the lifespan* (pp. 264-284). Clifton Park NJ: Thomson Delmar Learning.

- Willer, B., Ottenbacher, K., & Coad, M. (1994). The Community Integration Questionnaire: a comparative examination. *American Journal of Physical Medicine and Rehabilitation*, 73(2), 103-111.
- Willer, B., Rosenthal, M., Kreutzer, J., Gordon, W., & Rempel, R. (1993). Assessment of community integration following rehabilitation for traumatic brain injury. *Journal of Head Trauma Rehabilitation*, 8(2), 75-87.
- Willis, B., & Lessler, J. (1999). Question Appraisal System QAS-99. Retrieved from <http://www.appliedresearch.cancer.gov/areas/cognitive/QAS99>
- Winkler, D., Farnworth, L., & Sloan, S. (2006). People under 60 living in aged care facilities in Victoria. *Australian Health Review*, 30(1), 100-108. doi: 10.1071/AH060100
- Winkler, D., Farnworth, L., Sloan, S., Brown, T., & Callaway, L. (2010). Comparison of people with ABI living in two accommodation settings: shared supported accommodation and residential aged care. *Brain Impairment*, 11(3), 313-325. doi: 10.1375/brim.11.3.313
- Winkler, D., Sloan, S., & Callaway, L. (2010). People under 50 with acquired brain injury living in residential aged care. *Brain Impairment*, 11(3), 299-312. doi: 10.1375/brim.11.3.299
- Winkler, D., Unsworth, C., & Sloan, S. (2006). Factors that lead to successful community integration following severe traumatic brain injury. *Journal*

of Head Trauma Rehabilitation, 21(1), 8-21. doi: 10.1097/00001199-200601000-00002

- Wise, E., Mathews-Dalton, C., Dikmen, S., Temkin, N., Machamer, J., Bell, K., & Powell, J. (2010). Impact of traumatic brain injury on participation in leisure activities. *Archives of Physical Medicine and Rehabilitation*, 91(9), 1357-1362. doi: 10.1016/j.apmr.2010.06.009.
- Wong, Y., & Solomon, P. (2002). Community integration of persons with psychiatric disabilities in supportive independent housing: A conceptual model and methodological considerations. *Mental Health Service Research*, 4(1), 13-28.

Table 1. Participant demographics (N=1973)

	N	%
<u>Gender</u>		
Male	983	49.8
Female	990	50.2
<u>Age</u>		
18-29 years	566	28.7
30-39 years	427	21.6
40-49 years	387	19.6
50-59 years	418	21.2
60-64 years	175	8.9
<u>Residence</u>		
Metro	1324	67.1
Regional/rural	649	32.9
<u>Education</u>		
Some/all high school	632	32.0
TAFE/Community college/Trade school	618	31.3
University degree	723	36.6
<u>Annual household income (AUD)</u>		
≤\$30,000	323	16.4
\$30,001-\$60,000	429	21.7
\$60,001-\$90,000	450	22.8
\$90,001-\$120,000	333	16.9
\$120,001-\$150,000	229	11.6

> \$150,000	209	10.6
<u>Living situation</u>		
Lives with other people	1704	86.4
Lives alone	269	13.6
<u>Internet access*</u>		
Home broadband connection	1809	91.7
Internet-enabled smartphone or tablet	1132	57.4
Internet in the local community	413	20.9
Other types of Internet access	108	5.5

* Multiple response question. All participants reported having access to the Internet.

Table 2. Confirmatory Factor Analysis standardized factor loadings for Model 4

Item	Home	Social	Productivity	Technology
1(H) Who usually does shopping for groceries or other necessities in your household?	.772			
2(H) Who usually prepares meals in your household?	.785			
3(H) In your home who usually does normal everyday housework?	.744			
4(H) Who usually cares for the children in your home?	.872			
5(H) Who usually plans social arrangements such as get-togethers with family and friends?	.489			
6(S) Who usually looks after your personal finances, such as banking or paying bills?	.358			
7(S) Can you tell me approximately how many times a month you now usually participate in the following activities outside your home? (Shopping)	.209	.350		
8(S) Can you tell me approximately how many times a month you now		.620		

	usually participate in the following activities outside your home? (Leisure activities such as movies, sports, restaurants, etc.)	
9(S)	Can you tell me approximately how many times a month you now usually participate in the following activities outside your home? (Visiting friends or relatives)	.577
10(S)	When you participate in leisure activities do you usually do this alone or with others?	.382
11(S)	Do you have a best friend with whom you confide?	.386
12(P)	How often do you travel outside the home?	.603
13(P)	Job/school variable	.482
14(T)	How often do you write to people for social contact using the Internet	.513
15(T)	How often do you talk to people for social contact using an online video link	.338
16(T)	How often do you make social contact with people by talking or text	.681

messaging using your phone?

Note. All factor loadings were statistically significant ($p < .001$).

Author Manuscript

Table 3. Results of linear multiple regression analyses for variables predicting CIQ-R total and home, social, productivity, and technology subscales (*N*=1973)

Independent measures		Dependent measures									
		Total CIQ-revised score		Home subscale score		Social subscale score		Productivity subscale score		ESN subscale score	
		B (SE)	p	B (SE)	p	B (SE)	p	B (SE)	p	B (SE)	p
Gender	Male	19.76 (3.54)	<.001	5.73 (0.12)	<.001	6.30 (0.15)	<.001	4.36 (0.13)	<.00	3.29 (0.12)	<.001
	Female	1.99 (0.20)		1.55 (0.10)		0.52 (0.09)		-0.40 (0.07)	1	0.34 (0.07)	
Age	18-29 years	19.76 (3.54)	<.001	5.73 (0.12)	<.001	6.30 (0.15)	<.001	4.36 (0.13)	<.00	3.29 (0.12)	<.001
	30-39 years	-0.17 (0.28)		0.92 (0.14)		-0.36 (0.12)		-0.37 (0.10)	1	-0.37 (0.10)	
	40-49 years	-0.92 (0.29)		0.95 (0.15)		-0.68 (0.13)		-0.47 (0.11)		-0.80 (0.10)	
	50-59 years	-1.29 (0.29)		0.88 (0.15)		-0.57 (0.13)		-0.84 (0.11)		-0.87 (0.10)	
	60-64 years	-1.57 (0.38)		0.98 (0.20)		-0.18 (0.17)		-1.54 (0.14)		-0.88 (0.13)	
Residence	Metro	19.76 (3.54)	<.001			6.30 (0.15)	<.001	4.36 (0.13)	<.00	3.29 (0.12)	<.01
	Regional/rural	-0.98 (0.21)				-0.39 (0.09)		-0.29 (0.08)	1	-0.24 (0.07)	
Educational level	Some/all high school	19.76 (3.54)	<.001					4.36 (0.13)	<.01	3.29 (0.12)	<.001

Education	TAFE/community	0.27 (0.24)				0.03 (0.09)		0.11 (0.08)		
	college	1.23 (0.25)				0.26 (0.09)		0.51 (0.08)		
	University degree									
Annual household income (AUD)	≤\$30,000	19.76 (3.54)	<.001		6.30 (0.15)	<.001	4.36 (0.13)	<.00	3.29 (0.12)	<.05
	\$30,001-\$60,000	0.74 (0.32)			0.32 (0.14)		0.70 (0.12)	1	-0.05 (0.11)	
	\$60,001-\$90,000	1.70 (0.32)			0.70 (0.14)		1.13 (0.12)		0.11 (0.11)	
	\$90,001-\$120,000	2.25 (0.35)			0.85 (0.15)		1.54 (0.13)		0.20 (0.12)	
	\$120,001-\$150,000	2.26 (0.39)			0.98 (0.17)		1.53 (0.14)		0.19 (0.13)	
	>\$150,000	2.52 (0.40)			1.19 (0.17)		1.56 (0.15)		0.38 (0.14)	
Living situation	Lives with other people	19.76 (3.54)	<.001	5.73 (0.12)	>.001		4.36 (0.13)	<.01		
	Lives alone	3.88 (0.29)		3.82 (0.15)			0.28 (0.11)			
R ²		0.19		0.33		0.08		0.21		0.13

Note: p – significance of F statistic (wald test) for dummy coded categorical variables.

A demographic variable that was not a significant predictor was removed from the final regression model presented here.

Table 4. CIQ-R normative data partitioned by demographic characteristics (N=1973).

Means and standard deviations								
	Total CIQ- revised	Home Competency subscale (rev.)	Social Integration subscale (rev.)	Productivity subscale	Electronic Social Networking subscale	New ESN item (1)	New ESN item (2)	New ESN item (3)
Total possible maximum score								
All participants	22.33 (4.74)	7.69 (2.72)	6.70 (2.00)	4.73 (1.77)	3.21 (1.57)	1.27 (0.79)	0.47 (0.70)	1.47 (0.69)
<u>Gender</u>	***	***	***	***	***	***		***
Male	21.39 (4.87)	7.00 (2.74)	6.45 (2.04)	4.94 (1.69)	2.99 (1.66)	1.16 (0.82)	0.48 (0.71)	1.36 (0.72)
Female	23.27 (4.40)	8.38 (2.53)	6.95 (1.93)	4.52 (1.83)	3.43 (1.45)	1.39 (0.74)	0.46 (0.69)	1.58 (0.65)
<u>Age</u>	***	***	***	***	***	***	***	***

18-29 years	23.15	7.13 (2.82)	7.11 (1.98)	5.13 (1.57)	3.79 (1.43)	1.47 (0.70)	0.66 (0.79)	1.65 (0.60)
30-39 years	(4.64)	7.84 (2.42)	6.77 (1.87)	4.96 (1.60)	3.42 (1.50)	1.34 (0.77)	0.51 (0.70)	1.56 (0.62)
40-49 years	22.98	7.87 (2.73)	6.39 (1.96)	4.84 (1.68)	2.90 (1.48)	1.13 (0.80)	0.34 (0.60)	1.43 (0.70)
50-59 years	(4.57)	7.93 (2.82)	6.40 (2.11)	4.40 (1.92)	2.73 (1.64)	1.10 (0.85)	0.34 (0.62)	1.29 (0.77)
60-64 years	22.00	8.19 (2.61)	6.62 (2.02)	3.45 (1.93)	2.68 (1.54)	1.18 (0.81)	0.33 (0.62)	1.17 (0.73)
	(4.48)							
	21.46							
	(4.90)							
	20.94							
	(4.88)							
<u>Residence</u>	***		***	***	***	***	***	***
Metro	22.81	7.65 (2.69)	6.88 (1.89)	4.94 (1.65)	3.35 (1.55)	1.32 (0.77)	0.51 (0.72)	1.52 (0.67)
Regional/rural	(4.52)	7.78 (2.80)	6.34 (2.18)	4.30 (1.94)	2.93 (1.57)	1.18 (0.82)	0.38 (0.65)	1.37 (0.73)
	21.35							
	(5.01)							
<u>Education</u>	***		***	***	***	***	***	***

Some/all high school	21.55	7.65 (2.99)	6.55 (2.02)	4.42 (1.94)	2.93 (1.55)	1.18 (0.82)	0.35 (0.65)	1.40 (0.74)
TAFE/community college	(4.87)	7.75 (2.64)	6.49 (2.05)	4.53 (1.85)	3.00 (1.53)	1.19 (0.79)	0.37 (0.64)	1.43 (0.71)
University degree	21.77	7.68 (2.54)	7.01 (1.91)	5.17 (1.44)	3.64 (1.53)	1.43 (0.74)	0.65 (0.75)	1.56 (0.63)
	(4.74)							
	23.50							
	(4.38)							
<u>Annual household income (AUD)</u>	***	***	***	***	***	*		***
≤\$30,000	21.30	8.50 (3.10)	6.15 (2.23)	3.60 (2.10)	3.06 (1.61)	1.25 (0.78)	0.42 (0.67)	1.38 (0.75)
\$30,001-\$60,000	(5.33)	7.96 (2.82)	6.40 (1.99)	4.29 (1.85)	2.96 (1.57)	1.20 (0.80)	0.41 (0.67)	1.35 (0.74)
\$60,001-\$90,000	21.61	7.59 (2.56)	6.79 (1.86)	4.89 (1.64)	3.23 (1.57)	1.29 (0.79)	0.47 (0.72)	1.47 (0.69)
\$90,001-\$120,000	(5.12)	7.34 (2.61)	6.90 (1.92)	5.32 (1.35)	3.32 (1.56)	1.25 (0.81)	0.52 (0.71)	1.55 (0.64)
\$120,001-\$150,000	22.49	7.28 (2.36)	7.07 (1.90)	5.33 (1.20)	3.36 (1.49)	1.33 (0.77)	0.47 (0.68)	1.56 (0.65)
>\$150,000	(4.46)	7.13 (2.47)	7.26 (1.91)	5.43 (1.33)	3.61 (1.52)	1.41 (0.77)	0.56 (0.76)	1.64 (0.58)
	22.88							
	(4.52)							
	23.03							

	(4.11)							
	23.43							
	(3.95)							
<u>Living situation</u>	***	***	**					
Lives with other people	21.92	7.16 (2.47)	6.77 (1.94)	4.76 (1.74)	3.23 (1.56)	1.28 (0.79)	0.47 (0.70)	1.48 (0.69)
Lives alone	(4.60)	11.04 (1.66)	6.27 (2.30)	4.54 (1.96)	3.10 (1.63)	1.22 (0.80)	0.47 (0.73)	1.41 (0.75)
	24.95							
	(4.75)							

* p<.05, ** p<.01, ***p<.001

Table 5. Test-retest reliability (N=78).

	Mean (SD) T1	Mean (SD) T2	Pearson's r	Paired samples t- test
Total CIQ score	19.05 (4.31)	18.98 (3.47)	.84	t(77)=0.28, p=.78
Total CIQ revised score	21.79 (5.26)	21.59 (4.39)	.84	t(77)=0.62, p=.54
Home Competency score (rev.)	8.23 (2.60)	8.00 (2.48)	.94	t(77)=2.27, p<.05
Social Integration score (rev.)	6.42 (2.04)	6.47 (1.86)	.66	t(77)=-0.28, p=.78
Productivity score	4.40 (1.83)	4.50 (1.79)	.78	t(77)=-0.76, p=.45
ESN integration	2.74 (1.60)	2.62 (1.60)	.70	t(77)=0.90, p=.36