

This is a **Sample** version of the  
**Frontal Behavioural  
Inventory (FBI)**

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The full complete version includes –

- Complete 15 page User Manual.
- Scoring Guide
- Complete 24 item questioner/Test

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# Frontal Behavioural Inventory (FBI)

## -Manual

### ***Description of the FBI***

The FBI is a 24 item, quantifiable questionnaire directed to the caregiver. The inventory requires a reliable observer, unlike some depression or other behavioural inventories directly administered with the patients, as bvFTD patients rarely if ever have sufficient insight into their behaviour. It is intended for a face to face interview style administration, although we had satisfactory experience with nonstandard administrations on the telephone, or the caregiver filling out and scoring the inventory alone in the waiting room or at home to be mailed in. Administration is about 20-30 minutes, depending on the extent and severity of symptoms and the caregiver's verbal capacity, At times caregivers unload a large number of symptoms and disturbing behaviours in a cathartic fashion. Skilled interviewers can usually keep the answers within a reasonable time frame. The questions in the updated version (2003) are bidirectionally scripted, (see examples in item description) to avoid influencing the caregiver towards a yes or no answer.

### ***Background and construction***

The Frontal Behavioral Inventory (FBI) was developed and standardized with the purpose of being able to differentiate Frontal Lobe Dementia (FLD) what has become now the behavioural variety of Frontotemporal Dementia (bvFTD) from other dementias, such as Alzheimer's Disease (AD) and Vascular Dementia (VAD) and to quantify the severity of the behavior disorder of FTD ( Kertesz et al., 1997 Kertesz et al., 2000, Kertesz et al 2003).

At the time of the development of the FBI other behavioural inventories aimed at FTD had too few items or insufficient scoring systems. There are other scales, similar to the FBI, that have been designed with questions posed to the primary caregiver to identify the behavior and personality changes of FTD patients. Gustafson and Nilsson (1982) attempted to separate FLD and Pick's Disease (PiD) from Alzheimer's disease (AD) by quantitating the items typical of FLD and those of AD and comparing their relative weight,. A retrospective questionnaire was used to correlate diagnostic features with autopsy findings in AD and FLD to

verify the diagnostic features by autopsy (Barber et al., 1995). FTD patients were distinguished by disinhibition, lack of insight, lack of empathy, social inappropriateness and eventual mutism. Recent studies were aimed at investigating behavior in FLD and AD using the Neuropsychiatric Inventory

(Binetti et al., 1998; Cummings et al., 1994; Levy et al., 1996; Rozzini et al., 1997).

General behavioural rating scales such as the Comprehensive Psychiatric Rating Scale (CPRS) appeared to not capture the behavioral disorder of FTD (Gregory, 1999).

The Neuropsychiatric Interview (NPI) (Levy et al., 1996) and the BEHAVE-AD (Mendez et al., 1998) had somewhat better success in correctly classifying FTD patients approximately 69-77% of the time, but they aim at a general dementia population with too few items for FTD. Some scales were developed especially for the FTD population, for example, the Frontotemporal Behavioral Scale (FBS) (Lebert et al., 1998). While correct classification appears successful for both the FBI (Kertesz et al., 2000) and the FBS (Lebert et al., 1998), the scoring system of these scales is different. The FBS has 4 items (each consisting of 5 sub-items) that are scored as either present or absent (a score of 1 versus 0). As such, a cut-off of 3 points successfully distinguishes FTD from other degenerative dementias. In contrast, the FBI has 24 items that are scored on a range from 0 to 3, capturing severity of various symptoms and not just presence or absence of symptoms. We constructed the FBI with items incorporating the Lund/Manchester consensus in addition to the symptoms observed in our FTD clinic and in published observations on FTD (Table 1.) The core diagnostic features in the Lund Manchester criteria (1994), modified later by the Neary et al. criteria (1998), were indifference, remoteness, inertia, asponaneity, loss of insight, social awareness, personal hygiene, mental rigidity and inflexibility, disinhibition, perseverative behaviour, utilization behaviour, and reduction of speech. We modified these items, to eliminate some duplication and less easily definable features such as "social awareness". We also expanded on the disinhibition item, because it encompassed many other behaviours we found typical. The items underwent further slight modifications since its original publication in 1997, but the latest version from 2003 correlates well with the the first version, therefore subsequent standardizations are compatible with the same total score (Table 2). In this scale, 12 items assess deficit (negative) behaviors (apathy, asponaneity, indifference, inflexibility, personal neglect, disorganization, inattention, loss of insight, logopenia, verbal apraxia, loss of comprehension and alien hand), and 12 items

assess disinhibition (positive) behaviors (perseverations/obsessions, irritability, excessive jocularity, social inappropriateness, impulsivity, restlessness, aggression, hyperorality, hypersexuality, utilization behavior, and incontinence). Some of the negative items are aimed at language and motor behaviours.

### ***Objectives of the inventory***

1. To complement the spontaneous history offered by the patient and the caregiver. Although history taking is the core of diagnostic effort, directed questions are used at a variable extent. A formal behavioural inventory serves to standardize such questioning. It aids the clinician to cover the spectrum of behaviours more completely.
2. To allow for a standard scoring system to compare patients and determine the severity of their illness.
3. To provide sensitive and specific diagnostic cut scores for bvFTD and analyze the behaviours that are most discriminatory between clinical entities. There are patterns of dissociation and clustering of behaviours that can be explored with the inventory.
4. To record the change of severity with time and analyze the items that change with a variable rate.
5. To measure treatment effect or to detect behaviours that respond to treatment.

# FRONTAL BEHAVIORAL INVENTORY (FBI)

TEST

NAME: \_\_\_\_\_ AGE: \_\_\_\_\_ DIAGNOSIS: \_\_\_\_\_ DATE: \_\_\_\_\_  
CAREGIVER: \_\_\_\_\_ EXAMINER: \_\_\_\_\_

Explain to the caregiver that you are looking for a change in behaviour and personality. Ask the caregiver these questions in the absence of the patient. Elaborate if necessary. At the end of each question, ask about the extent of the behavioural change, and then score it according to the following: 0 = none, 1 = mild, occasional, 2 = moderate, 3 = severe, most of the time.

1. Apathy: Has s/he lost interest in friends or activities or is s/he interested in seeing people or doing things?  
\_\_\_\_\_
2. Aspontaneity: Does s/he start things on his/her own, or does s/he have to be asked?  
\_\_\_\_\_
3. Indifference / Emotional Flatness: Does s/he respond to occasions of joy or sadness as much as ever, or has s/he lost emotional responsiveness?  
\_\_\_\_\_
4. Inflexibility: Can s/he change his/her mind with reason or does s/he appear stubborn or rigid in thinking lately?  
\_\_\_\_\_
5. Disorganization: Can s/he plan and organize complex activity or is s/he easily distractible, indecisive, or unable to complete a job?  
\_\_\_\_\_
6. Inattention: Does s/he pay attention to what is going on or does s/he seem to lose track or not follow at all?  
\_\_\_\_\_
7. Personal Neglect: Does s/he take as much care of his/her personal hygiene and appearance as usual, or does s/he neglect to wash or change his/her underwear?  
\_\_\_\_\_
8. Loss of Insight: Is s/he aware of any problems or changes in behaviour, or does s/he seem unaware of them or deny them when discussed?  
\_\_\_\_\_
9. Logopenia: Is s/he as talkative as before or has the amount of speech significantly decreased?  
\_\_\_\_\_
10. Aphasia and Verbal Apraxia: Does s/he make language or pronunciation errors or has s/he developed stuttering or grammatical errors recently?  
\_\_\_\_\_
11. Comprehension (Semantic) deficit: Does s/he ask what words mean, has trouble comprehending words, and/or objects, or does s/he know the meaning of words?  
\_\_\_\_\_
12. Alien Hand and/or Apraxia: Has s/he developed clumsiness, stiff hand, inability to use utensils or appliances, or does a hand interfere with the other, or behaves as if it did not belong, or can s/he use both hands as before?  
\_\_\_\_\_

\_\_\_\_\_ **Negative Behavior Score Total of 1 – 12**

NAME: \_\_\_\_\_ DATE: \_\_\_\_\_

This is the end of sample version of the FBI.  
Full version has complete manual and 24 item test questions.