Cannabis referendum report

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Summary

This report works on the Cannabis referendum data in 2020 for a decision whether it is worth pursuing a citizen initiated referendum in the next election cycle. To investigate if the support is there, we need to address the following research questions. 1. What proportion of people in the sample supported legalisation ? 2. Who in the sample supported legalisation ?

Data imputation

In this first stage, we explore the dataset by checking the first few rows and find the structure as well as the statistical summary of each variable.

```
##   age gender referendum
## 1  15 Female          0
## 2  15 Female          0
## 3  15   Male          0
## 4  15 Female          1
## 5  15 Female          1
## 6  15 Female         NA
```

```
## 'data.frame':    1063 obs. of  3 variables:
##  $ age       : int  15 15 15 15 15 15 15 15 15 15 ...
##  $ gender    : chr  "Female" "Female" "Male" "Female" ...
##  $ referendum: int  0 0 0 1 1 NA 1 1 1 NA ...
```

```
##       age           gender            referendum
##  Min.   :15.00   Length:1063        Min.   :0.0000
##  1st Qu.:35.00   Class :character   1st Qu.:0.0000
##  Median :50.00   Mode  :character   Median :1.0000
##  Mean   :47.79                      Mean   :0.5961
##  3rd Qu.:60.00                      3rd Qu.:1.0000
##  Max.   :85.00                      Max.   :1.0000
##  NA's   :12                         NA's   :85
```

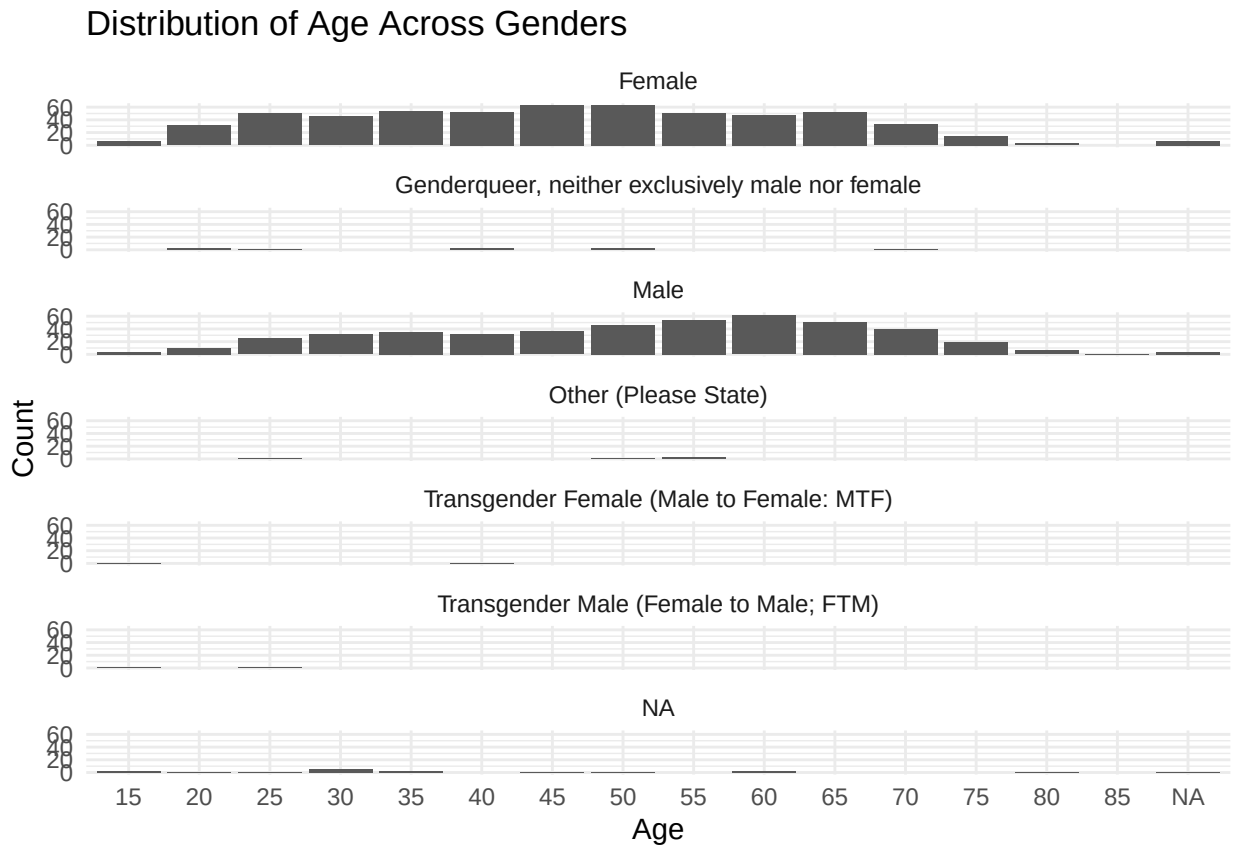
We can find a considerable amount of missingness in the data. It is believed this is because some people, particularly younger people, were reluctant to give their voting preference.

Table on missingness of each variable in the dataset can be found as the following.

Table 1: Table of missingess of each variable

Age	Gender	Referendum
12	18	85

Visualisation on demographics



Inline reporting of proportions

The proportion of 'yes' voters in the referendum is 0.596%.

Tables of each logistic regression

Imputed cases using the mice package.

```
##
##  iter imp variable
##   1   1  age  referendum
##   1   2  age  referendum
##   1   3  age  referendum
```

```
##   1   4  age  referendum
##   1   5  age  referendum
##   2   1  age  referendum
##   2   2  age  referendum
##   2   3  age  referendum
##   2   4  age  referendum
##   2   5  age  referendum
##   3   1  age  referendum
##   3   2  age  referendum
##   3   3  age  referendum
##   3   4  age  referendum
##   3   5  age  referendum
##   4   1  age  referendum
##   4   2  age  referendum
##   4   3  age  referendum
##   4   4  age  referendum
##   4   5  age  referendum
##   5   1  age  referendum
##   5   2  age  referendum
##   5   3  age  referendum
##   5   4  age  referendum
##   5   5  age  referendum

## Warning: Number of logged events: 1

## <table class="table table-striped table-hover table-condensed" style="margin-left: auto; margin-righ
## <caption>Logistic Regression Results on Imputed Data</caption>
##  <thead>
##   <tr>
##    <th style="text-align:left;"> term </th>
##    <th style="text-align:right;"> estimate </th>
##    <th style="text-align:right;"> std.error </th>
##    <th style="text-align:right;"> statistic </th>
##    <th style="text-align:right;"> p.value </th>
##    <th style="text-align:right;"> b </th>
##    <th style="text-align:right;"> df </th>
##    <th style="text-align:right;"> dfcom </th>
##    <th style="text-align:right;"> fmi </th>
##    <th style="text-align:right;"> lambda </th>
##    <th style="text-align:right;"> m </th>
##    <th style="text-align:right;"> riv </th>
##    <th style="text-align:right;"> ubar </th>
##   </tr>
##  </thead>
## <tbody>
##   <tr>
##    <td style="text-align:left;"> (Intercept) </td>
##    <td style="text-align:right;"> 1.9907956 </td>
##    <td style="text-align:right;"> 0.2615553 </td>
##    <td style="text-align:right;"> 7.6113766 </td>
##    <td style="text-align:right;"> 0.0000000 </td>
##    <td style="text-align:right;"> 0.0141648 </td>
##    <td style="text-align:right;"> 59.81544 </td>
##    <td style="text-align:right;"> 1038 </td>
```

```
##    <td style="text-align:right;"> 0.2723935 </td>
##    <td style="text-align:right;"> 0.2484651 </td>
##    <td style="text-align:right;"> 5 </td>
##    <td style="text-align:right;"> 0.3306102 </td>
##    <td style="text-align:right;"> 5.141340e-02 </td>
##   </tr>
##   <tr>
##    <td style="text-align:left;"> age </td>
##    <td style="text-align:right;"> -0.0293965 </td>
##    <td style="text-align:right;"> 0.0048799 </td>
##    <td style="text-align:right;"> -6.0239461 </td>
##    <td style="text-align:right;"> 0.0000000 </td>
##    <td style="text-align:right;"> 0.0000041 </td>
##    <td style="text-align:right;"> 82.77097 </td>
##    <td style="text-align:right;"> 1038 </td>
##    <td style="text-align:right;"> 0.2269003 </td>
##    <td style="text-align:right;"> 0.2084428 </td>
##    <td style="text-align:right;"> 5 </td>
##    <td style="text-align:right;"> 0.2633326 </td>
##    <td style="text-align:right;"> 1.890000e-05 </td>
##   </tr>
##   <tr>
##    <td style="text-align:left;"> genderGenderqueer, neither exclusively male nor female </td>
##    <td style="text-align:right;"> 1.3638259 </td>
##    <td style="text-align:right;"> 1.0773457 </td>
##    <td style="text-align:right;"> 1.2659131 </td>
##    <td style="text-align:right;"> 0.2058297 </td>
##    <td style="text-align:right;"> 0.0019068 </td>
##    <td style="text-align:right;"> 1032.92575 </td>
##    <td style="text-align:right;"> 1038 </td>
##    <td style="text-align:right;"> 0.0038982 </td>
##    <td style="text-align:right;"> 0.0019714 </td>
##    <td style="text-align:right;"> 5 </td>
##    <td style="text-align:right;"> 0.0019753 </td>
##    <td style="text-align:right;"> 1.158386e+00 </td>
##   </tr>
##   <tr>
##    <td style="text-align:left;"> genderMale </td>
##    <td style="text-align:right;"> -0.3960150 </td>
##    <td style="text-align:right;"> 0.1371885 </td>
##    <td style="text-align:right;"> -2.8866495 </td>
##    <td style="text-align:right;"> 0.0040875 </td>
##    <td style="text-align:right;"> 0.0011125 </td>
##    <td style="text-align:right;"> 435.38010 </td>
##    <td style="text-align:right;"> 1038 </td>
##    <td style="text-align:right;"> 0.0751725 </td>
##    <td style="text-align:right;"> 0.0709338 </td>
##    <td style="text-align:right;"> 5 </td>
##    <td style="text-align:right;"> 0.0763496 </td>
##    <td style="text-align:right;"> 1.748570e-02 </td>
##   </tr>
##   <tr>
##    <td style="text-align:left;"> genderOther (Please State) </td>
##    <td style="text-align:right;"> 0.5014826 </td>
```

```
##    <td style="text-align:right;"> 1.1705221 </td>
##    <td style="text-align:right;"> 0.4284264 </td>
##    <td style="text-align:right;"> 0.6684299 </td>
##    <td style="text-align:right;"> 0.0017311 </td>
##    <td style="text-align:right;"> 1033.82042 </td>
##    <td style="text-align:right;"> 1038 </td>
##    <td style="text-align:right;"> 0.0034422 </td>
##    <td style="text-align:right;"> 0.0015162 </td>
##    <td style="text-align:right;"> 5 </td>
##    <td style="text-align:right;"> 0.0015185 </td>
##    <td style="text-align:right;"> 1.368045e+00 </td>
##   </tr>
##   <tr>
##    <td style="text-align:left;"> genderTransgender Female (Male to Female: MTF) </td>
##    <td style="text-align:right;"> 13.3989723 </td>
##    <td style="text-align:right;"> 608.4891979 </td>
##    <td style="text-align:right;"> 0.0220201 </td>
##    <td style="text-align:right;"> 0.9824362 </td>
##    <td style="text-align:right;"> 0.0043786 </td>
##    <td style="text-align:right;"> 1035.89948 </td>
##    <td style="text-align:right;"> 1038 </td>
##    <td style="text-align:right;"> 0.0019251 </td>
##    <td style="text-align:right;"> 0.0000000 </td>
##    <td style="text-align:right;"> 5 </td>
##    <td style="text-align:right;"> 0.0000000 </td>
##    <td style="text-align:right;"> 3.702591e+05 </td>
##   </tr>
##   <tr>
##    <td style="text-align:left;"> genderTransgender Male (Female to Male; FTM) </td>
##    <td style="text-align:right;"> 13.1656106 </td>
##    <td style="text-align:right;"> 621.5790396 </td>
##    <td style="text-align:right;"> 0.0211809 </td>
##    <td style="text-align:right;"> 0.9831054 </td>
##    <td style="text-align:right;"> 0.0066082 </td>
##    <td style="text-align:right;"> 1035.89948 </td>
##    <td style="text-align:right;"> 1038 </td>
##    <td style="text-align:right;"> 0.0019251 </td>
##    <td style="text-align:right;"> 0.0000000 </td>
##    <td style="text-align:right;"> 5 </td>
##    <td style="text-align:right;"> 0.0000000 </td>
##    <td style="text-align:right;"> 3.863605e+05 </td>
##   </tr>
## </tbody>
## </table>

## [1] 0.6
```

Conclusion