

## CORRECTIONAL SERVICE CANADA

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## Optimization of Fetal Alcohol Spectrum Disorder Screening in Correctional Settings via Harmonization of Archival Datasets

*Fetal Alcohol Spectrum Disorder (FASD) is overrepresented in correctional settings and accurate screening measures are needed to efficiently identify individuals with FASD. Harmonizing data from existing datasets, the Brief Screen Checklist exhibited promising overall screening accuracy, with high positive predictive value and specificity, although somewhat suboptimal sensitivity.*

### Why we did this study

Fetal alcohol spectrum disorder (FASD) is a common neurodevelopmental disability caused by prenatal alcohol exposure (PAE) and is overrepresented in correctional settings. Despite this, individuals with FASD may go unidentified because of limited screening tools. The Brief Screen Checklist (BSC) is a screening tool developed by the Correctional Service of Canada and early evidence points to the tool's promise. Further empirical evaluation is warranted to further support evidence-based decisions made using the BSC and was the focus of this study. Specifically, we sought to identify the frequency of concerns identified by individuals diagnosed with FASD in correctional contexts as assessed using the BSC, identify differences in profiles across BSC indicators between those with and without an FASD diagnosis, and assess the predictive validity of the BSC compared to "gold standard" diagnostic dispositions as a reference standard.

### What we did

Three archival and anonymized datasets from Canadian case ascertainment studies that aimed to identify rates of FASD in adult male and female offenders were integrated. Data elements for demographic characteristics (e.g., age, gender, marital status, ethnicity), diagnostic outcome (e.g., diagnosis, four-digit code), and BSC items were harmonized. Logistic regression was used to assess BSC Indicators and screening outcomes as predictors of diagnostic outcome. Sensitivity, specificity, positive predictive value, negative predictive value, and overall classification accuracy were also calculated. The harmonized dataset comprised 194 individuals drawn from both institutional and community correctional settings. Cases were classified across four diagnostic outcomes: FASD or probable FASD (14%), uncertain FASD classification (21%) owing to insufficient clinical information necessary for a reliable final diagnosis; significant CNS deficits thought to stem from causal factors other than PAE (44%), and no CNS deficits identified (21%), irrespective of PAE.

### What we found

The BSC items and Indicators were present at elevated rates in the group ultimately diagnosed with FASD. Total scores for each of the BSC Behavioural, Historical, and Maternal Indicators significantly predicted FASD diagnosis. A model comprising scores from three BSC Indicators resulted in promising overall screening accuracy, with high positive predictive value and specificity, but suboptimal sensitivity. The final optimized screening decision rule had an accuracy of 87%.

### What it means

Final screening outcomes showed promising predictive accuracy, but a concern was lower than desirable sensitivity in reference to the gold standard clinical diagnosis. In other words, although individuals with a definitive diagnosis almost always screened positive, a substantive number of cases diagnosed with FASD were below the final screening threshold. Further refinements or analytic approaches may be required to improve sensitivity. Limitations include a modest number of definitively-diagnosed individuals and diagnostic uncertainty among the cases. Nonetheless, these results provide further support for the BSC as a screening instrument for FASD in correctional settings.

### For more information

McLachlan, K. & MacKillop, J. (2023). *Optimization of Fetal Alcohol Spectrum Disorder Screening in Correctional Settings via Harmonization of Archival Datasets* (Research Report R-447). Ottawa, Ontario: Correctional Service of Canada.

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