

## **Adaptive Behaviour Scale – Residential and Community (ABS-RC: 2)**

### **Summary of Data for January 2005 – December 2008**

**February 20, 2009**

Using a blend of skill training and behavioural approaches, Brain Injury Services works with the clients and their family members to provide a variety of opportunities for skill enhancement. To assess skill development, Brain Injury Services utilizes an assessment tool, The Adaptive Behavior Scale: Residential and Community, Version 2 (ABS-RC: 2). This summary outlines data that has been compiled over the last four years.

The ABS: RC-2 is a 118 item standardized and normed checklist of skills, abilities and problematic behaviour that is completed by a person familiar with the participant being assessed. It is composed of 18 subscales that are divided into two domains; 10 skill subscales and 8 behaviour subscales. The purpose of administering the ABS-RC: 2 is to assess functional skills, abilities and behaviour for purposes of planning and evaluating the effectiveness of community based rehabilitation with adults with acquired brain. The domain areas identified by the assessment often relate to ABI neuro-cognitive deficits and can be used in developing goals and objectives for individual program plans.

With the help of Dr. Bruce Linder, clinical psychologist at Brain Injury Services and McMaster University students, past research endeavors have provided us with normative information for adults with acquired brain injury living in the community. Community-based ABI norms for the ABS-RC: 2 were initially collected based upon a group of 126 adults in year 2000 that included Brain Injury Services clients, clients in one other community-based ABI agency in Southern Ontario, and individuals on a waiting list during the year 2003 for Brain Injury Services. This served as a basis for computing annual scores in comparison to a larger and more diverse group of ABI individuals.

Since 2005, the ABS: RC-2 has been administered annually in to all Brain Injury Services clients. This involved a total of approximately 361 assessments (180 clients).

### **ABS-RC: 2 Data Analyses**

The results answer three questions: (1) How have the skills and behavioural problems of the agency's clients overall changed over time (and with more programming); (2) How do the different programs compare in terms of participant skills and behavioural problems. (3) How have the skills and behavioural problems changed over time for the clients for each program.

## 1) New Admissions to Service

It is important to note that in 2006, Brain Injury Services expanded to include four more residential programs in the Niagara region. These four programs were rehabilitation focused; however, with a different program philosophy than Brain Injury Services. As shown in year 2007, program changes resulted in an increase in average skills and a decrease in behavioural challenges overall.

Figure 1 below includes ABS:RC-2 data collected on 21 clients that were admitted to Brain Injury Services since 2006. Annual ABS:RC-2 assessments were collected on these clients at the beginning of service (Service Plan) and repeated annually to assess their change over time and monitor their progress.

An analysis of variance was conducted on skills and behavior scores on these 21 clients since their admission in 2006 to 2008. There was a statistically significant improvement in skills (N=21, mean skill scores for years = 85.5, 89.8, 90.2) from the below average range to the average range; however, no changes were revealed in behavioural scores.

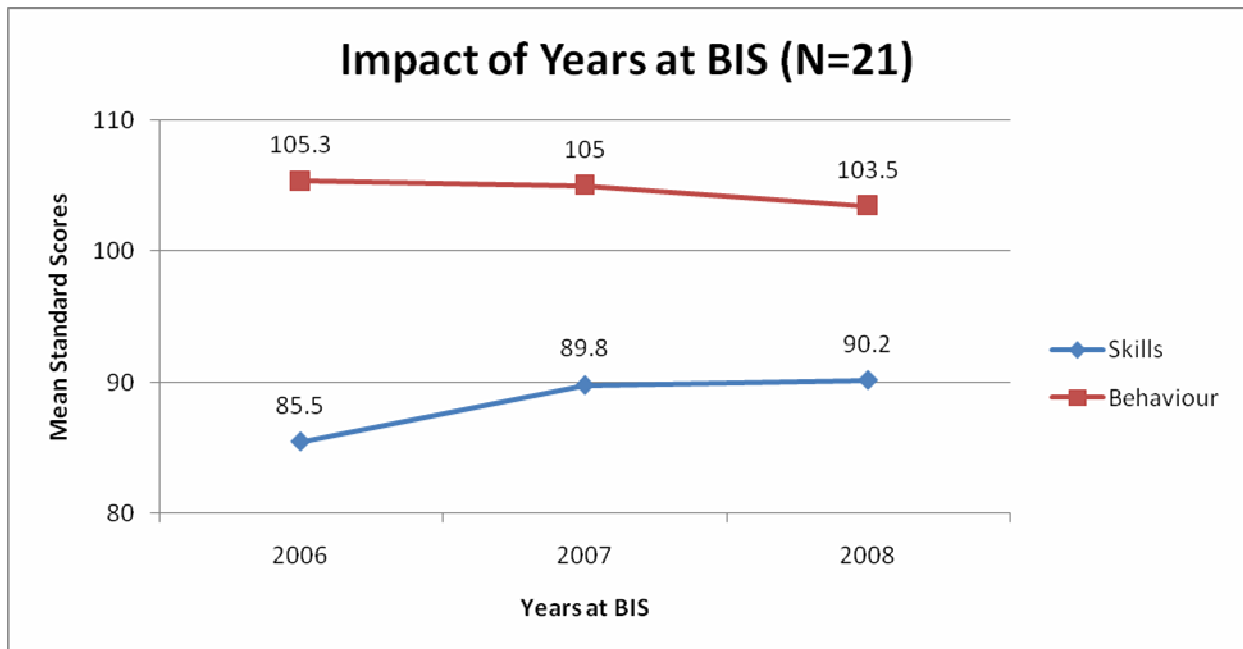


Figure 1

Analysis was also conducted on clients who came into service in 2007 (N=10). As can be seen in figure 2 and similar to the results from clients starting in 2006, there was a statistically significant increase in skills on the ABS-RC:2 from a mean score of 101 to 104 ( $t(9)=1.81, 1\text{-tailed}, p=.05$ ). However, somewhat different from clients admitted in 2006, there was a significant decrease in behaviour from a mean score of 98 to 94 ( $t(9)=2.21, 1\text{-tailed}, p=.03$ ) during this first year of programming.

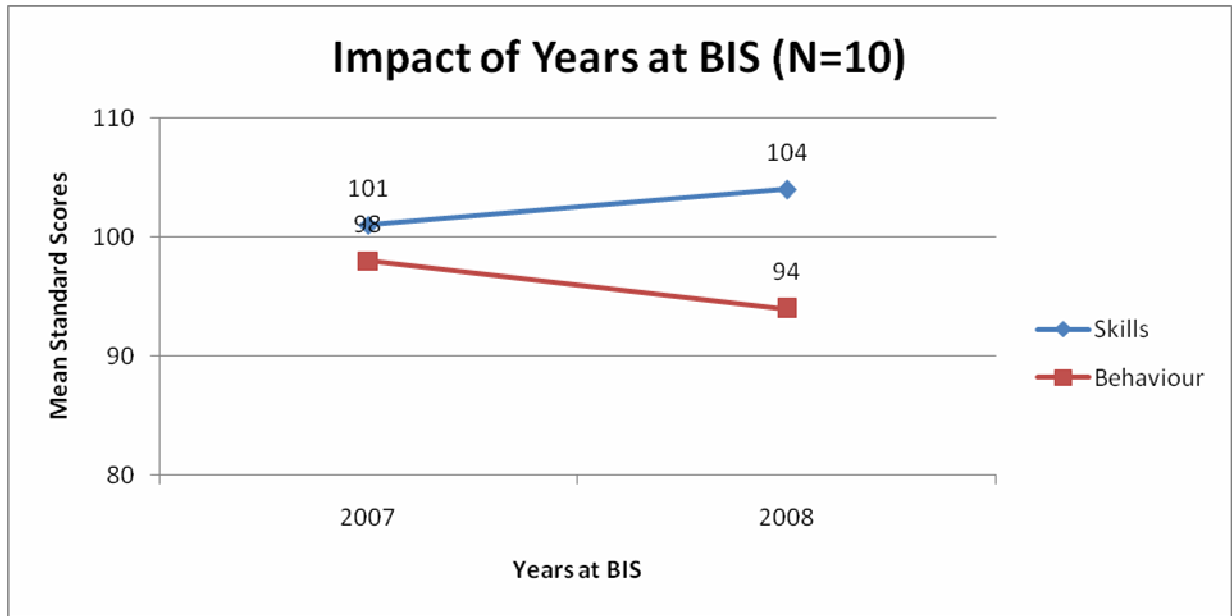


Figure 2

## 2) Agency Change over Time

Figure 3 below provides the results of all agency clients over the four years of data collection. Overall skills and behavioural problems are expressed as “standard scores”. Standard scores show how far scores are from the average for a population, in this case a large group of community living adults with acquired brain injury. The average range is 90 to 109; anything above or below this range is above or below average statistically. As can be seen both skills and behavioural problems remained in the average range over the four years with no significant trend. Correlations across the years confirm that the test-retest reliability and stability of the ABS-RC: 2 is strong; however, there was no evidence of significant changes in skills or behavioural problems for the population of 180 individuals overall.

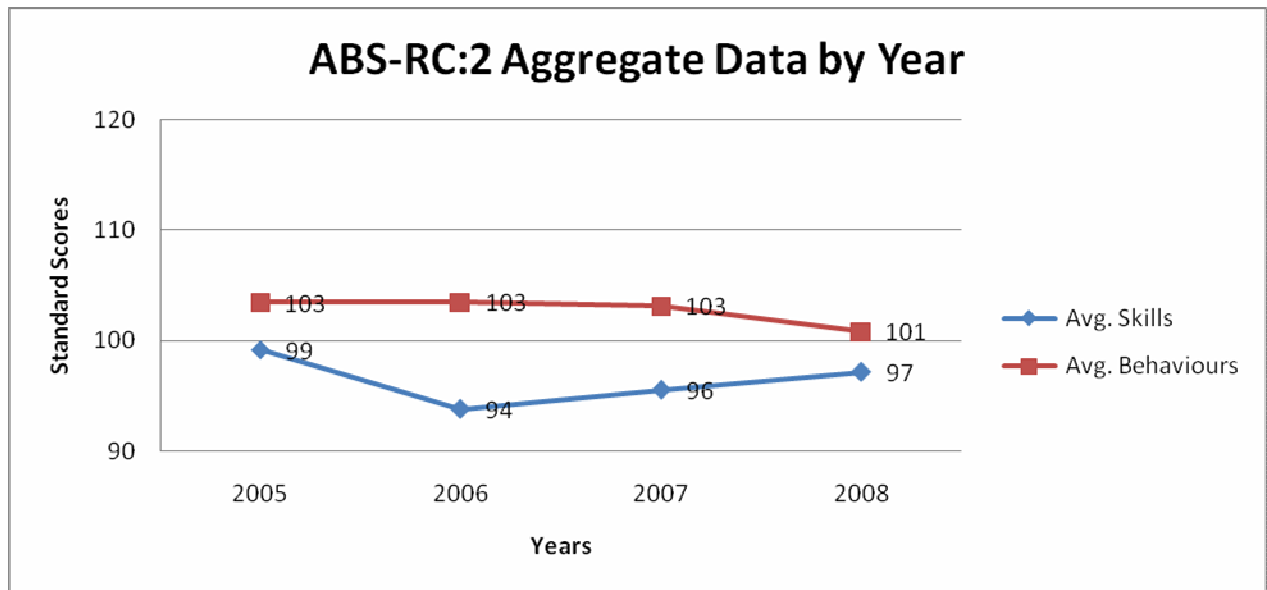
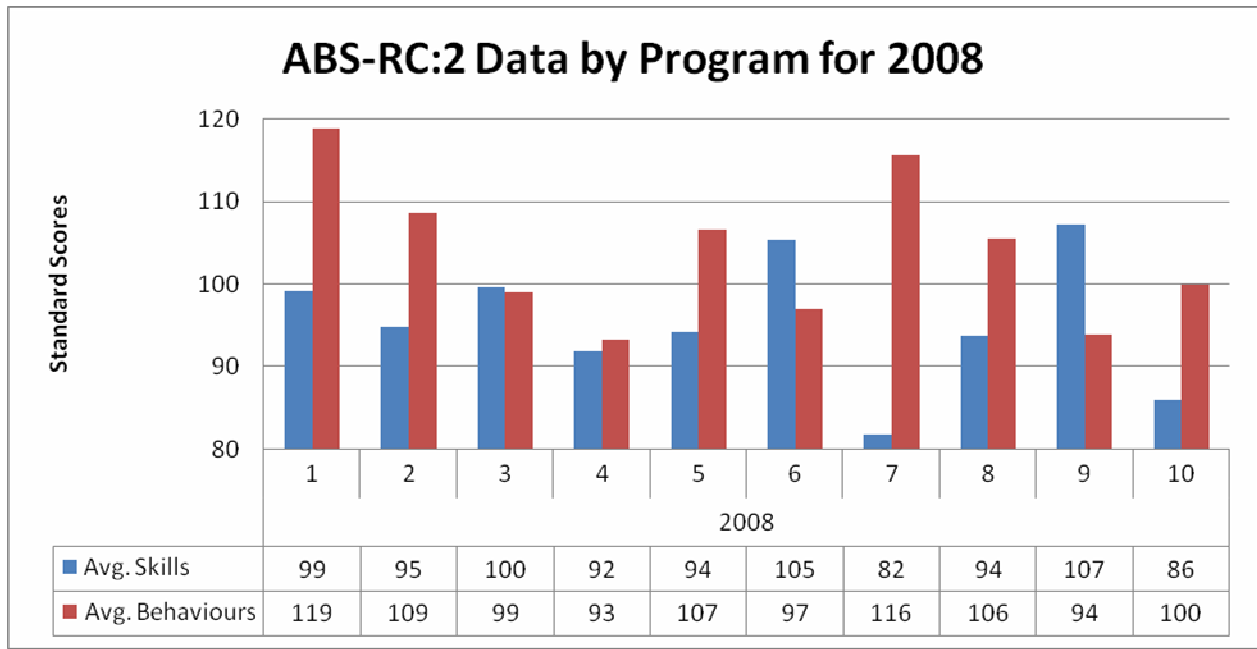


Figure 3

### 3) Comparison of Programs

Figure 4 below illustrates the statistically significant differences in both ADL skill and behaviour scores across the 10 different services. For example, the range in ADL skill scores across services was 25 with standard scores from 82 to 107; the range in behaviour scores across services was 26 with standard scores from 93 to 119. Similar to 2007, there was a significant negative correlation between ADL skills and behaviour across services ( $r = -0.39$ ), meaning that services with higher than average behaviour scores tended to have lower than average ADL skill scores. This finding is consistent with theories that emphasise skill-deficits (e.g. communication, leisure, cognitive) as a contributing causal factor to the development of behaviour disorder in disabled populations.

Figure 4 also illustrates data collected on 84 clients. Keeping in mind that the average standard score range for both Skills and Behaviours is 90 to 109, anything above or below this range is above or below average statistically. As such, there was a notable decrease in skills for services 7 & 10 with scores of 82 and 86; however, this was not statistically significant. Service 1 had a standard score of 119 for behaviours, indicating a statistically significant increase in scores when compared to the average range. Similarly, Service 7 had standard scores of 116 for the behaviour profile, indicating an increase when compared to the average range.



**Figure 4**

1- Brimley	6 - Outreach
2- CWP	7 - Secord
3- Elmhurst	8 - Tamarack
4- Haldimand/Norfolk	9 - TLS
5- JRC	10 -York

#### **4) Program Change over Time**

The appendix to this report provides the progress graphs for each program, and can be consulted for details regarding changes in skills and levels of behavioural problems. Overall, significant change (at least 10 point change) was found in several programs.

1. CWP (Program 2) –significant decrease in behavioural problems and a significant increase in skills over time. This can be attributed to the intensive behavioural program environment.
2. York (Program 10) - significant decrease in behavioural problems over time.
3. JRC (Program 5) - significant decrease in skills over time. Participant decline has been noted over the past couple of years, which may be attributed to a client who has developed organic dementia.

By and large, the remaining programs exhibited limited change in skills and behavioural problems. This included Brimley (Program 1), Elmhurst (Program 3), Outreach (Program 6), Secord (Program 7), Tamarack (Program 8) and TLS (Program 9).

In summary, the ABS-RC: 2 is a useful tool for assessing functional skills, abilities and behaviour for the purposes of planning and evaluating the effectiveness of community based rehabilitation with adults with acquired brain injury. Staff at Brain Injury Services will continue to collect annual data to track participant progress, but also to expand the data base for our understanding of long-term skill development, functional independence, and behavioural difficulties for ABI individuals living in the community.

For more information or to view the appendix accompanying this report, please contact: [info.news@braininjuryservices.com](mailto:info.news@braininjuryservices.com)