

# Assessing the link between offender characteristics and sustained programme participation

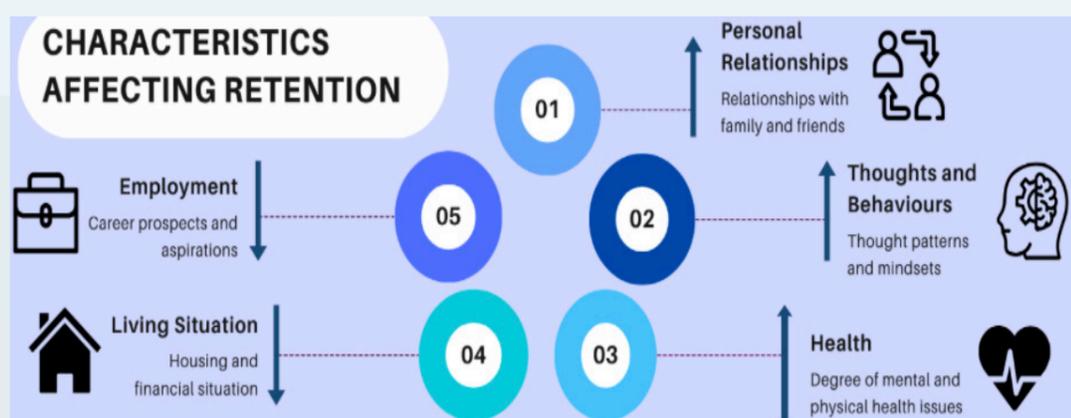
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## Overview of the Data Fellowship

HMPPS CFO provides voluntary rehabilitation programmes within prisons and the wider community, with the overall aim of preventing reoffending and facilitating community involvement. My aim throughout this fellowship has been to assess whether there was a link between participant characteristics and whether they would be 'retained' on the programme. The research was broken down into phases: outlining the question, conducting initial research, logistic modelling and forming conclusions. Using data from the CFO database, and with the help of the CFO research and statistics team, I was able to conduct my research, which allowed me the opportunity to make recommendations towards future CFO action.

## Data Analysis

The goal of my analysis was to identify characteristics associated with retention, using logistic regression modelling and other techniques. Initial steps included separating the data based on scenario, and then further dividing it randomly between a training dataset and a testing dataset to enable cross-validation. Selecting which characteristics were included in the final model was mostly trial and error, backed by some initial analysis and prior research. Once this was complete, I created my logistic model, and tested the predictive power of the model using ROC curve analysis. After finalising the model, the analysis then moved on to interpretation of the results. For each predictor in the model, confidence intervals, p-values, odds ratios, and



Characteristics affecting retention

## Findings

- Those with better thoughts and behaviours were more likely to be retained
- Those with healthier personal relationships were more likely to be retained
- Those with worse living situations were more likely to be retained
- Those with worse employment situations were more likely to be retained

## Key Skills Learnt

### Analytical skills

Over the course of the fellowship, my analysis skills have been repeatedly challenged. I spent lots of time meticulously looking through data and writing code with precision, as well as having to think creatively about potential relationships and correlations. Creating a logistic model with the amount of detail that was incorporated was tricky but rewarding.

### Professional skills

My communication, time-management and organisational skills were all put to the test. Communication was a main one, working closely alongside other members of the team meant that clear and effective communication was essential. Time-management and organisational skills were also key, sorting through large amounts of data required an organised and thought-out process to facilitate smooth analysis.

### Creativity and Adaptability

The nature of this analysis meant that sometimes I had to be adaptable, especially when there were constraints such as insufficient data or lack of wider resources. Creativity came into this too, as a main part of my work involved having to think outside the box, especially when the analysis produced an unexpected result. In the face of several error messages, constant ambiguous results and complex methods, creativity and adaptability were vital throughout the process.

### The 'Unretainable Individual'



Characteristics describing those least likely to be retained