**数据预处理**

第一组缺失值处理

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| **单变量统计** | | | | | | | |
|  | 个案数 | 平均值 | 标准 偏差 | 缺失 | | 极值数a | |
| 计数 | 百分比 | 低 | 高 |
| RID | 2421 | 3714.70 | 2417.293 | 13792 | 85.1 | 0 | 0 |
| AGE | 16213 | 73.251 | 7.0118 | 0 | .0 | 428 | 245 |
| CDRSB\_bl | 16213 | 1.219 | 1.5200 | 0 | .0 | 0 | 964 |
| ADAS11\_bl | 16177 | 9.2724 | 5.78699 | 36 | .2 | 0 | 816 |
| ADAS13\_bl | 16105 | 14.6371 | 8.60823 | 108 | .7 | 0 | 740 |
| ADASQ4\_bl | 16207 | 4.69 | 2.842 | 6 | .0 | 0 | 0 |
| APOE4 | 15898 |  |  | 315 | 1.9 |  |  |
| a. 超出范围 (平均值 - 2\*标准差, 平均值 + 2\*标准差) 的个案数。 | | | | | | | |

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| **估算平均值摘要** | | | | | | |
|  | RID | AGE | CDRSB\_bl | ADAS11\_bl | ADAS13\_bl | ADASQ4\_bl |
| 所有值 | 3714.70 | 73.251 | 1.219 | 9.2724 | 14.6371 | 4.69 |
| EM | 3730.13 | 73.251 | 1.219 | 9.2731 | 14.6732 | 4.69 |

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| **估算标准差摘要** | | | | | | |
|  | RID | AGE | CDRSB\_bl | ADAS11\_bl | ADAS13\_bl | ADASQ4\_bl |
| 所有值 | 2417.293 | 7.0118 | 1.5200 | 5.78699 | 8.60823 | 2.842 |
| EM | 2416.428 | 7.0118 | 1.5200 | 5.78855 | 8.63327 | 2.842 |

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| **EM 平均值a** | | | | | |
| RID | AGE | CDRSB\_bl | ADAS11\_bl | ADAS13\_bl | ADASQ4\_bl |
| 3730.13 | 73.251 | 1.219 | 9.2731 | 14.6732 | 4.69 |
| a. 利特尔 MCAR 检验：卡方 = 459.497，自由度 = 19，重要性 = .000 | | | | | |

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| **EM 协方差a** | | | | | | |
|  | RID | AGE | CDRSB\_bl | ADAS11\_bl | ADAS13\_bl | ADASQ4\_bl |
| RID | 5839123.445 |  |  |  |  |  |
| AGE | 852.966 | 49.1648 |  |  |  |  |
| CDRSB\_bl | 470.489 | .5608 | 2.3104 |  |  |  |
| ADAS11\_bl | 1449.072 | 5.4238 | 6.1238 | 33.50728 |  |  |
| ADAS13\_bl | 2703.127 | 9.4458 | 9.3811 | 48.54755 | 74.53342 |  |
| ADASQ4\_bl | 1168.558 | 2.8012 | 2.6365 | 12.47699 | 21.52239 | 8.077 |
| a. 利特尔 MCAR 检验：卡方 = 459.497，自由度 = 19，重要性 = .000 | | | | | | |

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| **EM 相关性a** | | | | | | |
|  | RID | AGE | CDRSB\_bl | ADAS11\_bl | ADAS13\_bl | ADASQ4\_bl |
| RID | 1 |  |  |  |  |  |
| AGE | .050 | 1 |  |  |  |  |
| CDRSB\_bl | .128 | .053 | 1 |  |  |  |
| ADAS11\_bl | .104 | .134 | .696 | 1 |  |  |
| ADAS13\_bl | .130 | .156 | .715 | .971 | 1 |  |
| ADASQ4\_bl | .170 | .141 | .610 | .758 | .877 | 1 |
| a. 利特尔 MCAR 检验：卡方 = 459.497，自由度 = 19，重要性 = .000 | | | | | | |

第二组数据处理

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| **结果变量** | | | | | | |
|  | 结果变量 | 替换的缺失值数 | 非缺失值的个案编号 | | 有效个案数 | 创建函数 |
| 第一个 | 最后一个 |
| 1 | RID\_1 | 13792 | 1 | 16213 | 16213 | SMEAN(RID) |
| 2 | AGE\_1 | 0 | 1 | 16213 | 16213 | SMEAN(AGE) |
| 3 | CDRSB\_bl\_1 | 0 | 1 | 16213 | 16213 | SMEAN(CDRSB\_bl) |
| 4 | ADAS11\_bl\_1 | 36 | 1 | 16213 | 16213 | SMEAN(ADAS11\_bl) |
| 5 | ADAS13\_bl\_1 | 108 | 1 | 16213 | 16213 | SMEAN(ADAS13\_bl) |

DATASET ACTIVATE p3.

SAVE TRANSLATE OUTFILE='D:\Study\数学建模\2022数维杯\解题\m1.xlsx'

/TYPE=XLS

/VERSION=12

/MAP

/FIELDNAMES VALUE=NAMES

/CELLS=VALUES

/REPLACE.

Data written to D:\Study\数学建模\2022数维杯\解题\m1.xlsx.

7 variables and 16213 cases written to range: SPSS.

Variable: RID Type: Number Width: 4 Dec: 0

Variable: AGE Type: Number Width: 4 Dec: 1

Variable: APOE4 Type: Number Width: 1 Dec: 0

Variable: CDRSB\_bl Type: Number Width: 3 Dec: 1

Variable: ADAS11\_bl Type: Number Width: 5 Dec: 2

Variable: ADAS13\_bl Type: Number Width: 5 Dec: 2

Variable: ADASQ4\_bl Type: Number Width: 2 Dec: 0

SORT CASES BY AGE (A).

DATASET ACTIVATE 数据集2.

RMV /RID\_1=SMEAN(RID) /AGE\_1=SMEAN(AGE) /CDRSB\_bl\_1=SMEAN(CDRSB\_bl) /ADAS11\_bl\_1=SMEAN(ADAS11\_bl)

/ADAS13\_bl\_1=SMEAN(ADAS13\_bl) /APOE4\_1=SMEAN(APOE4).

|  |  |  |  |  |  |  |
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| **结果变量** | | | | | | |
|  | 结果变量 | 替换的缺失值数 | 非缺失值的个案编号 | | 有效个案数 | 创建函数 |
| 第一个 | 最后一个 |
| 1 | RID\_1 | 13792 | 1 | 16213 | 16213 | SMEAN(RID) |
| 2 | AGE\_1 | 0 | 1 | 16213 | 16213 | SMEAN(AGE) |
| 3 | CDRSB\_bl\_1 | 0 | 1 | 16213 | 16213 | SMEAN(CDRSB\_bl) |
| 4 | ADAS11\_bl\_1 | 36 | 1 | 16213 | 16213 | SMEAN(ADAS11\_bl) |
| 5 | ADAS13\_bl\_1 | 108 | 1 | 16213 | 16213 | SMEAN(ADAS13\_bl) |
| 6 | APOE4\_1 | 315 | 1 | 16213 | 16213 | SMEAN(APOE4) |