Goal reengagement is related to mental well-being, life satisfaction and acceptance in people with an acquired brain injury

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Abstract

Objective: After an acquired brain injury (ABI), the achievement of previous life goals may no longer be feasible. This study examined whether self-reported disengagement from previous goals and reengagement towards new, more feasible goals, are associated with higher quality of life (QOL) and life satisfaction. We also examined whether acceptance mediated these relationships.

Methods: Eighty-two individuals (18-68 years of age) with an ABI completed a battery of questionnaires. We investigated the relations between goal disengagement and reengagement on the one hand, and general QOL, disease-specific QOL, life satisfaction and acceptance, on the other hand. Rehabilitation psychologists provided estimates of self-awareness and the extent of motor, communicative and cognitive impairment.

Results: Goal reengagement, but not goal disengagement, was positively associated with mental QOL and life satisfaction, after statistically controlling for demographic and impairments. Acceptance mediated the relationship between goal reengagement on the one hand, and mental QOL and life satisfaction, on the other hand.

Conclusion: After an ABI, reengagement in feasible goals is more important in explaining mental wellbeing and life satisfaction than disengagement from unattainable goals. Interventions aimed at identifying and pursuing new, feasible goals may be more helpful than strategies focusing on the loss of blocked goals.

Keywords: Acquired brain injury, Quality of life, Acceptance, Goal adjustment, Life satisfaction

Introduction

An acquired brain injury is an injury to the brain, that is not hereditary, congenital or degenerative, but obtained after birth (Tibaek, Kammersgaard, Johnsen, Dehlendorff, & Forchhammer, 2019). Most frequent causes are traumatic brain injury and stroke (Turner-Stokes, Pick, Nair, Disler, & Wade, 2015). In Flanders, the northern part of Belgium, there is an estimated prevalence of 183/100000 of adults with ABI-related disabilities (Lannoo Brusselmans, Van Eynde, Van Laere, & Stevens, 2004). An Irish study reported similar results (Finnerty, Glynn, Dineen, Colfer, & MacFarlane, 2009). Impairments vary substantially between individuals, ranging from impairments in motor abilities, over concentration and memory problems to difficulties to communicate (Turner-Stokes et al., 2015).

The quality of life (QOL) of individuals with ABI is often affected. Individuals with ABI often lose their job (Donker-Cools, Schouten, Wind, & Frings-Dresen, 2018), or leisure activities (Bier, Dutil, & Couture, 2009), and the impact on social life may be devastating (Stalneck, 2007). According to the World Health Organization (WHO), QOL is a broad-ranging concept referring to the individuals' perception of their position in life in their cultural and personal context and in relation to their expectations affected (WHOQOL Group, 1993, p. 153). Various studies have shown that people with an ABI report a lower QOL compared to population norms (Polinder, Haagsma, van Klaveren, Steyerberg, & Van Beeck, 2015). Ten years post-injury, the QOL of individuals with a traumatic brain injury is lower than that of an age- and sex-matched control individuals (Jacobsson, Westerberg, & Lexell, 2010). Also, satisfaction with life is substantially lower (Jacobsson, & Lexell, 2013) six to ten years after the injury. Remarkably, Pierce & Hanks (2006) found that the impairments or difficulties in activities and participation, as formulated by the WHO's International Classification of Functioning, Disability and Health (Bilbao et al., 2003), only accounted for a small portion of the variability in life satisfaction. This observation raises the question which factors are associated with life satisfaction and QOL.

Individuals with ABI face a new reality, one that they did not anticipate, with premorbid life goals that are not attainable anymore. Most people are reluctant to the idea that this new reality is permanent. When it becomes gradually clear that a return to a premorbid life has become impossible, people may start to accept their new life situation, which may be a necessary step to prevail QOL. In several chronic conditions, acceptance has been shown to be associated with less psychological distress and increased wellbeing (e.g. Viane, Crombez, Eccleston, Devulder, & Decorte, 2004; Van Damme, Crombez, Van Houdenhove, Mariman, & Michielsen, 2006; Poppe, Crombez, Hanoulle, Vogelaers, & Petrovic, 2013). Townsend, Tinson, Kwan, & Sharpe (2010) found that patients who reported a higher acceptance of disability after stroke reported less feelings of depression. Van Bost, Van Damme & Crombez (2017) found that patients with more acceptance of their illness reported a better QOL after an ABI, even after controlling for demographic factors and illness characteristics. Van Mierlo, van Heugten, Post, de Kort, & Visser-Meily (2015) found similar associations between acceptance and life satisfaction in stroke patients. Acceptance should not be understood as passively giving in, but rather as the result of an active process, whereby the individual acknowledges that the situation is unlikely to change and manages to shift attention away from the disease towards other, not disease-related, aspects of life (Risdon, Eccleston, Crombez, & McCracken 2003).

Theoretical models of coping with adversity might help understand these above reported findings. Particularly relevant is the dual process model of coping (Brandtstadter & Rothermund, 2002, Skinner, Edge, Altman, & Sherwood, 2003), which describes two modes of coping with adversity. Assimilative coping is the tendency to persist in pursuing the blocked goal by trying to change or control the actual situation (e.g. problem solving). Accommodative coping is the flexible adjustment of goals to available resources and constraints (e.g. acceptance). When increased effort, e.g. by following rehabilitation, allows the person to hang on to a valued goal, assimilative coping can be useful (Van Damme et al., 2016). However, after a brain injury realisation of the pre-injury goals is often unfeasible. Striving towards unattainable goals is associated with a lower well-being and the more

unattainable goals people reported, the lower their subjective well-being (Rasmussen, Wrosch, Scheier, & Carver, 2006). In a study with stroke patients (Smout, Koudstaal, Ribbers, Janssen, & Passchier, 2001) assimilative coping was related to a lower quality of life, whereas accommodative coping was shown to be beneficial. Given the importance of goal adjustment for maintaining well-being, a further analysis of the goal adjustment process is warranted. Wrosch, Scheier, Miller, Schulz, & Carver (2003) distinguish between two different components of goal adjustment: disengagement from previous goals and reengagement towards new goals. Both components can be framed as accommodative coping within the dual process theory of coping. Goal disengagement is the ability to withdraw commitment to an unfeasible goal, whereas goal reengagement refers to identifying and committing to alternative goals (Mens & Scheier, 2017). These two components are likely to be related but notwithstanding distinct. Individuals might start working towards new goals, without giving up the old goals. Otherwise, individuals might disengage from their previous goals, without immediately working towards new goals (Janse, Ranchor, Smink, Sprangers, & Fleer, 2015).

This study aimed to investigate the relationship between goal disengagement and reengagement on the one hand, and QOL and life satisfaction on the other hand. We expect both processes to have positive effects. Nevertheless, based upon previous research in other medical conditions, we expect goal reengagement to contribute more to wellbeing than goal disengagement. For example, in a study with people with Peripheral Arterial Disease, Garnefski, Grol, Kraaij, & Hamming (2008) found that after controlling for age, gender and physical limitations, goal reengagement still was a predictor of depressive symptoms, whereas no effect of goal disengagement could be found. In a study with people with Multiple Sclerosis, goal reengagement was a better predictor of mental wellbeing indicators than goal disengagement (Van Damme, Kindt, Crombez, Goubert, & Debruyne, in press). Given the role of acceptance in wellbeing in people with ABI (Van Bost et al., 2017), we also tested whether acceptance mediated the relationship between goal disengagement and reengagement, and indicators of wellbeing.

Method

Participants

Patients with an ABI who were following a rehabilitation program were invited to participate in the study by the psychologist of their multidisciplinary rehabilitation team. Of note, the health insurance in Belgium excludes patients with a degenerative disorder in such programs. Ninety persons who were considered capable of answering the questions by their rehabilitation professionals agreed to participate. Inclusion criteria were: a) Participants were between 18 and 67 years old. b) They needed to have a sufficient knowledge of the Dutch language to fill out the questionnaires. c) Their level of cognitive functioning and self-awareness had to be sufficient to answer the items of the questionnaires. The rehabilitation professionals of the participating centres were familiar with the questionnaires when they invited their patients if they were prepared to participate. The researcher checked whether the participants were aware that they experienced the consequences of a brain injury, although it was not necessary that they could provide an exact description of the impairments. After the data collection, we excluded participants with a life-threatening condition (brain tumour).

The final sample consisted of eighty-two participants (56 male, 26 female). The majority (58 patients) were recruited from two outpatient rehabilitation units, 22 from a specialised day-care centre, and 2 patients following psychotherapy with a privately working psychotherapist. The mean age was 46.43 years (SD=13.51; range: 18-68). None of the participants was employed. Participants had on average 12.61 years (SD=2.68; range 8-19) of formal education. Mean time since injury was 30.00 months (SD=41.04; range 4-295).

Most patients had an ABI because of a stroke (46 patients) or a traumatic brain injury (20 patients). One patient's brain injury was caused by the surgical removal of a tumour, one patient had an encephalitis, two suffered from anoxia after a cardiac arrest, and one brain injury was caused by inhalation of toxic gases. For 11 patients, no information on aetiology was available.

The project was approved by the ethical committee of the Faculty of Psychology and Educational Sciences of the Ghent University with reference number 2017/52. All respondents provided written informed consent. They also agreed that the rehabilitation psychologist would provide the researchers demographic information and information about their impairments. The respondents filled out the questionnaires in their rehabilitation centre. This was done in the presence of a researcher, who could help the respondent in focusing him on the task, clarifying questions, especially when people had communication problems, or in helping to write down the answers. This researcher was the first author or a graduate student, who was instructed to limit herself to these tasks, reducing the risk of influencing the respondent. On average it took 90 minutes to complete the questionnaires, but there was a variation because of the heterogeneity of the respondents. Some respondents needed no help and were able to answer fast and accurate in a single one-hour session, whereas others needed more clarification and were slower or more easily fatigued or distracted. For about half of the respondents it took two or three sessions to complete all questionnaires.

Questionnaires

Expert judgement was used to assess the respondents' level of impairment. The treating rehabilitation psychologist rated motor function, communication, cognition and self-awareness on a 7-point scale. The psychologist had followed the participants at least for three months and had a good insight in the participants impairments. They were asked to score a 7 for a perfect age-appropriate functioning on that domain, a 6 is when there are questions about that function, or some known discrete deficits. Scores 5, 4, and 3 were given for clear deficits, varying in severity. Scores 2 and 1 were for more extreme deficits.

The patients were invited to fill out a battery of questionnaires. The Goal Adjustment Scale (GAS; Wrosch et al., 2003) people are asked to indicate to what extent they use a strategy when confronted with a blocked goal. This questionnaire consists of 10 items divided in two scales: A Disengagement scale (e.g. "It's easy for me to reduce my effort towards the goal") and a Reengagement scale (e.g. "I start working on other goals"). Items

are evaluated on a 5-point scale. Wrosch et al. (2003) reported a Cronbach's Alfa .84 for the Disengagement scale and .86 for the Reengagement scale. Using the Dutch version of the GAS in a study with people with polyarthritis, Arends, Bode, Taal, & van de Laar (2016) found a Cronbach's Alfa .76 and .74 respectively. To the best of our knowledge this questionnaire has not been used in a population of people with ABI.

To measure acceptance the "Illness Cognition Questionnaire" (ICQ; Evers et al., 2001; Lauwerier, Crombez, Van Damme, Goubert, & Evers, 2010) was used. This 18-item self-report instrument assesses three illness cognitions: (1) Helplessness (6 items, e.g. "My illness frequently makes me feel helpless"), (2) Acceptance (6 items, e.g. "I have learned to live with my illness") and (3) Disease benefits (6 items, e.g. "My illness has made me appreciate life more"). The reliability and validity of the ICQ are satisfactory (Evers et al. 2001; Lauwerier et al., 2010). In a study with Dutch speaking patients with an ABI Van Bost et al. (2017) found a Cronbach's Alfa of .85 for the Acceptance Scale.

As a generic instrument of QOL, we used the MOS 36-Item Short Form Health Survey (Ware & Gandek, 1998). According to Polinder et al. (2015) the SF-36 is the most widely used instrument in QOL-research with people with a TBI. It consists of 36 items and results in an 8-scale health profile. These scales can be combined into an overall physical component (e.g. "During the past 4 weeks, did you have one of the following problems at work or with other daily activities because of your physical health? (spent less time on work or other activities, achieved less, etc.)") and a mental health component (e.g. "During the past 4 weeks, did you have one of the following problems at work or with other daily activities because of emotional problems? (spent less time on work or other activities, achieved less, etc.)"). In a group of people with a traumatic brain injury the reliability and validity of the SF-36 (Findler, Cantor, Haddad, Gordon, & Ashman, 2001) were satisfactory. In a similar study with people with an ABI Van Bost et al. (2017) found a Cronbach's Alfa for the Physical Component of .89 and for the Mental Health Component of .81.

A consensus group, led by Bullinger et al. (2002) stressed the importance of using a disease-specific measure of QOL, next to a generic instrument, for patients with an ABI. The

European Brain Injury Questionnaire EBIQ (Teasdale, Christenssens, Willems, Deloche, Braga, 1997) can be used in the rehabilitation and the long-term phase. We used the self-report form. Each of the 63 items is scored on a three-point scale (“not at all”, “a little”, “a lot”). Teasdale et al. (1997) derived 8 scales: (1) Somatic (8 items, e.g. “Lack of energy”), (2) Cognitive (13 items, e.g. “Trouble concentrating”), (3) Motivation (5 items, e.g. “Lack of interest in hobbies in the home”), (4) Impulsivity (13, e.g. “Behaving tactlessly”), (5) Depression (9 items, e.g. “Feeling hopeless about the future”), (6) Isolation (4 items, e.g. “Thinking only of oneself”), (7) Physical (6 items, e.g. “Needing help with personal hygiene”, (8) Communication (4 items, e.g. “Difficulty in communication”). The Core scale (34 items, e.g. “Problems in general”) consisted of those items showing the highest degree of communality in analyses using factor analysis. Reliability and validity of the EBIQ (Sopena, Dewar, Nannery, Teasdale, & Wilson, 2007) were satisfactory in studies with brain-injured patients. Van Bost et al. (2017) translated the EBIQ in Dutch with permission and the backtranslation was checked and approved by Dr Teasdale. The Dutch version of the questionnaire can be found as a supplemental file to that article. In that study the Core Scale had a Cronbach’s Alfa of .92. In the present study we will use this Core Scale.

The Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985) measures the satisfaction with life. It does not assess satisfaction with specific life domains or emotional well-being but allows individuals to weigh and integrate these domains in whatever way they want. It consists of five items that are scored on a 7-point scale (e.g. “In most ways my life is close to my ideal”). In a study with people with a traumatic brain injury (Jacobsson, & Lexell, 2016), the Swedish version of the SWLS had a Cronbach’s Alfa of .80.

Statistical analysis

Descriptive statistics were used for the demographic information, the therapist-rated impairments and the results of the questionnaires. Pearson correlations between those variables were calculated. A series of the regression analyses was conducted to study the effect of goal adjustment on indicators of QOL. Dependent variables were the Physical and

Mental component of the SF-36, the EBIQ Core Scale and the SWLS. In each analysis the demographic variables age, gender and education were entered in a first step. The four therapist ratings of impairments were entered in the second step. In the third and final step, Goal Disengagement and Goal Reengagement were entered.

We conducted mediation analysis to test whether the relationship between goal reengagement and the indicators of wellbeing was mediated by the acceptance of the current situation. The following conditions should be met to be able to test for mediation (Holmbeck, 2002). (1) The association between the predictor and the outcome is significant. (2) The association between the predictor and the mediator is significant. (3) There is a significant association between the mediator and the outcome, after controlling for the effect of the predictor. Mediation is obtained when the predictor-outcome-effect is reduced after controlling for the mediator, and this was tested using the Sobel-test. All analyses were done by SPSS version 22.

Results

Characteristics of the patient sample and correlation analysis

Mean scores, standard deviations and internal consistency (Cronbach's α) for demographic factors, indicators of therapist-rated impairments, goal adjustment, acceptance and different indicators of well-being are presented in Table 1. All measures had a satisfactory internal consistency.

Insert Table 1

Correlations between demographic factors, indicators of therapist-rated impairments, goal adjustment, acceptance and different indicators of well-being are presented in Table 1. Of particular importance was the positive correlation of Reengagement (Wrosch GAS) with Acceptance (ICQ), Life Satisfaction (SWLS) and Physical and Mental health (SF-36), but not with the disease-specific indicator of QOL after brain injury (EBIQ). Acceptance was highly correlated with Life Satisfaction, Physical and Mental Health, and the disease-specific indicator of QOL.

Regression analysis

The results of the final model of the regression analyses are shown in Table 2. The regression analysis on the physical component of the SF-36 as the dependent variable revealed that neither Goal Disengagement or Goal Reengagement had unique explanatory value beyond the control variables from the first step ($F_{\text{Change}}(2,69) = 1.72$, ns). Self-reported physical functioning was lower for older patients, higher for males, and higher for those with less severe Motor impairment. For the mental component of the SF-36, goal adjustment significantly added explanatory value beyond the control variables from the first two steps. ($F_{\text{Change}}(2,69) = 8.36$, $p < 0.01$). Higher Goal Reengagement, but not Goal Disengagement, was related to higher self-reported mental functioning. Males reported better mental functioning, whereas those with higher self-awareness reported worse mental functioning. With the EBIQ Core Scale as dependent variable goal adjustment had no additional effect after controlling for demographic factors and the therapist ratings of the impairments ($F_{\text{Change}}(2,72) = 1.04$, ns). Finally, with the SWLS as dependent variable, we found an effect of goal adjustment ($F_{\text{Change}}(2,72) = 6.38$, $p < 0.01$) beyond the effect of variables in the first two steps. Again, no effect of Goal Disengagement was found, whereas higher Goal Reengagement was associated with more life satisfaction. Finally, males reported higher life satisfaction, whereas age and self-awareness were related to lower life satisfaction.

Insert Table 2

Mediation

The conditions for mediation (Holmbeck, 2002) were only met for the effect of goal reengagement on the mental component of the SF-36 and on life satisfaction. Therefore, we only performed a mediation analysis for these associations. We found that Acceptance significantly mediated the relationship between Goal Reengagement and the Mental Component of HR-QOL (SF-36). As can be seen in Figure 1, the predictive value of Goal Reengagement in explaining the Mental Component of HR-QOL was no longer significant after the inclusion of Acceptance (Sobel Test Statistic=3.05, $p < .01$). The mediation effect of

Acceptance on the relationship between Goal Reengagement and Life Satisfaction was also significant (Sobel Test Statistic = 3.22, $p < .001$). As a result, the relationship between Goal Reengagement and Life Satisfaction was no longer significant.

Insert Figure 1

Discussion

The aim of this study was to investigate whether self-reported goal adjustment was related to QOL and life satisfaction in people with an ABI. We also investigated whether acceptance mediated the relationship between the goal adjustment processes and the indicators of QOL and life satisfaction. The results can be readily summarized. First, self-reported goal adjustment was a significant predictor of the mental aspects of QOL and life satisfaction. Second, this effect was mainly due to reengagement towards new goals, rather than goal disengagement. Third, the relationship between goal reengagement and QOL as well as life satisfaction was mediated by Acceptance. Fourth, we found no association between goal adjustment and physical aspects or disease specific measures of QOL.

The positive effect of goal adjustment on wellbeing in people with an ABI is in line with studies in people with other medical conditions, such as multiple sclerosis (Van Damme et al., 2016) or cancer (Blanckenburg et al., 2014). Importantly, goal reengagement rather than goal disengagement uniquely contributed in explaining mental aspects of QOL and life satisfaction, which is in line with recent findings in people with MS (Van Damme et al., in press). Carver & Scheier (1998) assume that all human behavior is goal-directed. Starting from an “ideal self” people derive some “principles” (e.g. “to be useful”). In daily life, this principle is translated into a “program” (e.g. “helping in the household”), which is in turn translated into “sequences” (e.g. “doing the dishes”). These sequences can be divided in even smaller motor control steps. According to Carver & Scheier (1998, p 346), engaging in goals is important to give meaning to people’s lives. When their goals are no longer attainable people risk losing their meaning in life. People who reported a higher tendency to

reengage towards more feasible goals may have a higher change of finding a new meaning in life, leading to a higher QOL and life satisfaction.

Surprisingly, we did not find any effect of goal disengagement on QOL. There is, however, inconsistency in the literature about the role of goal disengagement. Some authors (e.g. Wrosch, Miller, Scheier, & Brun de Pontet, 2007) have shown the importance of goal disengagement in wellbeing and even physical health. These authors reasoned that goal disengagement helps a person to avoid confrontation with the negative emotions associated with repeated goal failure. At least goal disengagement should reduce negative intrusive thoughts concerning an unattainable goal (Mens & Scheier, 2017). Nevertheless, in studies with women with breast cancer (Mens & Scheier, 2017) or peripheral arterial disease (Garnefski et al., 2009), no effect of goal disengagement was found. Possibly, without goal reengagement people are still confronted with a life without purpose after they disengaged from the unattainable goals. It may also be that this is part of the rehabilitation phase: some participants do not yet permanently disengage from the premorbid goals, but put them on hold, hoping that when they are recovered, they can pursue these premorbid goals. Unfortunately, the questionnaires used in this study do not allow to determine whether goal disengagement was permanent or temporarily. This is an interesting avenue to explore in future research.

The relations between goal reengagement and mental aspects of quality of life as well as life satisfaction were mediated by acceptance. Van Bost et al. (2017) found that acceptance was an important predictor of QOL after an ABI. In the present study, goal reengagement was associated with a more accepting attitude which, in turn, was positively related with mental wellbeing and life satisfaction. After an ABI people lose the ability to pursue activities that give meaning to their life. In the study of Van Bost et al. (2017) acceptance was associated with the ability to live according to personal values. People who reported higher goal reengagement may have a higher change of finding and engaging in other activities according to these personal values. Therefore, they may no longer feel resistance against the changed reality and come to accept it.

We did not find any effect of goal adjustment on physical aspects of QOL. This variable may be largely determined by the impairments, such as motor problems, leaving less room for the effects of psychological factors. Even though the disease-specific measure of QOL has several items referring to mental wellbeing, most of the items refer to physical and cognitive impairments. Another explanation for the fact that we found no effect of goal adjustment on the physical aspects or disease specific measure of QOL can be found in the work of Formisano et al. (2017). They pointed out that people with lowered self-awareness may underreport their physical and cognitive impairments, but this does not impair their ability to report on satisfaction with QOL as perceived.

This study has some limitations. First, goal disengagement and goal reengagement were only assessed by a self-report questionnaire. We experienced that some persons with brain injury had difficulties grasping the content of this questionnaire because of the rather abstract formulation of some of the items. Other measures, such as other-report questionnaires or even reports of actual behaviour change, linked to goal adjustment, may be needed to determine the what extent people are inclined to goal disengagement and goal reengagement. Second, our measures of mental QOL did not allow to differentiate positive and negative affect. It may well be that positive affect is associated with goal reengagement and negative affect with goal disengagement (Esteve et al., 2018). Third, our design was cross-sectional and does not allow to make causal inferences about the impact of changes in goal adjustment on QOL and life satisfaction. Fourth, the goal adjustment questionnaire does not differentiate between adjustment of lower order goals, when people were still able to pursue their higher order goals in a different way, or also pertained adjustment of higher order goals (Janse, et al., 2015). Because such distinction might be important, methodological advances are needed in the assessment of goal adjustment.

The fact that goal reengagement is a unique predictor of QOL may have important clinical implications. One might argue that it is more important to focus on the patient's attention on future possibilities than to focus on goals that are blocked. Although after ABI people often ruminate over the premorbid life and how everything has changed, our findings

do not indicate that focusing therapy on the loss of the premorbid goals is helping the patient towards a better QOL or life satisfaction. Helping the patient to develop a view on future life, with realistic new goal setting, might be more helpful. It is worth noting that acceptance of the new life situation is an important outcome in brain injury rehabilitation. As with QOL and life satisfaction, acceptance is influenced by the tendency to reengage towards new goals while no effects of goal disengagement could be found.

In summary, QOL and life satisfaction are found to be related to the self-reported tendency to reengage towards new goals, while no such relationship with goal disengagement was found. This finding may be helpful at developing interventions, aimed at maintaining QOL and life satisfaction. Further research is needed to explore whether these goal adjustment tendencies can be influenced by certain interventions.

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Table 1. Intercorrelations between indicators of QOL, acceptance, goal adjustment, demographic factors and impairments

Scale	Mean	SD	A	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. SWLS	20.24	7.06	.79	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2. SF-36 Physic	42.54	9.73	.89	.35**	-	-	-	-	-	-	-	-	-	-	-	-	-
3. SF-36 Mental	62.76	11.61	.84	.59***	.56***	-	-	-	-	-	-	-	-	-	-	-	-
4. EBIQ Core	55.11	11.04	.89	-.41***	-.41***	-.53***	-	-	-	-	-	-	-	-	-	-	-
5. ICQ Acceptance	15.29	5.22	.89	.56***	.36**	.60***	-.35**	-	-	-	-	-	-	-	-	-	-
6. GAS Disengage	10.16	3.52	.72	-.10	-.03	.01	-.07	.17	-	-	-	-	-	-	-	-	-
7. GAS Reengage	20.60	5.88	.90	.36**	.24*	.40***	-.17	.44***	.29**	-	-	-	-	-	-	-	-
8. Gender (male = 1)	-	-	-	.24*	.22	.21	-.13	.29**	.16	.11	-	-	-	-	-	-	-
9. Age (yrs)	46.43	13.51	-	.14	-.31*	-.22	.05	-.08	.12	-.02	.11	-	-	-	-	-	-
10. Education (yrs)	12.61	2.68	-	.14	.07	.00	.05	-.27*	-.21	.10	-.12	-.01	-	-	-	-	-
11. Time injury (mo)	30.00	41.04	-	-.06	-.02	-.05	.13	.05	-.12	.04	-.00	-.02	-.20	-	-	-	-
12. Cognitive problems	3.29	1.13	-	.17	.15	.11	.07	.11	-.22*	.03	-.15	-.19	-.06	.18	-	-	-
13. Self-awareness	5.12	1.56	-	-.28*	-.31**	-.42***	.14	-.22*	.13	-.08	.12	.23*	.01	-.01	-.54***	-	-
14. Communication pro	2.18	1.28	-	-.14	-.07	.09	-.01	-.05	.17	.03	.07	-.12	-.08	.19	.16	-.15	-
15. Motor problems	3.48	1.49	-	-.16	-.46***	.02	-.03	-.11	-.02	-.15	-.00	-.00	-.12	.17	-.12	.26*	.29**

* $P < .05$. ** $P < .01$. *** $P < .001$

Abbreviations: SWLS: Satisfaction With Life Scale; SF-36: MOS Short Form- 36; EBIQ: European Brain Injury Questionnaire; ICQ: Illness Cognitions Questionnaire; GAS: Goal Adjustment Scale

Table 2. Regression models predicting indicators of quality of life

Dependent variable	Step	Predictors	β final	ΔR^2	Adj. R^2
SF 36 Physical	1	Gender	.27**	.16**	.13
		Age	-.28**		
		Education	-.01		
	2	Cognitive problems	-.02	.23**	.34
		Self-awareness	-.18		
		Communicative problems	-.02		
		Motor problems	-.40***		
	3	Disengagement	-.07	.03	.35
		Reengagement	.18		
SF 36 Mental	1	Gender	.25**	.10*	.10
		Age	-.14		
		Education	-.04		
	2	Cognitive problems	-.16	.21**	.24
		Self-awareness	-.53***		
		Communicative problems	-.05		
		Motor problems	.18		
	3	Disengagement	-.07	.14**	.37
		Reengagement	.39***		
EBIQ Core	1	Gender	-.12	.02	-.01
		Age	.05		
		Education	.05		
	2	Cognitive problems	.19	.05	-.01
		Self-awareness	.27		
		Communicative problems	.05		
		Motor problems	-.11		
	3	Disengagement	.00	.03	-.01
		Reengagement	-.17		
SWLS	1	Gender	.28**	.10	.07
		Age	.20*		
		Education	.10		
	2	Cognitive problems	.08	.16	.19
		Self-awareness	-.31*		
		Communicative problems	-.18		
		Motor problems	.05		
	3	Disengagement	-.16	.11	.30
		Reengagement	.36**		

* $p < .05$; ** $p < .01$; *** $p < .001$.

Abbreviations: SWLS: Satisfaction With Life Scale; SF-36: MOS Short Form- 36; EBIQ: European Brain Injury Questionnaire

Figure 1: Acceptance mediates the relationship between reengagement and indicators of QOL