Multivariate exploration of the questionnaire and typology of the surveyed people

The results are provided by the
EnQuireR package

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1 Quick overview of the questionnaire

The analysis was performed on 100 individuals described by 57 variables:

- nb.holidays.more.than.three.days (0 , 1 , 2 , 3 , 4 , 5)
- holidays.for.four.to.six.days (yes , no)
- holidays.for.one.week (yes , no)
- holidays.for.two.weeks (yes , no)
- holidays.for.three.weeks (yes , no)
- holidays.for.one.month.and.more (yes , no)
- with.family (yes , no)
- with.friends (yes , no)
- with.boy/girlfriend (yes , no)
- alone (yes , no)
- destination.area (yes , no)
- destination.border.area (yes , no)
- destination.France (yes , no)
- destination.Europe (yes , no)
- destination.out.of.Europe (no , yes)
- during.summer (no , yes)
- during.spring (no , yes)
- during.christmas (yes , no)
- during.february (yes , no)
- during.autumn (yes , no)
- mountain (yes , no)
- seaside (no , yes)
- countryside (yes , no)
- city (yes , no)
- hotel (yes , no)
- bungalow (yes , no)
- rented.flat (no , yes)
- rented.house (no , yes)
- campsite (yes , no)
- family.house (yes , no)
- friend.house (yes , no)
- bed.and.breakfast (yes , no)
- youth.hostel (no , yes)
- couchsurfing (yes , no)

- trip.with.young.people (no , yes)
- trip.with.hotel.club (yes , no)
- trip.without.organization (no , yes)
- activity.job (yes , no)
- activity.visiting (no , yes)
- activity.strolling (no , yes)
- activity.outdoor.sports (no , yes)
- activity.winter.sports (no , yes)
- activity.beach.sports (yes , no)
- activity.sun.tanning (no , yes)
- activity.books (no , yes)
- activity.tabloid (no , yes)
- activity.tv (no , yes)
- activity.computer (yes , no)
- activity.theme.park (yes , no)
- activity.bathing (yes , no)
- parents.financial.help (3 quarters , half , nothing , quarter , total)
- work.to.earn.money (doesn,t work , holiday work , schoolyear and holiday work , schoolyear work)
- holiday.idea.from.internet (yes , no)
- holiday.idea.from.agency (yes , no)
- holiday.idea.from.family (yes , no)
- holiday.idea.from.friends (yes , no)
- holiday.idea.from.oneself (no , yes)

Moreover, the dataset contained 0% of missing values.

2 Multivariate exploration of the questionnaire

2.1 Graphical representations of the questionnaire

The following results are obtained by performing a Multiple Correspondence Analysis (MCA) on the previous 57 variables. This method provides two important graphical displays, a representation of the individuals (surveyed people) and a representation of the categories (answers given by the surveyed people). The first two main axes of variability explain 16.54% of the information contained in the dataset (10.51% for the first factorial axis and 6.02% for the second one). In some cases the analyst may want to introduce supplementary quantitative variables.

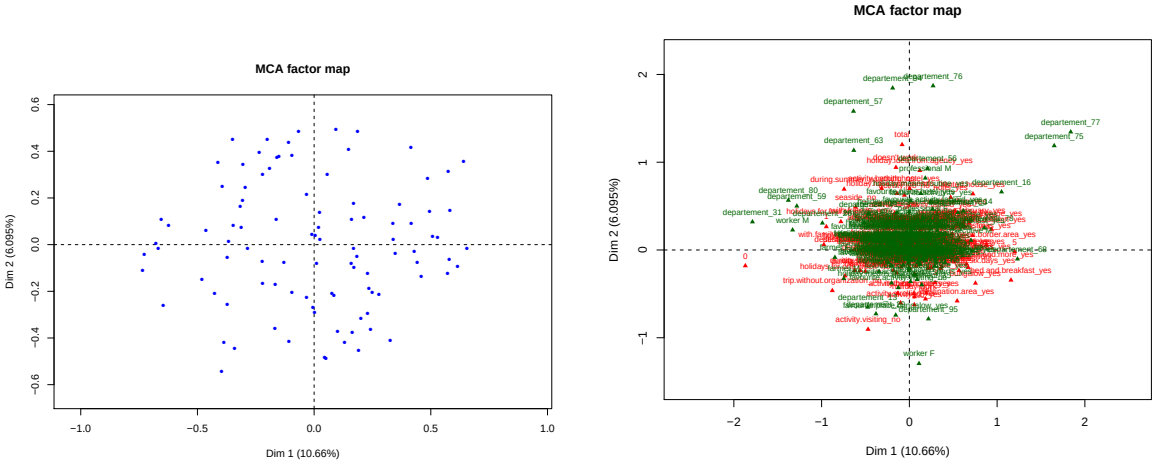

Figure 1: Representations of the individuals and of the categories on axes 1 and 2

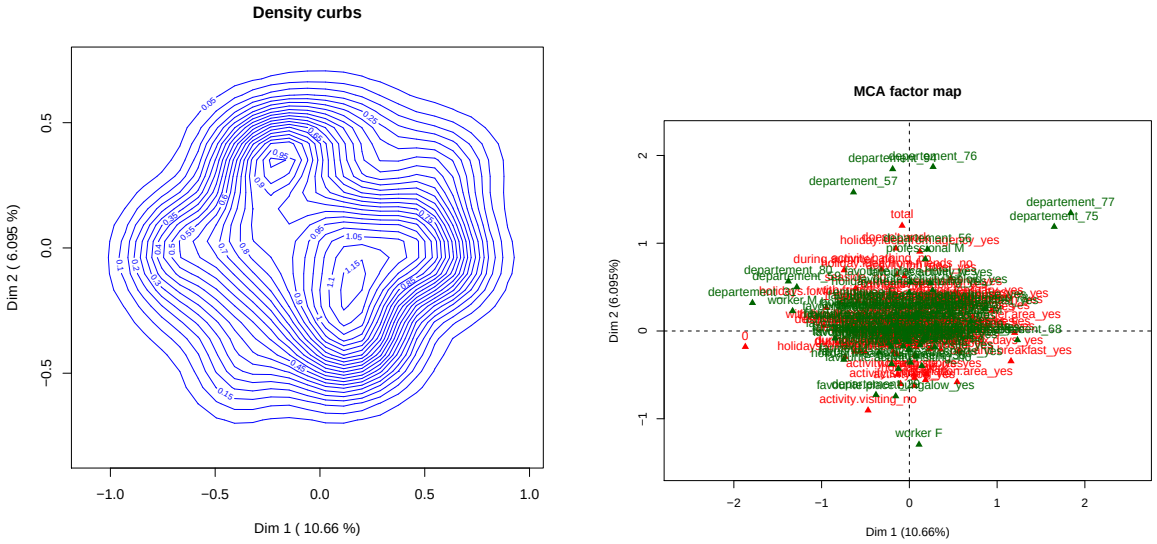

Figure 2: Representation of the individuals using density curbs and enhanced representation of the categories

2.2 Highlights on the two principal axes of variability

2.2.1 Characterization of the first factorial axis

The most meaningful variables characterizing the first factorial axis are:

- nb.holidays.more.than.three.days
- with.family
- holidays.for.four.to.six.days
- during.spring
- during.february
- city
- holidays.for.one.week
- holidays.for.two.weeks
- destination.Europe
- destination.border.area
- family.house
- with.friends
- during.autumn
- destination.France
- friend.house
- during.summer
- mountain
- during.christmas
- countryside
- seaside
- destination.area
- destination.out.of.Europe
- with.boy/girlfriend
- bungalow
- activity.outdoor.sports
- trip.without.organization
- hotel
- rented.house
- holidays.for.three.weeks
- activity.visiting
- holidays.for.one.month.and.more

The most meaningful categories characterizing the positive side of the first axis are:

- `5`
  - Contribution: 4.57
  - V-Test: 6.34
  - Frequency in the population: 22 %
- `4`
  - Contribution: 0.83
  - V-Test: 2.56
  - Frequency in the population: 13 %
- `with.family_yes`
  - Contribution: 2.06
  - V-Test: 6.65
  - Frequency in the population: 68 %
- `holidays.for.four.to.six.days_yes`
  - Contribution: 2.67
  - V-Test: 6.61
  - Frequency in the population: 58 %
- `during.spring_yes`
  - Contribution: 2.72
  - V-Test: 5.94
  - Frequency in the population: 47 %
- `during.february_yes`
  - Contribution: 2.9
  - V-Test: 5.86
  - Frequency in the population: 42 %
- `city_yes`
  - Contribution: 1.94
  - V-Test: 5.5
  - Frequency in the population: 56 %
- `holidays.for.one.week_yes`
  - Contribution: 1.46
  - V-Test: 5.36
  - Frequency in the population: 65 %
- `holidays.for.two.weeks_yes`
  - Contribution: 2.27
  - V-Test: 5.23
  - Frequency in the population: 43 %
- `destination.Europe_yes`
  - Contribution: 1.75
  - V-Test: 5

  - Frequency in the population: 52 %

The most meaningful categories characterizing the negative side of the first axis are:

- `0`
  - Contribution: 4.02
  - V-Test: -5.48
  - Frequency in the population: 8 %
- `1`
  - Contribution: 2.84
  - V-Test: -5
  - Frequency in the population: 22 %
- `with.family_no`
  - Contribution: 4.38
  - V-Test: -6.65
  - Frequency in the population: 32 %
- `holidays.for.four.to.six.days_no`
  - Contribution: 3.69
  - V-Test: -6.61
  - Frequency in the population: 42 %
- `during.spring_no`
  - Contribution: 2.42
  - V-Test: -5.94
  - Frequency in the population: 53 %
- `during.february_no`
  - Contribution: 2.1
  - V-Test: -5.86
  - Frequency in the population: 58 %
- `city_no`
  - Contribution: 2.47
  - V-Test: -5.5
  - Frequency in the population: 44 %
- `holidays.for.one.week_no`
  - Contribution: 2.72
  - V-Test: -5.36
  - Frequency in the population: 35 %
- `holidays.for.two.weeks_no`
  - Contribution: 1.71
  - V-Test: -5.23
  - Frequency in the population: 57 %
- `destination.Europe_no`
  - Contribution: 1.89
  - V-Test: -5
  - Frequency in the population: 48 %

2.2.2 Characterization on the second factorial axis

The most meaningful variables characterizing the second factorial axis are:

- work.to.earn.money
- activity.job
- parents.financial.help
- activity.visiting
- campsite
- holiday.idea.from.friends
- destination.area
- during.summer
- hotel
- activity.beach.sports
- seaside
- holiday.idea.from.agency
- during.february
- with.friends
- holidays.for.four.to.six.days
- activity.strolling
- activity.tv
- holiday.idea.from.internet
- activity.bathing
- during.spring
- rented.house
- youth.hostel
- activity.tabloid
- holidays.for.one.week
- mountain
- city

The most meaningful categories characterizing the positive side of the second axis are:

- activity.job_no
  - Contribution: 4.89
  - V-Test: 6.21
  - Frequency in the population: 50 %
- total

  - Contribution: 6.79
  - V-Test: 5.74
  - Frequency in the population: 19 %
- `activity.visiting_yes`
  - Contribution: 1.17
  - V-Test: 4.68
  - Frequency in the population: 79 %
- `campsite_no`
  - Contribution: 2.4
  - V-Test: 4.53
  - Frequency in the population: 54 %
- `holiday.idea.from.friends_no`
  - Contribution: 3.23
  - V-Test: 4.26
  - Frequency in the population: 30 %
- `destination.area_no`
  - Contribution: 1.33
  - V-Test: 4.04
  - Frequency in the population: 68 %
- `doesn,t work`
  - Contribution: 7.66
  - V-Test: 6.81
  - Frequency in the population: 35 %
- `during.summer_no`
  - Contribution: 2.76
  - V-Test: 3.76
  - Frequency in the population: 23 %
- `hotel_yes`
  - Contribution: 2.53
  - V-Test: 3.72
  - Frequency in the population: 28 %
- `activity.beach.sports_no`
  - Contribution: 1.21
  - V-Test: 3.68
  - Frequency in the population: 65 %

The most meaningful categories characterizing the negative side of the second axis are:

- `activity.job_yes`
  - Contribution: 4.89

  - V-Test: -6.21
  - Frequency in the population: 50 %
- `activity.visiting_no`
  - Contribution: 4.39
  - V-Test: -4.68
  - Frequency in the population: 21 %
- `campsite_yes`
  - Contribution: 2.82
  - V-Test: -4.53
  - Frequency in the population: 46 %
- `holiday.idea.from.friends_yes`
  - Contribution: 1.38
  - V-Test: -4.26
  - Frequency in the population: 70 %
- `destination.area_yes`
  - Contribution: 2.82
  - V-Test: -4.04
  - Frequency in the population: 32 %
- `holiday work`
  - Contribution: 4.59
  - V-Test: -6.56
  - Frequency in the population: 58 %
- `during.summer_yes`
  - Contribution: 0.82
  - V-Test: -3.76
  - Frequency in the population: 77 %
- `hotel_no`
  - Contribution: 0.98
  - V-Test: -3.72
  - Frequency in the population: 72 %
- `activity.beach.sports_yes`
  - Contribution: 2.24
  - V-Test: -3.68
  - Frequency in the population: 35 %
- `half`
  - Contribution: 1.63
  - V-Test: -2.83
  - Frequency in the population: 20 %

3 Typology on the individuals

3.1 Choice of the number of clusters

The ascendant hierarchical clustering (AHC) lead to a partition made of 4 clusters. Those clusters are displayed in the following representations: a graphical representation of the individuals according to the cluster they belong to, a representation of the center of gravity of each group enhanced by a confidence ellipse, a representation of the individuals according to the cluster they belong to by the use of density curbs.

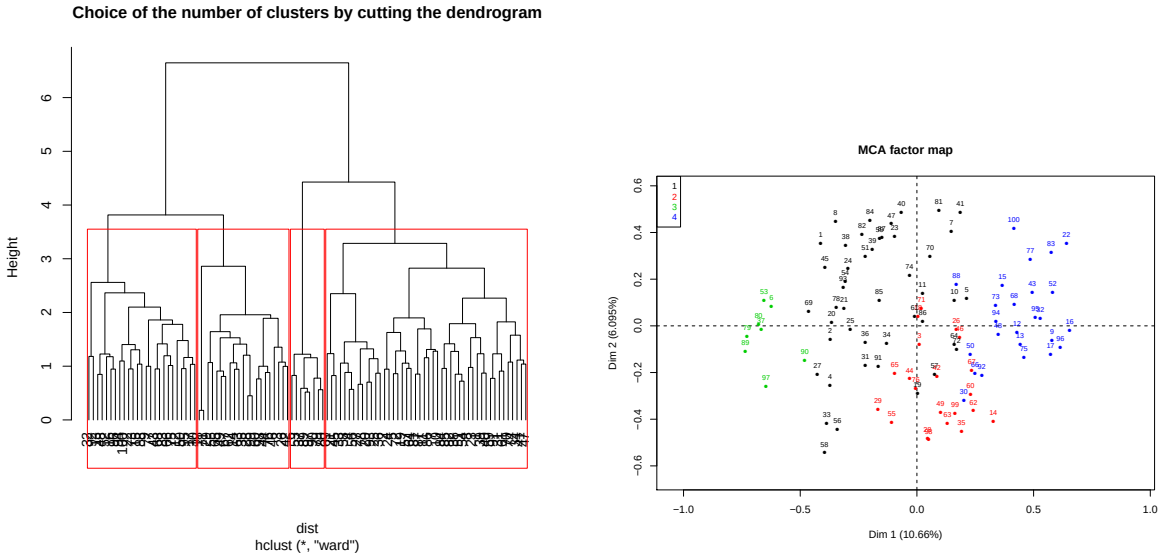

Figure 3: Number of clusters chosen by the analyst; representation of the individuals according to their cluster

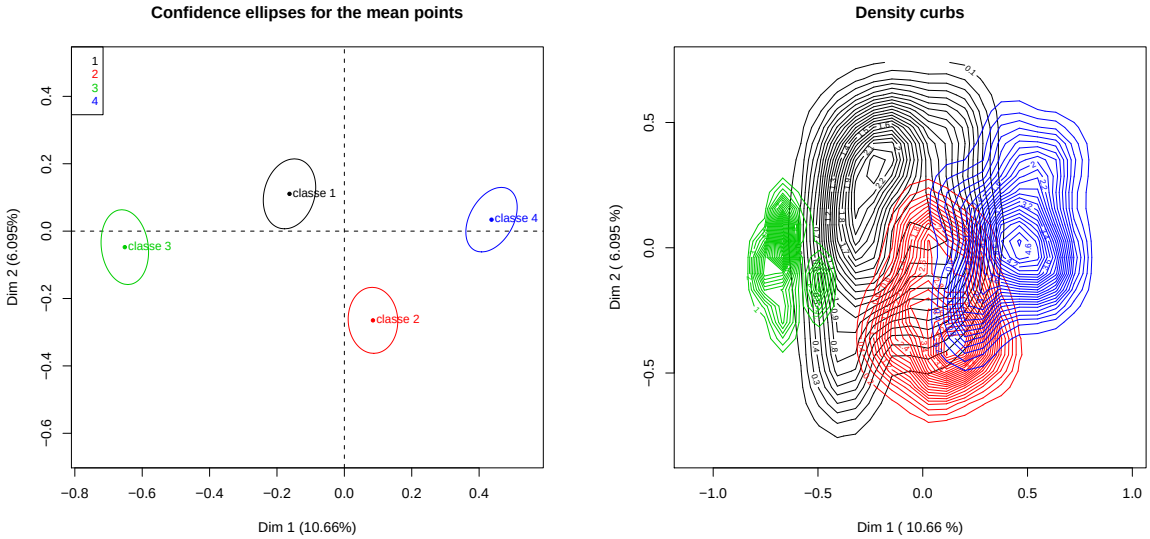

Figure 4: Centers of gravity with confidence ellipses; representation of the individuals according to their cluster with density curbs

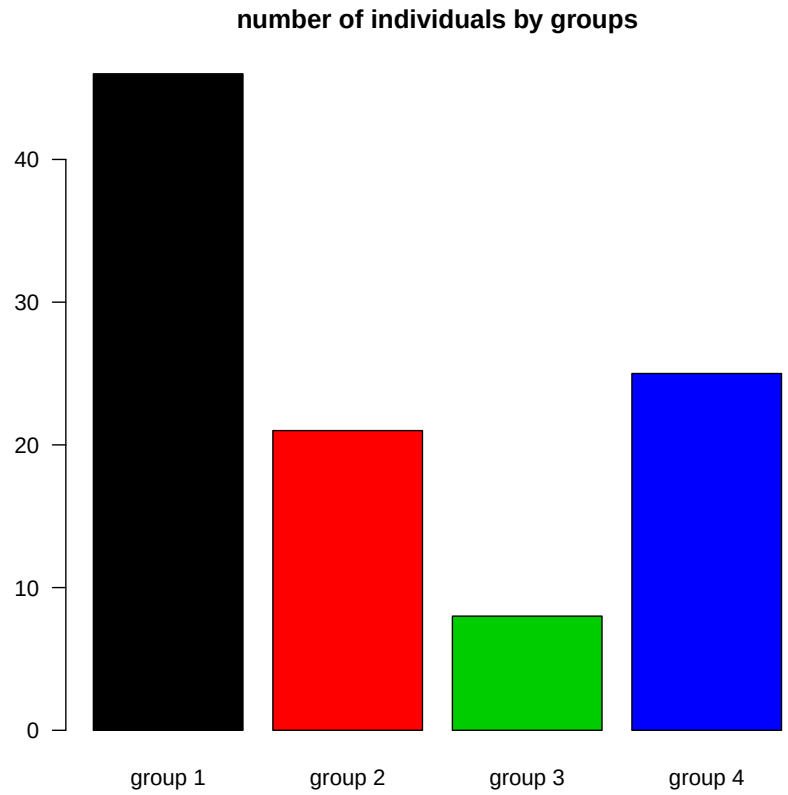

Figure 5: Number of individuals per cluster

3.2 Simultaneous comparison of the clusters with respect with the most relevant variables

3.2.1 Number of individuals by cluster for the variable nb.holidays.more.than.three.days

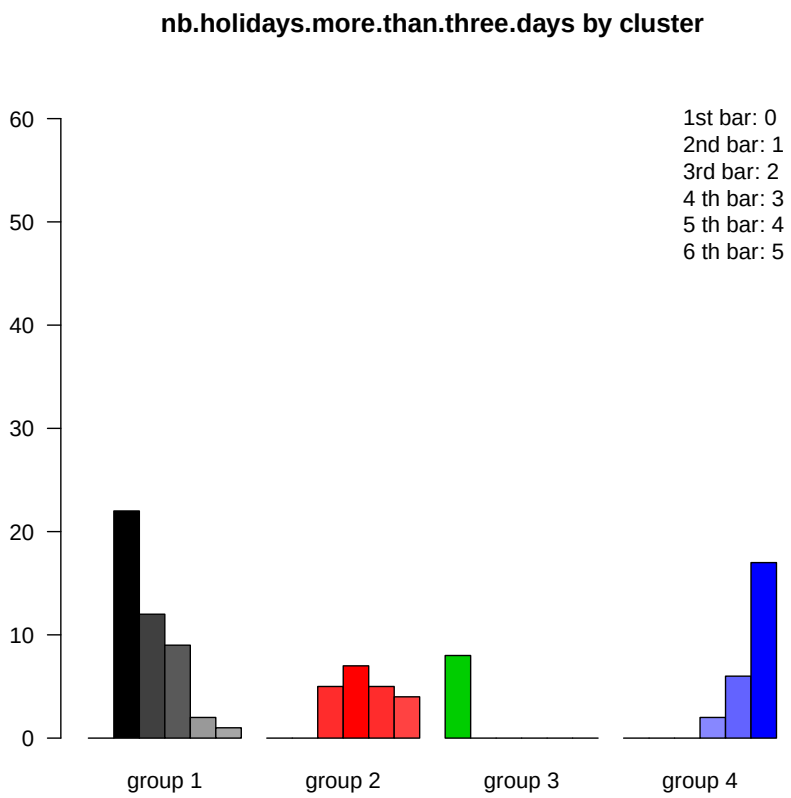

Figure 6: Variable nb.holidays.more.than.three.days

3.2.2 Number of individuals by cluster for the variable holidays.for.four.to.six.days

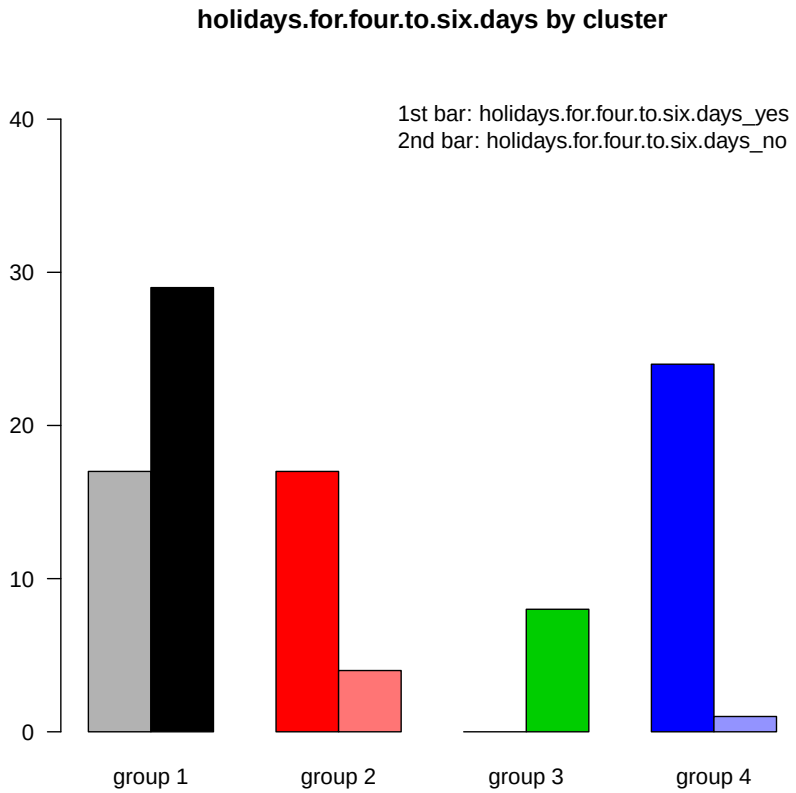

Figure 7: Variable holidays.for.four.to.six.days

3.2.3 Number of individuals by cluster for the variable with.family

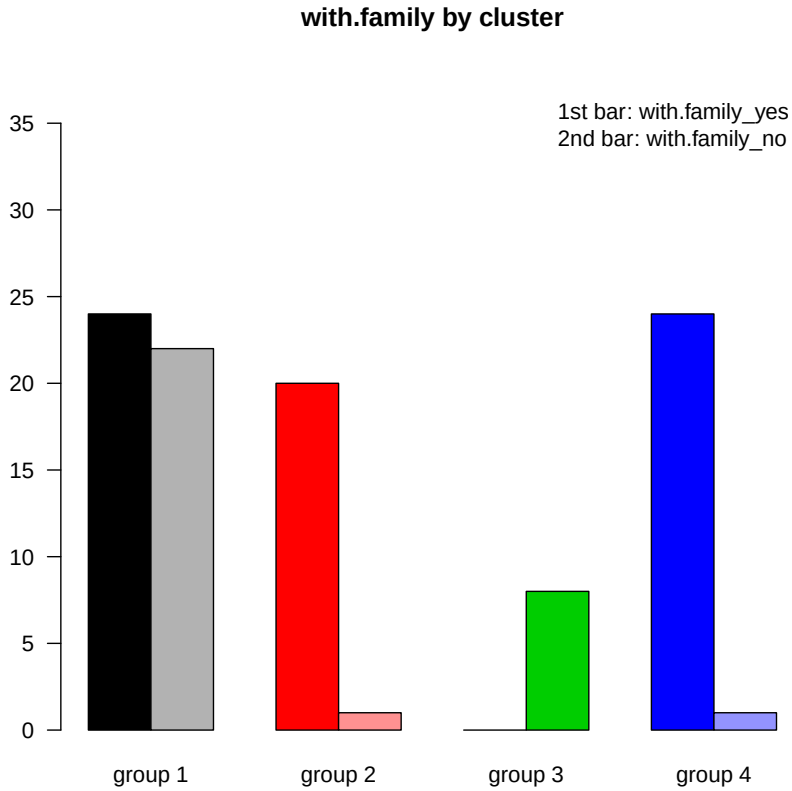

Figure 8: Variable with.family

3.2.4 Number of individuals by cluster for the variable during.february

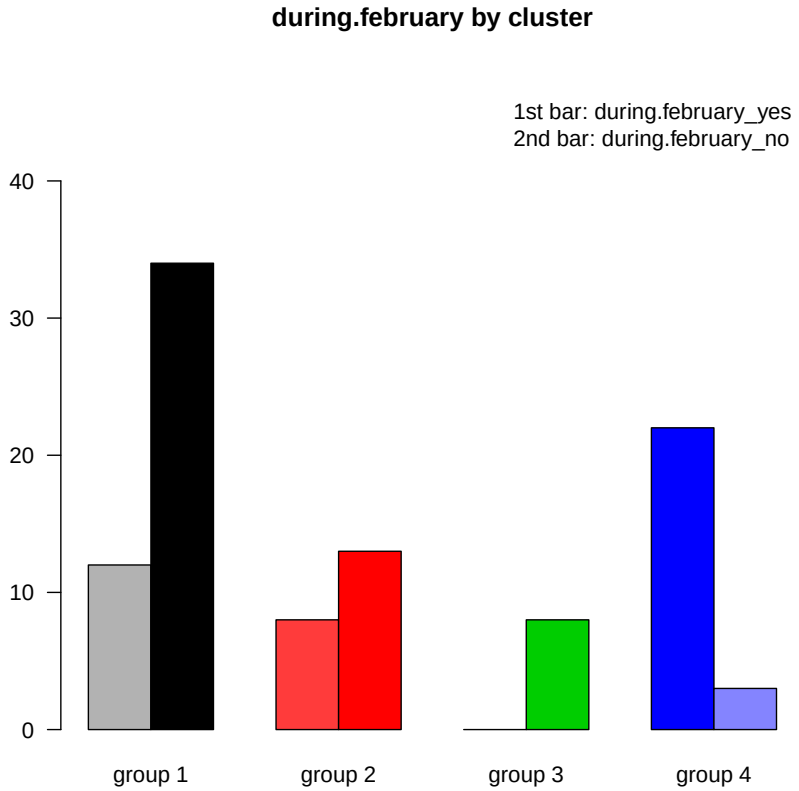

Figure 9: Variable during.february

3.2.5 Number of individuals by cluster for the variable during.autumn

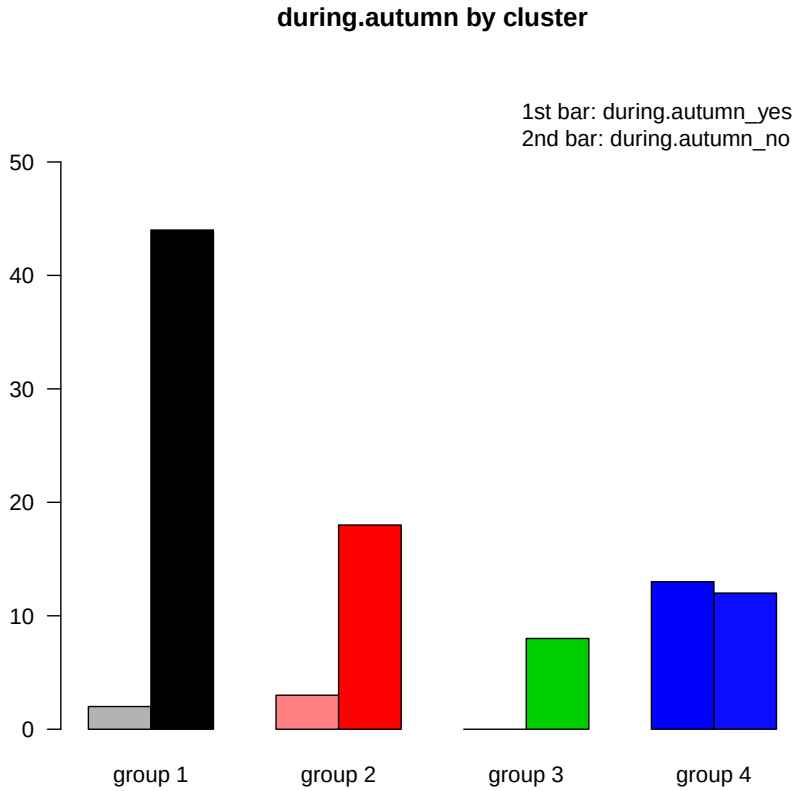

Figure 10: Variable during.autumn

3.2.6 Number of individuals by cluster for the variable holidays.for.one.week

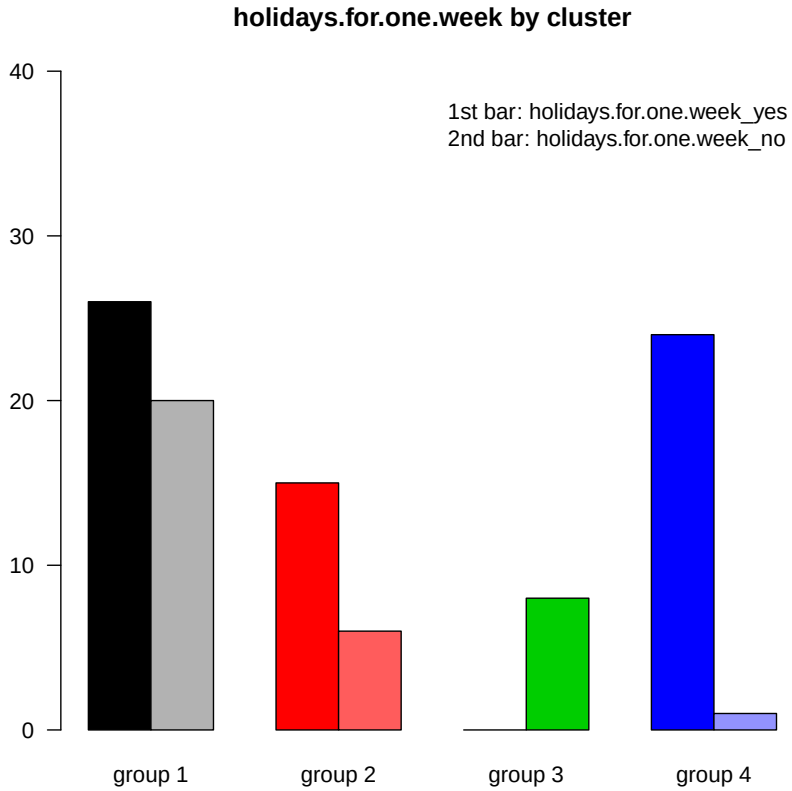

Figure 11: Variable holidays.for.one.week

3.2.7 Number of individuals by cluster for the variable with.friends

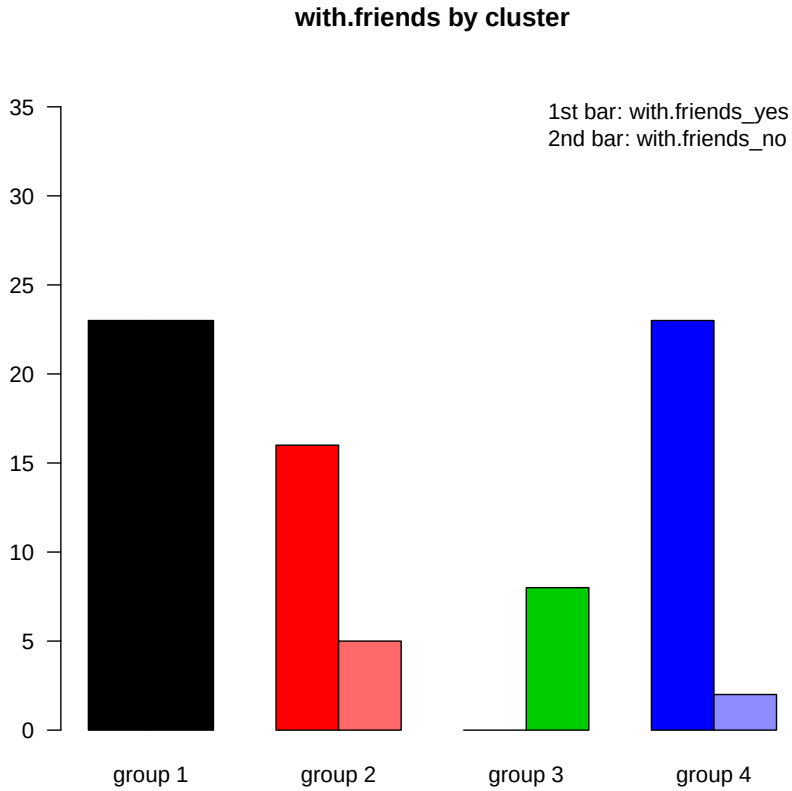

Figure 12: Variable with.friends

3.2.8 Number of individuals by cluster for the variable during.summer

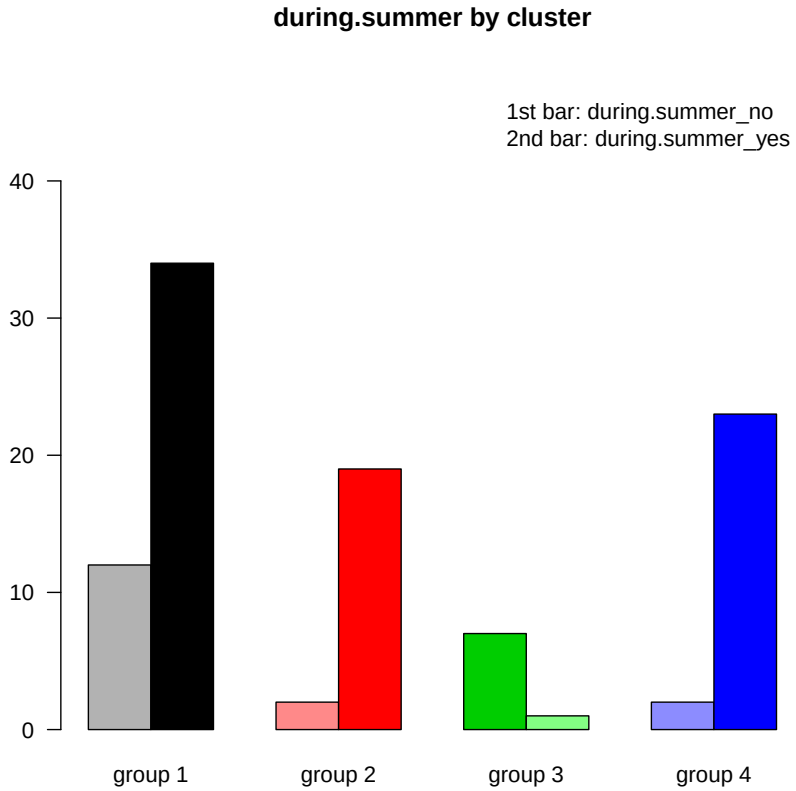

Figure 13: Variable during.summer

3.2.9 Number of individuals by cluster for the variable seaside

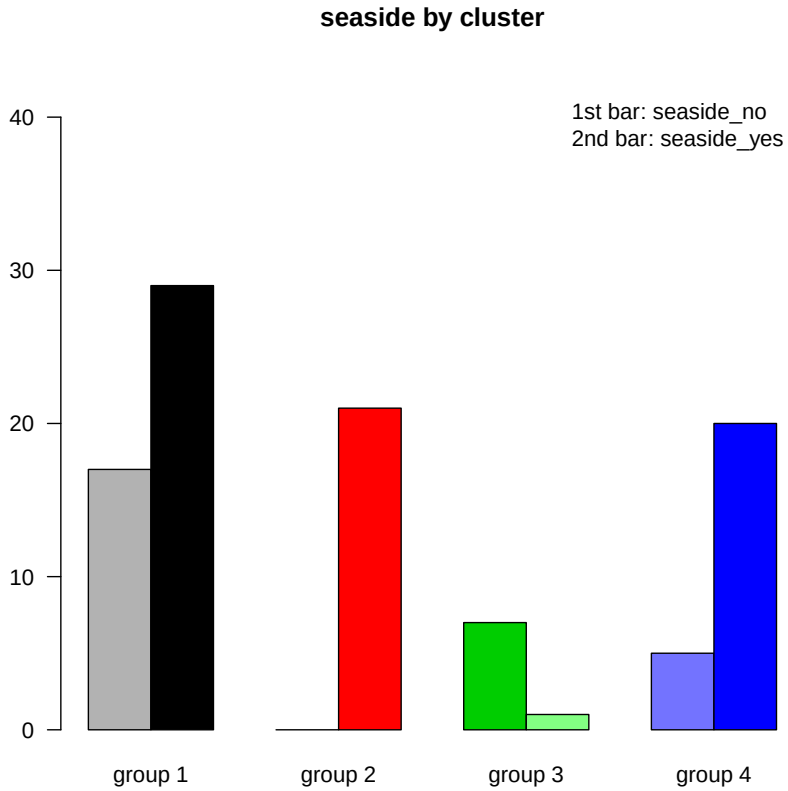

Figure 14: Variable seaside

3.2.10 Number of individuals by cluster for the variable destination.France

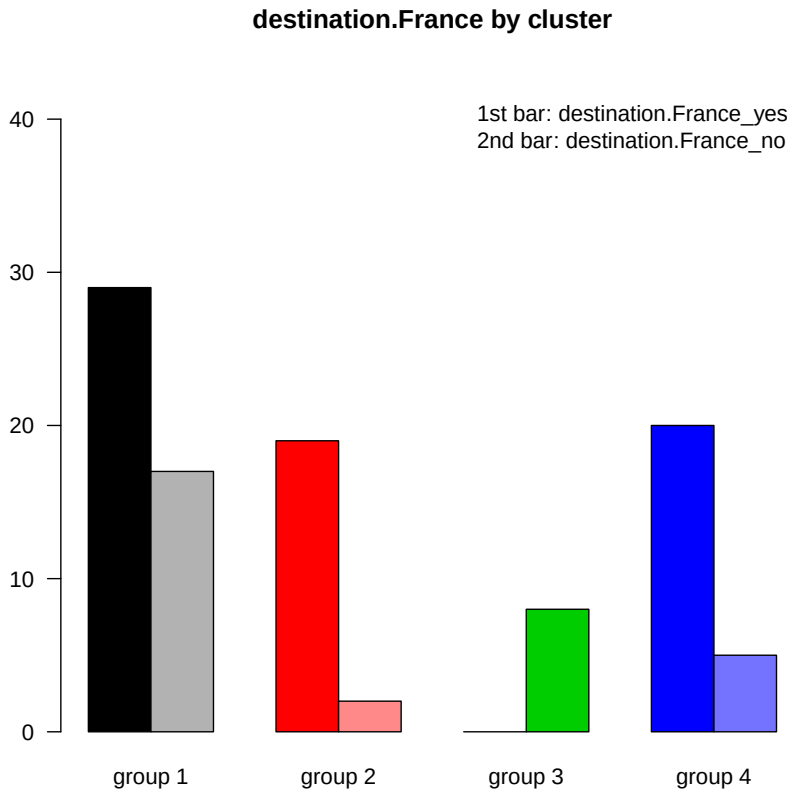

Figure 15: Variable destination.France

3.3 Automatic description of each cluster

The cluster 1 (46 individuals) includes the individuals possessing the following categories:

- `nb.holidays.more.than.three.days=1`

  22 % of the individuals possess this category in the global population versus 47.83 % in the cluster 1 .

  Moreover, 100 % of the individuals possessing this category belong to the cluster 1 .

- `holiday.idea.from.friends=holiday.idea.from.friends_no`

  30 % of the individuals possess this category in the global population versus 50 % in the cluster 1 .

  Moreover, 76.67 % of the individuals possessing this category belong to the cluster 1 .

- `holidays.for.four.to.six.days=holidays.for.four.to.six.days_no`

  42 % of the individuals possess this category in the global population versus 63.04 % in the cluster 1 .

  Moreover, 69.05 % of the individuals possessing this category belong to the cluster 1 .

- `activity.job=activity.job_no`

  50 % of the individuals possess this category in the global population versus 69.57 % in the cluster 1 .

  Moreover, 64 % of the individuals possessing this category belong to the cluster 1 .

- `friend.house=friend.house_no`

  60 % of the individuals possess this category in the global population versus 78.26 % in the cluster 1 .

  Moreover, 60 % of the individuals possessing this category belong to the cluster 1 .

- `during.autumn=during.autumn_no`

  82 % of the individuals possess this category in the global population versus 95.65 % in the cluster 1 .

  Moreover, 53.66 % of the individuals possessing this category belong to the cluster 1 .

- `with.family=with.family_no`

  32 % of the individuals possess this category in the global population versus 47.83 % in the cluster 1 .

  Moreover, 68.75 % of the individuals possessing this category belong to the cluster 1 .

- `during.february=during.february_no`

  58 % of the individuals possess this category in the global population versus 73.91 % in the cluster 1 .

  Moreover, 58.62 % of the individuals possessing this category belong to the cluster 1 .

- `work.to.earn.money=doesn,t work`

  35 % of the individuals possess this category in the global population versus 50 % in the cluster 1 .

  Moreover, 65.71 % of the individuals possessing this category belong to the cluster 1 .

- `SPC.father=employee F`

  10 % of the individuals possess this category in the global population versus 19.57 % in the cluster 1 .

  Moreover, 90 % of the individuals possessing this category belong to the cluster 1 .

The cluster 2 (21 individuals) includes the individuals possessing the following categories:

- `activity.job=activity.job_yes`

  50 % of the individuals possess this category in the global population versus 90.48 % in the cluster 2 .

  Moreover, 38 % of the individuals possessing this category belong to the cluster 2 .

- `seaside=seaside_yes`

  71 % of the individuals possess this category in the global population versus 100 % in the cluster 2 .

  Moreover, 29.58 % of the individuals possessing this category belong to the cluster 2 .

- `with.family=with.family_yes`

  68 % of the individuals possess this category in the global population versus 95.24 % in the cluster 2 .

  Moreover, 29.41 % of the individuals possessing this category belong to the cluster 2 .

- `activity.tv=activity.tv_no`

  69 % of the individuals possess this category in the global population versus 95.24 % in the cluster 2 .

  Moreover, 28.99 % of the individuals possessing this category belong to the cluster 2 .

- `trip.with.young.people=trip.with.young.people_yes`

  26 % of the individuals possess this category in the global population versus 52.38 % in the cluster 2 .

  Moreover, 42.31 % of the individuals possessing this category belong to the cluster 2 .

- `parents.financial.help=nothing`

  27 % of the individuals possess this category in the global population versus 52.38 % in the cluster 2 .

  Moreover, 40.74 % of the individuals possessing this category belong to the cluster 2 .

- `work.to.earn.money=holiday work`

  60 % of the individuals possess this category in the global population versus 85.71 % in the cluster 2 .

  Moreover, 30 % of the individuals possessing this category belong to the cluster 2 .

- `destination.France=destination.France_yes`

  68 % of the individuals possess this category in the global population versus 90.48 % in the cluster 2 .

  Moreover, 27.94 % of the individuals possessing this category belong to the cluster 2 .

- `holidays.for.four.to.six.days=holidays.for.four.to.six.days_yes`

  58 % of the individuals possess this category in the global population versus 80.95 % in the cluster 2 .

  Moreover, 29.31 % of the individuals possessing this category belong to the cluster 2 .

- `holiday.idea.from.internet=holiday.idea.from.internet_no`

  48 % of the individuals possess this category in the global population versus 71.43 % in the cluster 2 .

  Moreover, 31.25 % of the individuals possessing this category belong to the cluster 2 .

The cluster 3 (8 individuals) includes the individuals possessing the following categories:

- `nb.holidays.more.than.three.days=0`

  8 % of the individuals possess this category in the global population versus 100 % in the cluster 3 .

  Moreover, 100 % of the individuals possessing this category belong to the cluster 3 .

- `destination.France=destination.France_no`

  32 % of the individuals possess this category in the global population versus 100 % in the cluster 3 .

  Moreover, 25 % of the individuals possessing this category belong to the cluster 3 .

- `with.family=with.family_no`

  32 % of the individuals possess this category in the global population versus 100 % in the cluster 3 .

  Moreover, 25 % of the individuals possessing this category belong to the cluster 3 .

- `during.summer=during.summer_no`

  23 % of the individuals possess this category in the global population versus 87.5 % in the cluster 3 .

  Moreover, 30.43 % of the individuals possessing this category belong to the cluster 3 .

- `holidays.for.one.week=holidays.for.one.week_no`

  35 % of the individuals possess this category in the global population versus 100 % in the cluster 3 .

  Moreover, 22.86 % of the individuals possessing this category belong to the cluster 3 .

- `with.friends=with.friends_no`

  38 % of the individuals possess this category in the global population versus 100 % in the cluster 3 .

  Moreover, 21.05 % of the individuals possessing this category belong to the cluster 3 .

- `seaside=seaside_no`

  29 % of the individuals possess this category in the global population versus 87.5 % in the cluster 3 .

  Moreover, 24.14 % of the individuals possessing this category belong to the cluster 3 .

- `holidays.for.four.to.six.days=holidays.for.four.to.six.days_no`

  42 % of the individuals possess this category in the global population versus 100 % in the cluster 3 .

  Moreover, 19.05 % of the individuals possessing this category belong to the cluster 3 .

- `city=city_no`

  44 % of the individuals possess this category in the global population versus 100 % in the cluster 3 .

  Moreover, 18.18 % of the individuals possessing this category belong to the cluster 3 .

- `destination.Europe=destination.Europe_no`

  48 % of the individuals possess this category in the global population versus 100 % in the cluster 3 .

  Moreover, 16.67 % of the individuals possessing this category belong to the cluster 3 .

The cluster 4 (25 individuals) includes the individuals possessing the following categories:

- `nb.holidays.more.than.three.days=5`

  22 % of the individuals possess this category in the global population versus 68 % in the cluster 4 .

  Moreover, 77.27 % of the individuals possessing this category belong to the cluster 4 .

- `during.february=during.february_yes`

  42 % of the individuals possess this category in the global population versus 88 % in the cluster 4 .

  Moreover, 52.38 % of the individuals possessing this category belong to the cluster 4 .

- `holidays.for.four.to.six.days=holidays.for.four.to.six.days_yes`

  58 % of the individuals possess this category in the global population versus 96 % in the cluster 4 .

  Moreover, 41.38 % of the individuals possessing this category belong to the cluster 4 .

- `during.autumn=during.autumn_yes`

  18 % of the individuals possess this category in the global population versus 52 % in the cluster 4 .

  Moreover, 72.22 % of the individuals possessing this category belong to the cluster 4 .

- `family.house=family.house_yes`

  39 % of the individuals possess this category in the global population versus 76 % in the cluster 4 .

  Moreover, 48.72 % of the individuals possessing this category belong to the cluster 4 .

- `countryside=countryside_yes`

  29 % of the individuals possess this category in the global population versus 64 % in the cluster 4 .

  Moreover, 55.17 % of the individuals possessing this category belong to the cluster 4 .

- `destination.border.area=destination.border.area_yes`

  24 % of the individuals possess this category in the global population versus 56 % in the cluster 4 .

  Moreover, 58.33 % of the individuals possessing this category belong to the cluster 4 .

- `holidays.for.one.week=holidays.for.one.week_yes`

  65 % of the individuals possess this category in the global population versus 96 % in the cluster 4 .

  Moreover, 36.92 % of the individuals possessing this category belong to the cluster 4 .

- `activity.outdoor.sports=activity.outdoor.sports_yes`

  52 % of the individuals possess this category in the global population versus 84 % in the cluster 4 .

  Moreover, 40.38 % of the individuals possessing this category belong to the cluster 4 .

- `with.friends=with.friends_yes`

  62 % of the individuals possess this category in the global population versus 92 % in the cluster 4 .

  Moreover, 37.1 % of the individuals possessing this category belong to the cluster 4 .