

Summary

Neuropsychology and Mild to Borderline Intellectual Disability A pilot study in young adult probationers

Young adults are overrepresented in the criminal justice system and reoffend the most. This group, however, has very diverse backgrounds and problems. Some, for example, have a mild to borderline intellectual disability (MBID). MBID is a disability characterized by significant limitations in both intellectual functioning (the IQ-score is between 50 and 85) and in adaptive behaviour, which covers many everyday social and practical skills. In order to match treatment to the specific needs of the diverse group of probationers, there is a need in probation practice for more knowledge about factors on which the interpersonal approach and interventions could focus with respect to young adult probationers with and without an MBID. This is in line with the 'What works' principles, particularly the responsivity principle, of the probation services.

The current methodology in probation practice to prevent recidivism is mainly based on psychosocial factors. However, there is increasing knowledge about the influence of other factors, such as neuropsychological factors, in the development of antisocial behaviour. Neuropsychology is a subfield of psychology, studying the relationship between brain functioning with cognition, emotion, perception and behaviour. Previous research has shown that people showing antisocial behaviour perform worse on neuropsychological tests. Problems with working memory, where information has to be remembered and edited, e.g. calculating a sum, seem to be most prominent. Problems with attention and impulse control (suppressing an automatic response) also stand out.

To the authors' knowledge, there have been no previous studies on neuropsychological characteristics in (young) adults with MBID and antisocial behaviour. Only among children and adolescents research on MBID and antisocial behaviour has been performed. This research reveals three domains of neuropsychological characteristics associated with antisocial behaviour in the MBID group: basic information processing, behavioural regulation and social influenceability. Basic information processing includes focused attention, sustained attention, working memory and information processing speed. Behavioural regulation is comprised of the aforementioned impulse control, as well as risk taking and switching (also called cognitive flexibility; which pertains to adjusting behaviour when the situation changes). Social influenceability pertains to how a person's behaviour is influenced by their social environment.

The aim of this pilot study is to provide a description of the neuropsychological and MBID characteristics of young adult probationers. Additionally, the aim is to provide a basis for guidelines for interpersonal approach and intervention in probation practice, as well as for follow-up research.

This leads to the following research questions:

- 1 How can young adults under probation supervision be described regarding the characteristics of an MBID?
- 2 How can young adults under probation supervision be described regarding neuropsychological factors?

3 Which guidelines for practice and research can be formulated based on the findings from questions 1 and 2?

Method

This study was conducted among an intake cohort of young adults under probation supervision at Reclassering Nederland within two probation regions. A total of 59 probationers (including 4 women) participated, aged 18 to 23 years.

First, the characteristics of an MBID were identified using the Screener for intelligence and mild intellectual disability (Screener voor intelligentie en licht verstandelijke beperking, SCIL). This is a short screener that aids in the recognition of an MBID. In addition, the short version of the Wechsler Adult Intelligence Scale (WAIS) IV-NL was used to estimate the IQ-score. An indication of adaptive functioning has also been explored using the Self-Sufficiency matrix (Zelfredzaamheid-matrix, ZRM). Furthermore, the probation officers were asked whether they suspected an MBID among the participants in their caseload.

Subsequently, ten neuropsychological computer tasks were performed in the domains of basic information processing, behaviour regulation and social influenceability. See table S1 for an overview of the tasks.

Table S1 Test protocol

| Construct | Test |
|-------------------------------------|------------------------------------|
| <i>MBID</i> | |
| MBID screener | SCIL |
| IQ-estimate | WAIS block patterns |
| IQ-estimate | WAIS vocabulary |
| Adaptive functioning | Self-Sufficiency matrix |
| <i>Basic information processing</i> | |
| Working memory | Self-Ordered Pointing Task (SOPT) |
| Focused attention | Flanker task (ANT) |
| Sustained attention | Increase reaction time over time |
| Information processing speed | Reaction time on other tasks |
| <i>Behaviour regulation</i> | |
| Impulse control | Go/NoGo (ANT) |
| Switching | Wisconsin Card Sorting Test (WCST) |
| Risk taking | Balloon Analogue Risk Task (BART) |
| <i>Influenceability</i> | |
| Influenceability | Adjusted BART with peer influence |

Results

Participants do not differ from non-participants on suspicion of an MBID by their probation officer. There are also no indications that they differ on psychosocial criminogenic factors as measured with the RISC 4.0, this was however only available for half of the participants and non-participants.

The first research question regarded the MBID characteristics of the young adult probationers. The results indicate that more than half (61%) of the probationers

in this study show a possible MBID based on the SCIL. Based on the short IQ-test, 67% show an IQ estimate between 50 and 85. The short IQ-test, however, appears to classify too many participants as MBID because of a language barrier. Therefore, the following results on a possible MBID are presented based on the SCIL. On adaptive functioning as well, the vast majority (79%) of the probationers in this study show limitations in two or more areas. If the probation officer suspects an MBID, this corresponds to the SCIL in 94%. An important finding is also that SCIL is more sensitive: it categorizes about half more probationers as presumably MBID compared to the estimations of probation workers.

The second research question concerned the neuropsychological factors of young adults under probation supervision. A prominent result is that the probationers show major individual differences in neuropsychological functioning. Furthermore, those with a possible MBID show significantly worse impulse control than those without a possible MBID. No differences were found between probationers with and without a possible MBID on the other neuropsychological tasks. Because of the large individual differences, it has been explored whether different neuropsychological profiles can be distinguished. Three neuropsychological profiles emerged: a profile showing difficulty with basic information processing (28% of the probationers studied), a profile characterized by social influenceability (15% of the probationers studied) and a profile that does not show any prominent neuropsychological characteristics (56% of the probationers studied).

The third research question focused on which guidelines for probation practice and future research could be formulated on the basis of the results of the research questions 1 and 2. Results of an expert meeting, organized to answer this third research question, indicate that it would be desirable to screen for MBID by means of a standardized instrument (such as the SCIL) early in the criminal proceedings. If necessary, in-depth diagnostics can be used to map the specific strengths and weaknesses of the probationer. The sooner in the criminal justice process this takes place, the better. In that case the outcomes can be used in, for example, the processes of sanctioning and setting the probation conditions. For the supervisory function of probation, it is mainly advised to adapt the interpersonal approach. The experts also suggest that the probationers within the influenceability profile may also be relatively susceptible to positive influence to prevent recidivism.

Conclusion and recommendations for practice and follow-up research

Although this pilot study has limitations, it offers starting points for follow-up research and recommendations that can already be applied in practice. The main limitation of this pilot is the small sample size. This means that the results cannot be generalized to all young adult probationers. Furthermore, functioning on a neuropsychological task cannot be translated completely to daily life functioning. Tests measure abstract situations and are applied in environments without stress or emotions. Finally, the tasks are not validated for the MBID population. On the other hand, neuropsychological tasks are less susceptible to socially desirable answers and poor self-insight, and are therefore a good addition to interviews, file analysis and questionnaires. This study is the first to explore the neuropsychological characteristics of young adult probationers, with and without a probable MBID.

This study indicated that a large proportion of probationers in this study have a probable MBID. It is also striking that a probable MBID is better recognized using a

standardized screening instrument compared to the probation officer's estimations. That is why it is recommended to screen all probationers with the SCIL, when possible during the advisory process. Due to the large number of probationers with an MBID, all probation officers should be familiar with the forms of interpersonal approach for this group. The influenceability could also be used positively. Therefore, the third recommendation is to involve support from people having a positive influence on the probationer.

The results show that there are large individual differences in the performance on neuropsychological tasks, within the group of probationers with a possible MBID as well. This study, therefore, commenced to identify neuropsychological profiles, to explore possibilities for differentiation within the group of probationers. Follow-up research is needed to obtain more certainty about the neuropsychological profiles among probationers. This would allow for drawing guidelines for interpersonal approach and intervention depending on the neuropsychological profile. If there are indications that a probationer needs specific help, for example because of an MBID, in-depth diagnostics are required. Neuropsychology can play an important role in identifying the limitations and possibilities on an individual basis to improve a personalized approach.