Banco de Dados Escolas de Botucatu

TODO List

- Falta resolver o problema com a clusterizacao
- Arrumar os dados de comparacao entre o que foi observado e as previsoes do modelo pqq.

Pacotes Externos

Definições Gerais

Análise dos Dados

Importando os dados

In[255]:=

```
csv = Import[prefix <> "bancoLuiza.csv"];
```

In[256]:=

```
codlist =
  Rest[First[Transpose[Import[prefix <> "bancoLuiza.csv", "Numeric" → False]]]];
```

Vamos trabalhar com datasets

In[257]:=

```
header = First[csv];
datacsv = Rest[csv];
(* Esse passo é para evitar que o
 Mathematica interprete os codigos como numeros *)
datacsv[[All, 1]] = codlist;
(* datacsv=Transpose[Append[Rest[Transpose[datacsv]],codlist]]; *)

dataset = Dataset[AssociationThread[header → #] & /@ datacsv];
```

In[261]:=

Problemas nas Escolas

Duas Escolas não participaram do projeto e acabaram sendo excluídas. O problema é quais froam elas. Esse algoritmo abaixo nos permitiu achar o melhor chute.

In[262]:=

```
(* listen=Table[data=Select[dataset,
     (#AUDITESC!=""&& #AUDIT3!=""&&   #ESCOLAS≠esc1&& #ESCOLAS≠esc2)&];
  bbacontrole=Select[data,#GRUPO=="C"&];
  bbaintervencao=Select[data,#GRUPO=="I"&];
  data=Select[data,#RECUSA==0&&#RecusaIB6==0&];
  bbacontrole6=Select[data,#GRUPO=="C"&];
  bbaintervencao6=Select[data,#GRUPO=="I"&];
  data=Select[data,#RECUSA==0&&#RecusaIB6==0&&#RecusaIB12==0&];
  bbacontrole12=Select[data,#GRUPO=="C"&];
  bbaintervencao12=Select[data,#GRUPO=="I"&];
  {{esc1,esc2},
   {{"Controle",Length[bbacontrole],Length[bbacontrole6],Length[bbacontrole12]},
    {"Intervencao",Length[bbaintervencao],
     Length[bbaintervencao6],
     Length[bbaintervencao12]
    }}},{esc1,1,11},{esc2,1,11}];
lismin=Table[ {listen[[esc1,esc2,1]],
   N[Plus@@Map[Norm,(listen[[esc1,esc2,2]]/.{x_,y_,z_,w_}→{y,z,w})-
       {{130,69,59},{133,54,43}},2]]},{esc1,1,11},{esc2,1,11}];
MinimalBy[Flatten[lismin,1],Last] *)
```

Geração dos Dados

In[263]:=

```
(* No estudo original algumas escolas foram eliminadas *)
(* dataset1=Select[dataset,(#AUDITESC!=""&& #AUDIT3!=""&&
     #INCONSIS==0 && #IDADES<18&& #ESCOLAS≠3&& #ESCOLAS≠10)&];

datasetold=
```

```
 Select[dataset, (#AUDITESC!=""&& #AUDIT3!=""&&   #ESCOLAS≠3&& #ESCOLAS≠10)&];*)
dataset1 = Select[dataset, (#AUDITESC != "" && #AUDIT3 != "" &&
      #INCONSIS == 0 && #IDADES < 18 && #ESCOLAS ≠ 5 && #ESCOLAS ≠ 11) &];

datasetold = Select[dataset,
   (#AUDITESC != "" && #AUDIT3 != "" &&  #ESCOLAS ≠ 5 && #ESCOLAS ≠ 11) &];
(* Inclui uma coluna para o AUDITC *)
dataset1 = dataset1[All, <|#, "AUDITC" → #AUDIT1 + #AUDIT2 + #AUDIT3,
     "z1AUDITC" → #AUDIT1 + #AUDIT2 + #AUDIT3,
     "z6AUDITC" → #z6AUDIT1 + #z6AUDIT2 + #z6AUDIT3,
     "z12AUDITC" → #z12AUDI1 + #z12AUDI2 + #z12AUDI3,
     "z1AUDITESC" → #AUDIT11 + #AUDIT21 + #AUDIT31 + #AUDIT41 +
       #AUDIT51 + #AUDIT61 + #AUDIT71 + #AUDIT81 #AUDIT91 + #AUDIT101,
     "z6AUDITESC" → #z6AUDIT1 + #z6AUDIT2 + #z6AUDIT3 + #z6AUDIT4 + #z6AUDIT5 +
       #z6AUDIT6 + #z6AUDIT7 + #z6AUDIT8 + #z6AUDIT9 + #z6AUD101,
     "z12AUDITESC" → #z12AUDI1 + #z12AUDI2 + #z12AUDI3 + #z12AUDI4 +
       #z12AUDI5 + #z12AUDI6 + #z12AUDI7 + #z12AUDI8 + #z12AUDI9 + #z12AUD10
     |> &];
datasetold = datasetold[All, <|#, "AUDITC" → #AUDIT1 + #AUDIT2 + #AUDIT3,
     "z1AUDITC" → #AUDIT1 + #AUDIT2 + #AUDIT3,
     "z6AUDITC" → #z6AUDIT1 + #z6AUDIT2 + #z6AUDIT3,
     "z12AUDITC" → #z12AUDI1 + #z12AUDI2 + #z12AUDI3,
     "z1AUDITESC" → #AUDIT11 + #AUDIT21 + #AUDIT31 + #AUDIT41 +
       #AUDIT51 + #AUDIT61 + #AUDIT71 + #AUDIT81 #AUDIT91 + #AUDIT101,
     "z6AUDITESC" → #z6AUDIT1 + #z6AUDIT2 + #z6AUDIT3 + #z6AUDIT4 + #z6AUDIT5 +
       #z6AUDIT6 + #z6AUDIT7 + #z6AUDIT8 + #z6AUDIT9 + #z6AUD101,
     "z12AUDITESC" → #z12AUDI1 + #z12AUDI2 + #z12AUDI3 + #z12AUDI4 +
       #z12AUDI5 + #z12AUDI6 + #z12AUDI7 + #z12AUDI8 + #z12AUDI9 + #z12AUD10
     |> &];
dataset1 =
  dataset1[All, <|#, "DROGAS12" → #SOLV12 + #COCA12 + If[#CRACK12 > 0, 1, 0] + #MACON12 +
       #ANFETA12 + #LSD12 + #ANTICOLI + #ANABOLI1 +
       #EXT12 + #TRANQ12 + #TABC12 + #TABCDIA1 + #OTRDRG12
     |> &];
dataset1 =
  dataset1[All, <|#, "DROGAS12BIT" → If[#SOLV12 + #COCA12 + If[#CRACK12 > 0, 1, 0] +
         #MACON12 + #ANFETA12 + #LSD12 + #ANTICOLI + #ANABOLI1 +
         #EXT12 + #TRANQ12 + #TABC12 + #TABCDIA1 + #OTRDRG12 > 0, 1, 0]
     |> &];
dataset1 = dataset1[
   All, <|#, "z6DROGAS30" → #z6SOLV30 + #z6COC30 + #z6CRK30 + #z6MAC30 + #z6ANF30 +
       #z6ALUC30 + #z6ANTI30 + #z6ANAB30 + #z6EXTA30 + #z6TRAN30 + #z6TABC30 + #z6OTRD30
     |> &];
dataset1 = dataset1[All, <|#, "z6DROGAS30BIT" →
      If[#z6SOLV30 + #z6COC30 + #z6CRK30 + #z6MAC30 + #z6ANF30 + #z6ALUC30 + #z6ANTI30 +
         #z6ANAB30 + #z6EXTA30 + #z6TRAN30 + #z6TABC30 + #z6OTRD30 > 0, 1, 0]
     |> &];
dataset1 =
  dataset1[All, <|#, "z12DROGAS30" → #z12SOL30 + #z12COC30 + #z12CRK30 + #z12MAC30 +
       #z12ANF30 + #z12LSD30 + #z12ANT30 + #z12ANA30 +
       #z12EXT30 + #z12TRA30 + #z12TAB30 + #z12TAD30 + #z12OTR30
     |> &];
dataset1 = dataset1[
   All, <|#, "z12DROGAS30BIT" → If[#z12SOL30 + #z12COC30 + #z12CRK30 + #z12MAC30 +
```

```
            #z12ANF30 + #z12LSD30 + #z12ANT30 + #z12ANA30 + #z12EXT30 +
            #z12TRA30 + #z12TAB30 + #z12TAD30 + #z12OTR30 > 0, 1, 0]
        |> &];
dataset1 =
  dataset1[All, <|#, "DROGAS30" → #SOLV30 + #COC30 + #CRK30 + #MAC30 + #ANF30 + #ALUC30 +
        #ANTICO30 + #ANABO30 + #EXTAS30 + #TRANQ30 + #TABC30 + #TACDIA3 + #OTRDR30
        |> &];

dataset1 = dataset1[All, <|#,
      "DROGAS30BIT" → If[#SOLV30 + #COC30 + #CRK30 + #MAC30 + #ANF30 + #ALUC30 + #ANTICO30 +
            #ANABO30 + #EXTAS30 + #TRANQ30 + #TABC30 + #TACDIA3 + #OTRDR30 > 0, 1, 0]
        |> &];
dataset1 = dataset1[All, {"SEXOS" → fsex}];
datasetold = datasetold[All, {"SEXOS" → fsex}];
```

In[277]:=

```
classelist = classe /@
   Table[num = Plus @@ ToExpression[Table[If[NumberQ[dataset1[j, lisbens[[i]]]],
          hashbens[lisbens[[i]]][[dataset1[j, lisbens[[i]]] + 1]], ""],
         {i, 1, Length[lisbens]}]] + 2^dataset1[j, "INSTRCHE"];
    If[NumberQ[num], num, ""], {j, 1, Length[dataset1]}];
dataset1 =
  Dataset@MapThread[Append, {Normal[dataset1], Thread["CLASSE" → classelist]}];
```

In[279]:=

In[280]:=
```
classelist = classe /@
   Table[num = Plus @@ ToExpression[Table[If[NumberQ[datasetold[j, lisbens[[i]]]],
          hashbens[lisbens[[i]]][[datasetold[j, lisbens[[i]]] + 1]], ""],
         {i, 1, Length[lisbens]}]] + 2^datasetold[j, "INSTRCHE"];
    If[NumberQ[num], num, ""], {j, 1, Length[datasetold]}];
datasetold =
  Dataset@MapThread[Append, {Normal[datasetold], Thread["CLASSE" → classelist]}];
```

Participantes

```
(*dadosiniciais=
  StringTemplate["O número total de alunos que participaram do estudo foi
      `numtotal`. Os alunos matriculados nas escolas de interesse
      foram `numesc`. O número de alunos matrículados nas escolas
      de interesse e menores do que 18 foram `numesc18`.  O número
      de alunos matrículados nas escolas de interesse e menores
      do que 18 sem inconsistências foram `numesc18inc`.O número
      de alunos menores que 18 foram `num18`. O número de alunos
      menores que 18 sem Recusa e sem Inconsistencias `num18inc`.
"][<|
"numtotal"->Length[dataset],
    "numesc"→Length[Select[dataset,(#ESCOLAS≠3&&#ESCOLAS≠10)&]],
    "numesc18"→Length[Select[dataset,(#ESCOLAS≠3&&#ESCOLAS≠10)&& #IDADES<18&]],
    "numesc18inc"→Length[Select[dataset,(#ESCOLAS≠3&&#ESCOLAS≠10)&&
         #IDADES<18&&#RECUSA==0&&#INCONSIS==0&&#AUDITESC≠""&&#AUDIT3≠""&]],
    "num18"→Length[Select[dataset, #IDADES<18&]],
    "num18inc"→Length[Select[dataset,
       #IDADES<18&&#RECUSA==0&&#INCONSIS==0&&#AUDITESC≠""&&#AUDIT3≠""&]]
    |>];*)
```

```
dadosiniciais =
 StringTemplate["O número total de alunos que participaram do estudo foi
     `numtotal`. Os alunos matriculados nas escolas de interesse foram
     `numesc`. O número de alunos matrículados nas escolas de interesse e
     menores do que 18 foram `numesc18`.  O número de alunos matrículados
     nas escolas de interesse e menores do que 18 sem inconsistências foram
     `numesc18inc`.O número de alunos menores que 18 foram `num18`. O número
     de alunos menores que 18 sem Recusa e sem Inconsistencias `num18inc`.
"][<|
"numtotal" -> Length[dataset],
   "numesc" → Length[Select[dataset, (#ESCOLAS ≠ 5 && #ESCOLAS ≠ 11) &]],
   "numesc18" →
    Length[Select[dataset, (#ESCOLAS ≠ 5 && #ESCOLAS ≠ 11) && #IDADES < 18 &]],
   "numesc18inc" → Length[Select[dataset, (#ESCOLAS ≠ 5 && #ESCOLAS ≠ 11) && #IDADES <
         18 && #RECUSA == 0 && #INCONSIS == 0 && #AUDITESC ≠ "" && #AUDIT3 ≠ "" &]],
   "num18" → Length[Select[dataset, #IDADES < 18 &]],
   "num18inc" → Length[Select[dataset,
      #IDADES < 18 && #RECUSA == 0 && #INCONSIS == 0 && #AUDITESC ≠ "" && #AUDIT3 ≠ "" &]]
   |>]
```

O número total de alunos que participaram do estudo foi 2849. Os alunos matriculados nas escolas de interesse foram 2382. O número de alunos matrículados nas escolas de interesse e menores do que 18 foram 1741. O número de alunos matrículados nas escolas de interesse e menores do que 18 sem inconsistências foram 1689.O número de alunos menores que 18 foram 2136. O número de alunos menores que 18 sem Recusa e sem Inconsistencias 2073.

```
"O número total de alunos que participaram do estudo foi 2849. Foram
  \nselecionados\n2382 matriculados nas duas primeiras series das
  nove\nmaiores escolas de ensino médio estadual na cidade de\nBotucatu,
  1741 estudantes menores de 18 anos foram\nentrevistados. Destes 1.159
  (67, 5 \\%) eram abstinentes\n(AUDIT $\\leq$ 2 e AUDIT3 = 0), 252 (14,
  6 \\%) faziam uso\narriscado de álcool (8 $\\leq$ AUDIT $\\leq$ 15 ou
  0 < \n   AUDIT3$\\leq$ 2 uso de 5 ou mais drinques para rapazes, \n
  ou uso de 4 ou mais drinques para moças, \n  por ocasião no ultimo
  ano), 305 (17, \n  8 \\%) faziam uso de baixo risco\n(demais casos).Os
  252 indivíduos identificados com uso de\nrisco foram sorteados para os
  grupos de intervenção breve\n(IB), com 122 alunos ou controle (C), com
  123 alunos, submetidos \\\napenas aos procedimentos de avaliação.Dos
  305\nidentificados como de baixo risco (BR) sorteou - se uma\namostra
  de 143 para entrevista inicial de avaliação.Após\ntriagem inicial, foi
  dado seguimento ao estudo com os\nalunos cujos pais também assinaram o
  TCLE e não tinham\nabandonado a escola ou se transferido para alguma
  outra.As amostras \\\nfinais ficaram assim constituídas : \n  Linha de
  base - \n   66 (54, 1 \\% dos sorteados permaneceram no estudo) para IB,
  \n73 (59, 3 \\% dos sorteados permaneceram no estudo) para C e 75 (52,
  \n   4 \\% dos sorteados permaneceram no estudo) para BR;\nSeguimento de
  6 meses - 49 (74, 2 \\% dos que iniciaram o estudo)\npara IB, 59 (79, 4
  \\% dos que iniciaram o estudo) para C.No\nseguimento de 6 meses não foi
  coletado dados para o grupo \\\nBR.Seguimento de 12 meses - \n 39 (79,
  6, \\% dos que realizaram a etapa anterior) para IB, 46 (79, \n  6 \\%
  dos que realizaram a etapa anterior) dos que iniciaram o \\\nestudo para
  C e 57 (76, \n  0 \\% dos que realizaram a etapa anterior) para BR.\n"
```

NotebookObject[Untitled-8]

Vamos criar as bases para abstêmios (bbaabs) baixo risco (bbabr) e risco (bbarisco)

Entrevista Triagem

In[347]:=

```
data = dataset1;
bbaabs = Select[data, #AUDITESC ≤ 2 && #AUDIT3 == 0 &];
bbabr = Select[data,
   (#AUDITESC ≤ 7 && #AUDITESC ≥ 3 && #AUDIT3 == 0) || (#AUDIT3 == 1 && #AUDITESC ≤ 7) &];
bbarisco = Select[data, (#AUDITESC ≥ 8 || #AUDIT3 ≥ 2) &];
gridinicial = Grid[
  Prepend[{{"Abstêmios", Length[bbaabs], N[100 * Length[bbaabs] / Length[data], 4]},
    {"Baixo Risco", Length[bbabr], N[100 * Length[bbabr] / Length[data], 4]},
    {"Risco", Length[bbarisco], N[100 * Length[bbarisco] / Length[data], 4]},
    {"Todos", Length[data], 100}}, Item[Style[#, FontFamily → "Helvetica", 14, Bold],
      Background → Darker[Green, 0.2]] & /@ {"Classe", "N" , "%"}],
  Dividers → All, Alignment → {{Left, Right, Right, Right}},
  {Background → {None, {{White, Lighter[Blend[{Blue, Green}], 0.8`]}}}}]
```

Out[351]=

Classe	N	%
Abstêmios	1149	67.11
Baixo Risco	310	18.11
Risco	253	14.78
Todos	1712	100

In[352]:=

```
data = dataset1;
bbaabs = Select[data, #AUDITESC ≤ 2 && #AUDIT3 == 0 &];
bbabr = Select[data,
   (#AUDITESC ≤ 7 && #AUDITESC ≥ 3 && #AUDIT3 == 0) || (#AUDIT3 == 1 && #AUDITESC ≤ 7) &];
bbarisco = Select[data, (#AUDITESC ≥ 8 || #AUDIT3 ≥ 2) &];
gridinicial = Grid[
  Prepend[{{"Abstêmios", Length[bbaabs], N[100 * Length[bbaabs] / Length[data], 4]},
    {"Baixo Risco", Length[bbabr], N[100 * Length[bbabr] / Length[data], 4]},
    {"Risco", Length[bbarisco], N[100 * Length[bbarisco] / Length[data], 4]},
    {"Todos", Length[data], 100}}, Item[Style[#, FontFamily → "Helvetica", 14, Bold],
      Background → Darker[Green, 0.2]] & /@ {"Classe", "N" , "%"}],
  Dividers → All, Alignment → {{Left, Right, Right, Right}},
  {Background → {None, {{White, Lighter[Blend[{Blue, Green}], 0.8`]}}}}]
```

Out[356]=

Classe	N	%
Abstêmios	1149	67.11
Baixo Risco	310	18.11
Risco	253	14.78
Todos	1712	100

In[357]:=

```
geraTabPart[tabci_, titulo_, prec_] := Module[
  {stringtable, comment, header, footer, lis1}, header = "\\begin{tabular}{lrrrrrr}
       \\toprule
&\\multicolumn{6}{c}{" <> titulo <> "}\\\\
\\midrule
        & \\multicolumn{2}{c}{Mulheres} &
      \\multicolumn{2}{c}{Homens} & \\multicolumn{2}{c}{Total} \\\\
      \\cmidrule(r){2-3}  \\cmidrule(r){4-5}  \\cmidrule(r){6-7}
      & N & \% & N & \% & N & \%  \\\\\n  \\midrule \n";
  stringtable = StringJoin[Table[
     lis1 = geraNumTex[#, prec] & /@ tabci[[i, 2 ;; -1]];
     tabci[[i, 1]] <> " & " <> concTex[lis1] <> "\n", {i, 1, Length[tabci]}]
   ];
  stringtable = corrigeAcentos[stringtable];
  geraTable[header, stringtable]]
```

Triagem

In[359]:=

```
total = Length[bbaabs] + Length[bbabr] + Length[bbarisco];
tabci = Join[
   {geralinha[bbaabs, "Abst\^emios", total], geralinha[bbabr, "Baixo Risco", total],
    geralinha[bbarisco, "Risco", total], geralinha[dataset1, "Total", total]}];
Export[prefix <> "tabpartEntTriagem.tex",
  geraTabPart[tabci, "Entrevista Triagem", 2], "String"];
```

In[362]:=

```
compilaTex[geraTabPart[tabci, "Entrevista Triagem", 2], prefix]
```

Out[362]=

	Entrevista Triagem					
	Mulheres		Homens		Total	
	N	%	N	%	N	%
Abstêmios	583	50,74	566	49,26	1149	67,11
Baixo Risco	176	56,77	134	43,23	310	18,11
Risco	138	54,55	115	45,45	253	14,78
Total	897	52,39	815	47,61	1712	100,00

Inicial

```
datasetz1 = Select[dataset1, #RECUSAIB == 0 &];
datasetcontrolez1 = Select[datasetz1, #GRUPO == "C" &];
datasetintervencaoz1 = Select[datasetz1, #GRUPO == "I" &];
total = Length[datasetcontrolez1] + Length[datasetintervencaoz1];
datasettotalz1 = Select[datasetz1, #GRUPO == "I" || #GRUPO == "C" &];
tabciz1 = Join[{geralinha[datasetcontrolez1, "Controle", total],
    geralinha[datasetintervencaoz1, "Intervenção", total],
    geralinha[datasettotalz1, "Total", total]}];
```

StringJoin::string: String expected at position 2 in ≪1≫. ≫

StringJoin::string: String expected at position 3 in ≪1≫. ≫

StringJoin::string: String expected at position 4 in ≪1≫. ≫

General::stop: Further output of StringJoin::string will be suppressed during this calculation. ≫

StringReplace::strse:
String or list of strings expected at position 1 in StringReplace[≪1≫, {í → \'{\i}, ó → \'o, ã → \~a, á → \'a, â → \^a, à → \`a, é → \'e, ≪10≫, É → \'E, Ê → \^E, Ô → \^O, Õ → \~O, Ü → Ç \"U → \c{C}, ª → ^{a}}]. ≫

Out[409]=

	Entrevista Triagem					
	Mulheres		Homens		Total	
	N	%	N	%	N	%
Abstêmios	583	50,74	566	49,26	1149	67,11
Baixo Risco	176	56,77	134	43,23	310	18,11
Risco	138	54,55	115	45,45	253	14,78
Total	897	52,39	815	47,61	1712	100,00

In[401]:=
```
tabciz1
```

Out[401]=
```
{{Controle, 49, 62.03, 30, 37.97, 79, 54.4828},
 {Intervenção, 39, 59.09, 27, 40.91, 66, 45.5172},
 {Total, 88, 60.69, 57, 39.31, 145, 100.}}
```

Seis Meses

In[504]:=

```
datasetz6 = Select[dataset1, #RECUSAIB == 0 && #RecusaIB6 == 0 &];
datasetcontrolez6 = Select[datasetz6, #GRUPO == "C" &];
datasetintervencaoz6 = Select[datasetz6, #GRUPO == "I" &];
datasettotalz6 = Select[datasetz6, #GRUPO == "I" || #GRUPO == "C" &];
total = Length[datasetcontrolez6] + Length[datasetintervencaoz6];
tabciz6 = Join[{geralinha[datasetcontrolez6, "Controle", total],
    geralinha[datasetintervencaoz6, "Intervenção", total],
    geralinha[datasettotalz6, "Total", total]}];
```

Doze Meses

In[510]:=

```
datasetz12 = Select[dataset1, #RECUSAIB == 0 && #RecusaIB6 == 0 &&  #RecusaIB12 == 0 &];
datasetcontrolez12 = Select[datasetz12, #GRUPO == "C" &];
datasetintervencaoz12 = Select[datasetz12, #GRUPO == "I" &];
total = Length[datasetcontrolez12] + Length[datasetintervencaoz12];
datasettotalz12 = Select[datasetz12, #GRUPO == "I" || #GRUPO == "C" &];
tabciz12 = Join[{geralinha[datasetcontrolez12, "Controle", total],
    geralinha[datasetintervencaoz12, "Intervenção", total],
    geralinha[datasettotalz12, "Total", total]}];
```

In[517]:=

```
Export[prefix <> "tabpartEnt.tex",
  geraTabPartVarias[{{tabciz1, "Linha de Base"}, {tabciz6, "6 Meses"},
    {tabciz12, "12 Meses"}}, "Participantes", 2], "String"];
```

In[518]:=
```
compilaTex[geraTabPartVarias[{{tabciz1, "Linha de Base"},
   {tabciz6, "6 Meses"}, {tabciz12, "12 Meses"}}, "Participantes", 2], prefix]
```

Out[518]=

Participantes						
Linha de Base						
	Mulheres		Homens		Total	
	N	%	N	%	N	%
Controle	49	62,03	30	37,97	79	54,48
Intervenção	39	59,09	27	40,91	66	45,52
Total	88	60,69	57	39,31	145	100,00
6 Meses						
	Mulheres		Homens		Total	
	N	%	N	%	N	%
Controle	42	64,62	23	35,38	65	56,52
Intervenção	31	62,00	19	38,00	50	43,48
Total	73	63,48	42	36,52	115	100,00
12 Meses						
	Mulheres		Homens		Total	
	N	%	N	%	N	%
Controle	37	67,27	18	32,73	55	57,29
Intervenção	27	65,85	14	34,15	41	42,71
Total	64	66,67	32	33,33	96	100,00

In[520]:=
```
dadosiniciais = StringTemplate[
   "O número total de alunos que participaram do estudo foi `numtotal`. Foram
selecionados
`numesc` matriculados nas duas primeiras series das nove
maiores escolas de ensino médio estadual na cidade de
Botucatu, `numesc18` estudantes menores de 18 anos foram
entrevistados. Destes `numabs` era abstêmios, `numrisco` faziam uso
arriscado de álcool (8 $\\leq$ AUDIT $\\leq$ 15 ou 0 <
   AUDIT3$\\leq$ 2 uso de 5 ou mais drinques para rapazes,
  ou uso de 4 ou mais drinques para moças,
  por ocasião no ultimo ano).  Os indivíduos identificados com uso de
risco foram sorteados para os grupos de intervenção breve
(IB), com `numriscoIB` alunos
     ou controle (C), com `numriscoC` alunos, submetidos \\
apenas aos procedimentos de avaliação. Dos `numbr`
identificados como de baixo risco (BR) sorteou-se uma
amostra de 143 para entrevista inicial de avaliação. Após
triagem inicial, foi dado seguimento ao estudo com os
alunos cujos pais também assinaram o TCLE e não tinham
abandonado a escola ou se transferido para alguma outra.
Os alunos foram então entrevistados após 6 e 12 meses.
"][<|
"numtotal" -> Length[dataset],
   "numesc" → Length[Select[dataset, (#ESCOLAS ≠ 5 && #ESCOLAS ≠ 11) &]],
   "numesc18" →
    Length[Select[dataset, (#ESCOLAS ≠ 5 && #ESCOLAS ≠ 11) && #IDADES < 18 &]],
   "numesc18inc" → Length[Select[dataset, (#ESCOLAS ≠ 5 && #ESCOLAS ≠ 11) && #IDADES <
         18 && #RECUSA == 0 && #INCONSIS == 0 && #AUDITESC ≠ "" && #AUDIT3 ≠ "" &]],
   "num18" → Length[Select[dataset, #IDADES < 18 &]],
   "num18inc" → Length[Select[dataset,
      #IDADES < 18 && #RECUSA == 0 && #INCONSIS == 0 && #AUDITESC ≠ "" && #AUDIT3 ≠ "" &]],
   "numabs" → Length[bbaabs],
   "numbr" → Length[bbabr],
   "numrisco" → Length[bbarisco],
   "numriscoIB" -> Length[Select[bbarisco, #GRUPO == "I" &]],
   "numriscoC" -> Length[Select[bbarisco, #GRUPO == "C" &]]
   |>]
```

Out[520]= O número total de alunos que participaram do estudo foi 2849. Foram selecionados
2382 matriculados nas duas primeiras series das nove
maiores escolas de ensino médio estadual na cidade de
Botucatu, 1741 estudantes menores de 18 anos foram
entrevistados. Destes 1149 era abstêmios, 253 faziam uso
arriscado de álcool (8 $\leq$ AUDIT $\leq$ 15 ou 0 <
AUDIT3$\leq$ 2 uso de 5 ou mais drinques para rapazes,
ou uso de 4 ou mais drinques para moças,
por ocasião no ultimo ano). Os indivíduos identificados com uso de
risco foram sorteados para os grupos de intervenção breve
(IB), com 125 alunos ou controle (C), com 119 alunos, submetidos \
apenas aos procedimentos de avaliação. Dos 310
identificados como de baixo risco (BR) sorteou-se uma
amostra de 143 para entrevista inicial de avaliação. Após
triagem inicial, foi dado seguimento ao estudo com os
alunos cujos pais também assinaram o TCLE e não tinham
abandonado a escola ou se transferido para alguma outra.
Os alunos foram então entrevistados após 6 e 12 meses.

"O número total de alunos que participaram do estudo foi 2849. Foram \nselecionados\n2382 matriculados nas duas primeiras series das nove\nmaiores escolas de ensino médio estadual na cidade de\nBotucatu, 1741 estudantes menores de 18 anos foram\nentrevistados. Destes 1149 era abstêmios, 253 faziam uso\narriscado de álcool (8 $\\leq$ AUDIT $\\leq$ 15 ou 0 < AUDIT3$\\leq$ 2 uso de 5 ou mais drinques para rapazes, ou uso de 4 ou mais drinques para moças, por ocasião no ultimo ano), 253. Os indivíduos identificados com uso de risco foram sorteados para os grupos de intervenção breve (IB), com 125 alunos ou controle (C), com 119 alunos, submetidos apenas aos procedimentos de avaliação. Dos 305\nidentificados como de baixo risco (BR) sorteou-se uma\namostra de 143 para entrevista inicial de avaliação.Após\ntriagem inicial, foi dado seguimento ao estudo com os\nalunos cujos pais também assinaram o TCLE e não tinham\nabandonado a escola ou se transferido para alguma outra.As amostras \\\nfinais ficaram assim constituídas : \n Linha de base - \n 66 (54, 1 \\% dos sorteados permaneceram no estudo) para IB, \n73 (59, 3 \\% dos sorteados permaneceram no estudo) para C e 75 (52, \n 4 \\% dos sorteados permaneceram no estudo) para BR;\nSeguimento de 6 meses - 49 (74, 2 \\% dos que iniciaram o estudo)\npara IB, 59 (79, 4 \\% dos que iniciaram o estudo) para C.No\nseguimento de 6 meses não foi coletado dados para o grupo \\\nBR.Seguimento de 12 meses - \n 39 (79, 6, \\% dos que realizaram a etapa anterior) para IB, 46 (79, \n 6 \\% dos que realizaram a etapa anterior) dos que iniciaram o \\\nestudo para C e 57 (76, \n 0 \\% dos que realizaram a etapa anterior) para BR.\n"

Comparação Casos Anteriores

```
data = datasetold;
bbaabs = Select[datasetold, #AUDITESC ≤ 2 && #AUDIT3 == 0 &];
bbabr = Select[data,
    (#AUDITESC ≤ 7 && #AUDITESC ≥ 3 && #AUDIT3 == 0) || (#AUDIT3 == 1 && #AUDITESC ≤ 7) &];
bbarisco = Select[data, (#AUDITESC ≥ 8 || #AUDIT3 ≥ 2) &];
gridinicialold =
  Grid[Prepend[{{"Abstêmios", Length[bbaabs], N[Length[bbaabs] / Length[data], 2]},
      {"Baixo Risco", Length[bbabr], N[Length[bbabr] / Length[data], 2]},
      {"Risco", Length[bbarisco], N[Length[bbarisco] / Length[data], 2]},
      {"Todos", Length[data], 100}}, Item[Style[#, FontFamily → "Helvetica", 14,
         Bold], Background → Darker[Green, 0.2]] & /@ {"Classe", "N" , "%"}],
   Dividers → All, Alignment → {{Left, Right, Right, Right}},
   {Background → {None, {{White, Lighter[Blend[{Blue, Green}], 0.8`]}}}}];
```

```
prefix
```

/Users/neylemke/Luisa/BancodeDadosDoutorado/

```
GenerateDocument["/Users/neylemke/Dropbox/Luisa/tese/Reportbba3.nb", <|
  "author" → Style["Ney Lemke"]|>]
```

NotebookObject[Untitled-2]


```
data = datasetold;
bbaabs = Select[datasetold, #AUDITESC ≤ 2 && #AUDIT3 == 0 &];
bbabr = Select[data,
    (#AUDITESC ≤ 7 && #AUDITESC ≥ 3 && #AUDIT3 == 0) || (#AUDIT3 == 1 && #AUDITESC ≤ 7) &];
bbarisco = Select[data, (#AUDITESC ≥ 8 || #AUDIT3 ≥ 2) &];
gridinicialold =
  Grid[Prepend[{{"Abstêmios", Length[bbaabs], N[Length[bbaabs] / Length[data], 2]},
      {"Baixo Risco", Length[bbabr], N[Length[bbabr] / Length[data], 2]},
      {"Risco", Length[bbarisco], N[Length[bbarisco] / Length[data], 2]},
      {"Todos", Length[data], 100}}, Item[Style[#, FontFamily → "Helvetica", 14,
         Bold], Background → Darker[Green, 0.2]] & /@ {"Classe", "N" , "%"}],
   Dividers → All, Alignment → {{Left, Right, Right, Right}},
   {Background → {None, {{White, Lighter[Blend[{Blue, Green}], 0.8`]}}}}];
```

```
prefix
/Users/neylemke/Luisa/BancodeDadosDoutorado/

GenerateDocument["/Users/neylemke/Dropbox/Luisa/tese/Reportbba3.nb", <|
  "author" → Style["Ney Lemke"]|>]
```

NotebookObject[Untitled-9]

Sem Recusa

```
data = Select[dataset1, #RECUSA == 0 &];
bbaabs = Select[data, #AUDITESC ≤ 2 && #AUDIT3 == 0 &];
bbabr = Select[data,
   (#AUDITESC ≤ 7 && #AUDITESC ≥ 3 && #AUDIT3 == 0) || (#AUDIT3 == 1 && #AUDITESC ≤ 7) &];
bbarisco = Select[data, (#AUDITESC ≥ 8 || #AUDIT3 ≥ 2) &];
gridinicialREC =
  Grid[Prepend[{{"Abstêmios", Length[bbaabs], N[Length[bbaabs] / Length[data], 2]},
     {"Baixo Risco", Length[bbabr], N[Length[bbabr] / Length[data], 2]},
     {"Risco", Length[bbarisco], N[Length[bbarisco] / Length[data], 2]},
     {"Todos", Length[data], 100}}, Item[Style[#, FontFamily → "Helvetica", 14,
        Bold], Background → Darker[Green, 0.2]] & /@ {"Classe", "N" , "%"}],
   Dividers → All, Alignment → {{Left, Right, Right, Right}},
   {Background → {None, {{White, Lighter[Blend[{Blue, Green}], 0.8`]}}}}];
```

Evolução Número de Participantes

```
data = Select[dataset1, #RECUSA == 0 &];
bbacontrole = Select[data, #GRUPO == "C" &];
bbaintervencao = Select[data, #GRUPO == "I" &];
data = Select[data, #RECUSA == 0 && #RecusaIB6 == 0 &];
bbacontrole6 = Select[data, #GRUPO == "C" &];
bbaintervencao6 = Select[data, #GRUPO == "I" &];
data = Select[data, #RECUSA == 0 && #RecusaIB6 == 0 && #RecusaIB12 == 0 &];
bbacontrole12 = Select[data, #GRUPO == "C" &];
bbaintervencao12 = Select[data, #GRUPO == "I" &];

gridinicialEvol =
 Grid[Prepend[{{"Controle", Length[bbacontrole], 100, Length[bbacontrole6],
     N[100 * Length[bbacontrole6] / (Length[bbacontrole]), 3], Length[bbacontrole12],
     N[100 * Length[bbacontrole12] / (Length[bbacontrole]), 3]},
    {"Intervencao", Length[bbaintervencao], 100,
     Length[bbaintervencao6],
     N[100 * Length[bbaintervencao6] / (Length[bbaintervencao]), 3],
     Length[bbaintervencao12],
     N[100 * Length[bbaintervencao12] / (Length[bbaintervencao]), 3]
    }}, Item[Style[#, FontFamily → "Helvetica", 14, Bold], Background →
       Darker[Green, 0.2]] & /@ {"Classe", "LB" , "%", "6" , "%", "12" , "%"}],
  Dividers → All, Alignment → {{Left, Right, Right, Right}},
  {Background → {None, {{White, Lighter[Blend[{Blue, Green}], 0.8`]}}}}]
```

Classe	LB	%	6	%	12	%
Controle	120	100	65	54.2	55	45.8
Intervencao	125	100	50	40.0	41	32.8

```
data = Select[datasetold, #RECUSA == 0 &];
bbacontrole = Select[data, #GRUPO == "C" &];
bbaintervencao = Select[data, #GRUPO == "I" &];
data = Select[data, #RECUSA == 0 && #RecusaIB6 == 0 &];
bbacontrole6 = Select[data, #GRUPO == "C" &];
bbaintervencao6 = Select[data, #GRUPO == "I" &];
data = Select[data, #RECUSA == 0 && #RecusaIB6 == 0 && #RecusaIB12 == 0 &];
bbacontrole12 = Select[data, #GRUPO == "C" &];
bbaintervencao12 = Select[data, #GRUPO == "I" &];

gridinicialEvolold =
  Grid[Prepend[{{"Controle", Length[bbacontrole], 100, Length[bbacontrole6],
      N[100 * Length[bbacontrole6] / (Length[bbacontrole]), 3], Length[
       bbacontrole12], N[100 * Length[bbacontrole12] / (Length[bbacontrole]), 3]},
     {"Intervencao", Length[bbaintervencao], 100,
      Length[bbaintervencao6],
      N[100 * Length[bbaintervencao6] / (Length[bbaintervencao]), 3],
      Length[bbaintervencao12],
      N[100 * Length[bbaintervencao12] / (Length[bbaintervencao]), 3]
     }}, Item[Style[#, FontFamily → "Helvetica", 14, Bold], Background →
        Darker[Green, 0.2]] & /@ {"Classe", "LB" , "%", "6" , "%", "12" , "%"}],
   Dividers → All, Alignment → {{Left, Right, Right, Right}},
   {Background → {None, {{White, Lighter[Blend[{Blue, Green}], 0.8`]}}}}}];

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  "author" → Style["Ney Lemke"]|>]
```

NotebookObject[Untitled-27]

```
lisold = {{"Old", "C", "LB", 5.3, 2.1, 2, 11},
   {"Old", "C", "6", 3.5, 2.7, 0, 10},
   {"Old", "C", "12", 2.7, 2.3, 0, 8},
   {"Old", "I", "LB", 5.9, 2.4, 1, 11},
   {"Old", "I", "6", 3.1, 3, 0, 10},
   {"Old", "I", "12", 2.8, 2.7, 0, 11}};
liscomp = Flatten[Table[{listemp2[[i]], lisold[[i]]}, {i, 1, 6}], 1];
gridcompaudc =
 Grid[Prepend[liscomp, Item[Style[#, FontFamily → "Helvetica", 14, Bold],
      Background → Darker[Green, 0.2]] & /@
    {"Fonte", "Grupo", "Wave", "Mean", "Std", "Min", "Max"}],
  Dividers → All, Alignment → {{Left, Right, Right, Right}},
  {Background → {None, {{White, Lighter[Blend[{Blue, Green}], 0.8`]}}}}]
```

```
GenerateDocument["/Users/neylemke/Dropbox/Luisa/tese/Reportbba3.nb", <|
  "author" → Style["Ney Lemke"]|>]
```

```
GenerateDocument["/Users/neylemke/Dropbox/Luisa/tese/Reportbba3.nb", <|
  "author" → Style["Ney Lemke"]|>]
```

```
partlsd = (Delete[GroupBy[Select[datasetold,
      #RECUSA == 0 && #RECUSAIB == 0 && #RecusaIB6 == 0 &], {#GRUPO} &], 1]);
lisreligi = (Cases[Normal[partlsd[[1]][All, "RELIGI"]], _Integer]);
head = Item[Style[#, FontFamily → "Helvetica", 14, Bold],
     Background → Darker[Green, 0.2]] & /@
   {"Grupo", "Fonte", "N", "C", "Ev", "Es", "J", "A", "Or", "Ou"};
linha1 = Join[{C, "New"}, Count[lisreligi, #] & /@ Table[i, {i, 0, 7}]];
linha2 = {"C", "Old", 8, 40, 20, 2, 0, 0, 0, 0};
lisreligi = (Cases[Normal[partlsd[[2]][All, "RELIGI"]], _Integer]);
linha3 = Join[{"I", "New"}, Count[lisreligi, #] & /@ Table[i, {i, 0, 7}]];
linha4 = {"I", "Old", 6, 32, 15, 1, 0, 0, 0, 0};
table = {head, linha1, linha2, linha3, linha4};
gridcompreligi =
  Grid[table, Dividers → All, Alignment → {{Left, Right, Right, Right}},
   {Background → {None, {{White, Lighter[Blend[{Blue, Green}], 0.8`]}}}}];
```

```
partlsd = (Delete[GroupBy[Select[datasetold,
      #RECUSA == 0 && #RECUSAIB == 0 && #RecusaIB6 == 0 &], {#GRUPO} &], 1]);
lisclasses = Cases[Normal[partlsd[[1]][All, "CLASSE"]], _String];
head = Item[Style[#, FontFamily → "Helvetica", 14, Bold],
     Background → Darker[Green, 0.2]] & /@ {"Grupo", "Fonte", "A", "B", "C", "D"};
linha1 = {"C", "New", Count[lisclasses, "A1"] + Count[lisclasses, "A2"],
   Count[lisclasses, "B1"] + Count[lisclasses, "B2"],
   Count[lisclasses, "C1"] + Count[lisclasses, "C2"], Count[lisclasses, "D1"]};
linha2 = {"C", "Old", 8, 42, 19, 0};
lisclasses = Cases[Normal[partlsd[[2]][All, "CLASSE"]], _String];
linha3 = {"I", "New", Count[lisclasses, "A1"] + Count[lisclasses, "A2"],
   Count[lisclasses, "B1"] + Count[lisclasses, "B2"],
   Count[lisclasses, "C1"] + Count[lisclasses, "C2"], Count[lisclasses, "D1"]};
linha4 = {"I", "Old", 6, 32, 15, 1};
table = {head, linha1, linha2, linha3, linha4};
gridcompclasse =
  Grid[table, Dividers → All, Alignment → {{Left, Right, Right, Right}},
   {Background → {None, {{White, Lighter[Blend[{Blue, Green}], 0.8`]}}}}];
```

```
GenerateDocument["/Users/neylemke/Dropbox/Luisa/tese/Reportbba3.nb", <|
  "author" → Style["Ney Lemke"]|>]
```

```
NotebookObject[ Untitled-28 ]
```

Esquema

In[528]:=

```
stresquema = "
\\pgfdeclarelayer{background}
\\pgfdeclarelayer{foreground}
\\pgfsetlayers{background,foreground}
% For black & white suggestions are black!95 for the
\\begin{tikzpicture}[scale=1,thick,auto,node distance=4mm,
terminal/.style={
rectangle,minimum size=6mm,rounded corners=1mm,
very thick,draw=black!50,top color=white,bottom
    color=blue!20},abandono/.style={rectangle,minimum size=6mm,rounded
    corners=1mm,very thick,draw=black!50,top color=white,bottom
    color=red!20},alea/.style={rectangle,minimum size=6mm,rounded
    corners=1mm,very thick,draw=black!50,top color=white,bottom
    color=green!20},entrevista/.style={rectangle,minimum size=6mm,rounded
    corners=1mm, very thick,draw=black!50,align=center,top
    color=white,bottom color=orange!20},hv path/.style={to
    path={-|(\\tikztotarget)}},vh path/.style={to path={|-(\\tikztotarget)}}]
    \\begin{pgfonlayer}{foreground}
\\node (tri)[terminal] {\\begin{tabular}{c}
    Alunos Matriculados $N=`numtotal`$ \\end{tabular}};
\\node (perdastri)[abandono,below=of tri]
{\\begin{tabular}{cl} Ausentes& $N=565$\\\\
    Recusas& $N=25$ \\\\ Sele\\c{c}\\~ao & $N=518$\\end{tabular}};


    \\node (inicial)[entrevista,below=of perdastri]
    {\\begin{tabular}{c} Entrevista Triagem $N=`numesc18`$ \\end{tabular}};

\\node (risco)[terminal,below=of inicial]
    {\\begin{tabular}{c} Risco \\\\ AUDITESC $\\geq 8$ \\\\
    ou \\textit{Binge}\\\\ $N=`numrisco`$ \\end{tabular}};

\\node (abstemios)[terminal,left=of risco] {\\begin{tabular}{c} Abst\\^emios
    \\\\ AUDITESC $\\leq 2$ \\\\ \\\\ $N=`numabs`$ \\end{tabular}};

\\node (br)[terminal,right=of risco] {\\begin{tabular}{c} Baixo Risco \\\\ $2<$
    AUDITESC $<8$\\\\ e sem \\textit{Binge} \\\\ $N=`numbr` $\\end{tabular}};

    \\node (alerisco)[alea,below=of risco]
    {\\begin{tabular}{c} Aleatoriza\\c{c}\\~ao \\end{tabular}};

\\node (alebr)[alea,below=of br]
    {\\begin{tabular}{c} Aleatoriza\\c{c}\\~ao \\end{tabular}};


    \\node (br2)[terminal,below=of
    alebr]{{\\begin{tabular}{c} BR: $N=`numbr`$ \\end{tabular}}};
```

```
    \\node (C)[terminal,below=of alerisco]
    {\\begin{tabular}{c} C: $N=`numC`$ \\end{tabular}};


    \\node (IB)[terminal,left=of C]
    {\\begin{tabular}{c} IB: $N=`numIB`$  \\end{tabular}};




    \\node (perdasC)[abandono,below=of C]
{\\begin{tabular}{c} Perdas: $N=`numperdasC`$ \\end{tabular}};

\\node (perdasIB)[abandono,left=of perdasC]
{\\begin{tabular}{c} Perdas: $N=`numperdasIB`$ \\end{tabular}};

\\node (entinicial)[entrevista,below=of perdasC] {Entrevista Inicial};
\\node (perdasbr)[abandono,below=of br2]
{\\begin{tabular}{cl} Perdas: $N=`numperdasbr`$ \\end{tabular}};




    \\node (z1C)[terminal,below=of entinicial]
    {\\begin{tabular}{c} C: $N=`numCz1`$ \\end{tabular}};


    \\node (z1IB)[terminal,left=of z1C]
    {\\begin{tabular}{c} IB: $N=`numIBz1`$ \\end{tabular}};


    \\node (z1br)[terminal,right=of
    z1C,xshift=12mm]{{\\begin{tabular}{c} BR: $N=`numbrz1`$ \\end{tabular}}};

\\node (z1ent)[entrevista,below=of z1C] { Seguimento 6 Meses };



\\node (z1perdasC)[abandono,below=of z1ent]
{\\begin{tabular}{c} Perdas: $N=`numperdasCz1`$ \\end{tabular}};

    \\node (z1perdasIB)[abandono,left=of z1perdasC]
{\\begin{tabular}{c} Perdas: $N=`numperdasIBz1`$ \\end{tabular}};

    \\node (z6C)[terminal,below=of z1perdasC]
    {\\begin{tabular}{c} C: $N=`numCz6`$ \\end{tabular}};


\\node (z6IB)[terminal,below=of z1perdasIB]
    {\\begin{tabular}{c} IB: $N=`numIBz6`$ \\end{tabular}};


\\node (z6ent)[entrevista,below=of z6C]{Seguimento 12 Meses};
```

```
\\node (z6perdasC)[abandono,below=of z6ent]
{\\begin{tabular}{c} Perdas: $N=`numperdasCz6`$ \\end{tabular}};

    \\node (z6perdasIB)[abandono,left=of z6perdasC]
{\\begin{tabular}{c} Perdas: $`numperdasIBz6`$ \\end{tabular}};



    \\node (z6perdasbr)[abandono,right=of z6perdasC]
{\\begin{tabular}{c} Perdas: $N=`numperdasbrz6`$ \\end{tabular}};

    \\node (z12C)[terminal,below=of z6perdasC]
    {\\begin{tabular}{c} C: $N=`numCz12`$ \\end{tabular}};


\\node (z12IB)[terminal,below=of z6perdasIB]
    {\\begin{tabular}{c} IB: $N=`numIBz12`$ \\end{tabular}};

    \\node (z12br)[terminal,below=of z6perdasbr]
    {\\begin{tabular}{c} BR: $N=`numbrz12`$ \\end{tabular}};

\\end{pgfonlayer}
\\begin{pgfonlayer}{background}
\\path (tri) edge[→] node {} (perdastri);
\\path (perdastri) edge[→] node {} (inicial);
\\path (inicial) edge[→] node {} (risco);
\\path (risco) edge[→] node {} (alerisco);
\\path (inicial) edge[→,hv path] node {} (br);
\\path (inicial) edge[→,hv path] node {} (abstemios);
\\path (br) edge[→] node {} (alebr);
\\path (alebr) edge[→] node {} (br2);
\\path (alerisco) edge[→,hv path] node {} (IB);
\\path (alerisco) edge[→] node {} (C);
%\\path (IB) edge[→] node {} (perdasIB);
\\path (C) edge[→] node {} (perdasC);
\\path (br2) edge[→] node {} (perdasbr);
\\path (perdasIB) edge[→] node {} (entinicial);
\\path (perdasC) edge[→] node {} (entinicial);
\\path (perdasbr) edge[→] node {} (entinicial);
\\path (entinicial) edge[→,hv path] node {} (z1C);
\\path (entinicial) edge[→,hv path] node {} (z1IB);
\\path (entinicial) edge[→, hv path] node {} (z1br);
\\path (z1C) edge[→] node {} (z1ent);
\\path (z1IB) edge[→] node {} (z1ent);
\\path (z1ent) edge[→] node {} (z1perdasC);
\\path (z1ent) edge[→] node {} (z1perdasIB);
\\path (z1perdasIB) edge[→] node {} (z6IB);
\\path (z1perdasC) edge[→] node {} (z6C);
\\path (z6C) edge[→] node {} (z6ent);
\\path (z6IB) edge[→] node {} (z6ent);
\\path (z6ent) edge[→,hv path] node {} (z6perdasC);
\\path (z6ent) edge[→,hv path] node {} (z6perdasIB);
\\path (z6ent) edge[→,hv path] node {} (z6perdasbr);
\\path (z6perdasIB) edge[→] node {} (z12IB);
```

```
\\path (z6perdasC) edge[→] node {} (z12C);
\\path (z6perdasbr) edge[→] node {} (z12br);
\\draw[→]
($ (z1br.south) $)
|-($ (z6ent.east)-(0mm,-2mm) $);
\\draw[→] ($ (IB.south) $)-|($ (perdasIB.north)+(5mm,0) $);
\\end{pgfonlayer}
\\end{tikzpicture}
";
stresquemanova = StringTemplate[stresquema][<| "numtotal" -> Length[dataset],
    "numesc" → Length[Select[dataset, (#ESCOLAS ≠ 5 && #ESCOLAS ≠ 11) &]],
    "numesc18" →
     Length[Select[dataset, (#ESCOLAS ≠ 5 && #ESCOLAS ≠ 11) && #IDADES < 18 &]],
    "numesc18inc" → Length[Select[dataset, (#ESCOLAS ≠ 5 && #ESCOLAS ≠ 11) && #IDADES <
          18 && #RECUSA == 0 && #INCONSIS == 0 && #AUDITESC ≠ "" && #AUDIT3 ≠ "" &]],
    "numabs" -> Length[bbaabs],
    "numrisco" → Length[bbarisco],
    "numbr" → Length[bbabr],
    "numperdasbr" → Length[bbabr] - Length[Select[bbarisco, #RECUSA == 0 &]],
    "numrisco" → Length[bbarisco],
    "numbr" → Length[Select[bbabr, #RECUSA == 0 && #GRUPO == "BR" &]],
    "numbrz1" ->
     Length[Select[bbabr, #RECUSA == 0 && #RECUSAIB == 0 && #GRUPO == "BR" &]],
    "numriscoz1" -> Length[Select[bbarisco, #RECUSA == 0 &]],
    "numIB" -> Length[Select[bbarisco, #RECUSA == 0 && #GRUPO == "I" &]],
    "numC" -> Length[Select[bbarisco, #RECUSA == 0 && #GRUPO == "C" &]],
    "numperdasIB" -> Length[Select[bbarisco, #RECUSA == 0 && #GRUPO == "I" &]] -
      Length[Select[bbarisco, #RECUSA == 0 && #RECUSAIB == 0 && #GRUPO == "I" &]],
    "numperdasC" -> Length[Select[bbarisco, #RECUSA == 0 && #GRUPO == "C" &]] -
      Length[Select[bbarisco, #RECUSA == 0 && #RECUSAIB == 0 && #GRUPO == "C" &]],
    "numIBz1" -> Length[Select[bbarisco,
       #RECUSA == 0 && #RECUSAIB == 0 && #GRUPO == "I" &]], "numCz1" ->
     Length[Select[bbarisco, #RECUSA == 0 && #RECUSAIB == 0 && #GRUPO == "C" &]],
    "numperdasIBz1" -> Length[Select[bbarisco,
        #RECUSA == 0 && #RECUSAIB == 0 && #GRUPO == "I" &]] -
      Length[Select[bbarisco, #RECUSA == 0 && #RECUSAIB == 0 &&
           #RecusaIB6 == 0 && #GRUPO == "I" &]],
    "numperdasCz1" -> Length[Select[bbarisco,
        #RECUSA == 0 && #RECUSAIB == 0 && #GRUPO == "C" &]] -
      Length[Select[bbarisco, #RECUSA == 0 && #RECUSAIB == 0 &&
           #RecusaIB6 == 0 && #GRUPO == "C" &]],
    "numIBz6" -> Length[Select[bbarisco, #RECUSA == 0 && #RECUSAIB == 0 &&
          #RecusaIB6 == 0 && #GRUPO == "I" &]],
"numCz6" -> Length[Select[bbarisco, #RECUSA == 0 && #RECUSAIB == 0 &&
          #RecusaIB6 == 0 && #GRUPO == "C" &]],
    "numperdasIBz6" -> Length[Select[bbarisco,
        #RECUSA == 0 && #RECUSAIB == 0 && #RecusaIB6 == 0 && #GRUPO == "I" &]] -
      Length[Select[bbarisco, #RECUSA == 0 && #RECUSAIB == 0 &&
           #RecusaIB6 == 0 && #RecusaIB12 == 0 && #GRUPO == "I" &]],
    "numperdasCz6" -> Length[Select[bbarisco, #RECUSA == 0 &&
           #RECUSAIB == 0 && #RecusaIB6 == 0 && #GRUPO == "C" &]] -
      Length[Select[bbarisco, #RECUSA == 0 && #RECUSAIB == 0 &&
           #RecusaIB6 == 0 && #RecusaIB12 == 0 && #GRUPO == "C" &]],
    "numperdasbrz6" → Length[Select[bbabr, #RECUSA == 0 && #RECUSAIB == 0 &&
           #GRUPO == "BR" &]] - Length[Select[bbabr,
```

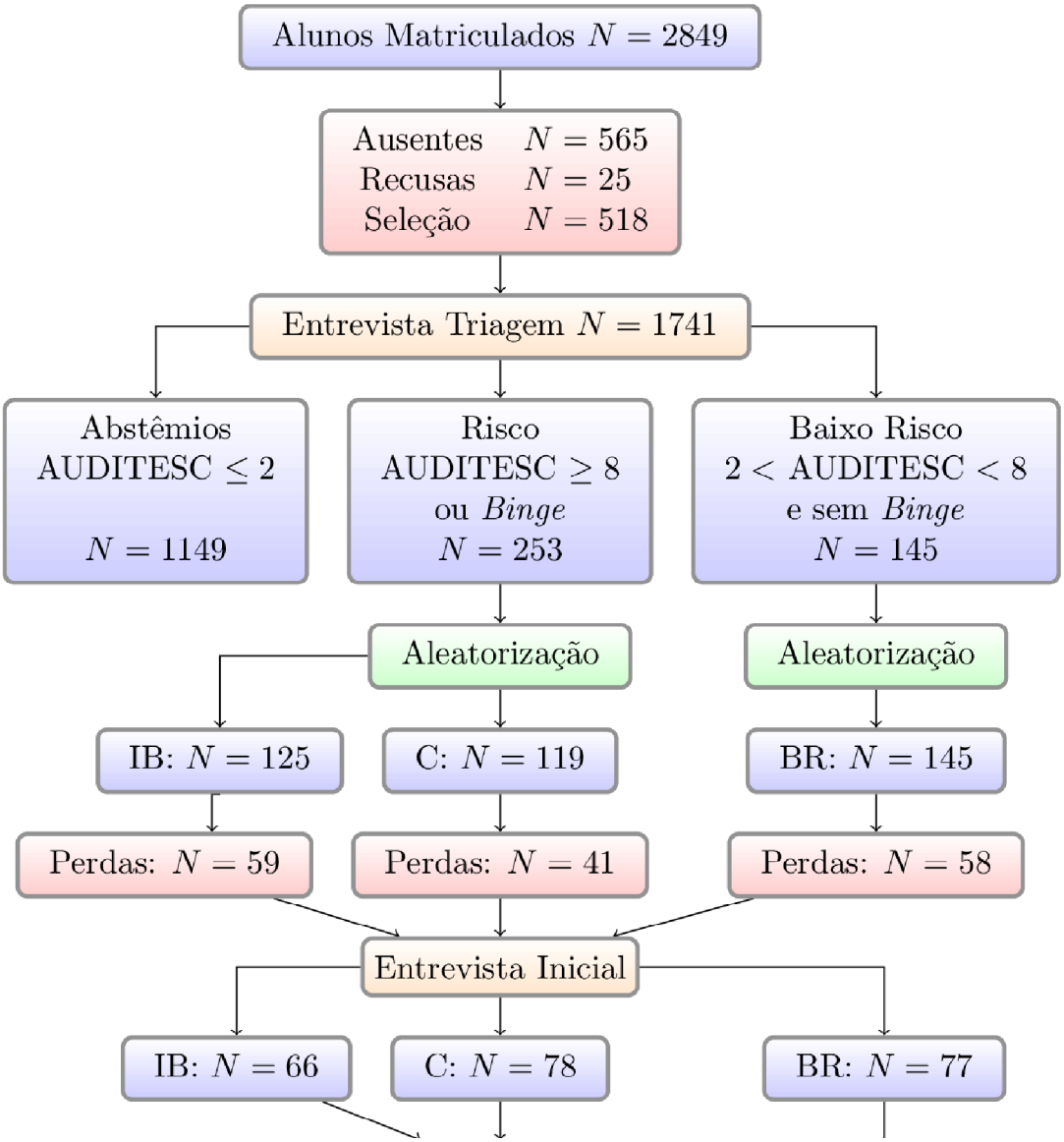
```
        #RECUSA == 0 && #RECUSAIB == 0 && #RecusaIB12 == 0 && #GRUPO == "BR" &]],
    "numCz12" -> Length[Select[bbarisco, #RECUSA == 0 && #RECUSAIB == 0 &&
         #RecusaIB6 == 0 && #RecusaIB12 == 0 && #GRUPO == "C" &]],
    "numIBz12" -> Length[Select[bbarisco, #RECUSA == 0 && #RECUSAIB == 0 &&
         #RecusaIB6 == 0 && #RecusaIB12 == 0 && #GRUPO == "I" &]],
    "numbrz12" -> Length[Select[bbabr, #RECUSA == 0 && #RECUSAIB == 0 &&
         #RecusaIB12 == 0 && #GRUPO == "BR" &]]

    |>];
```

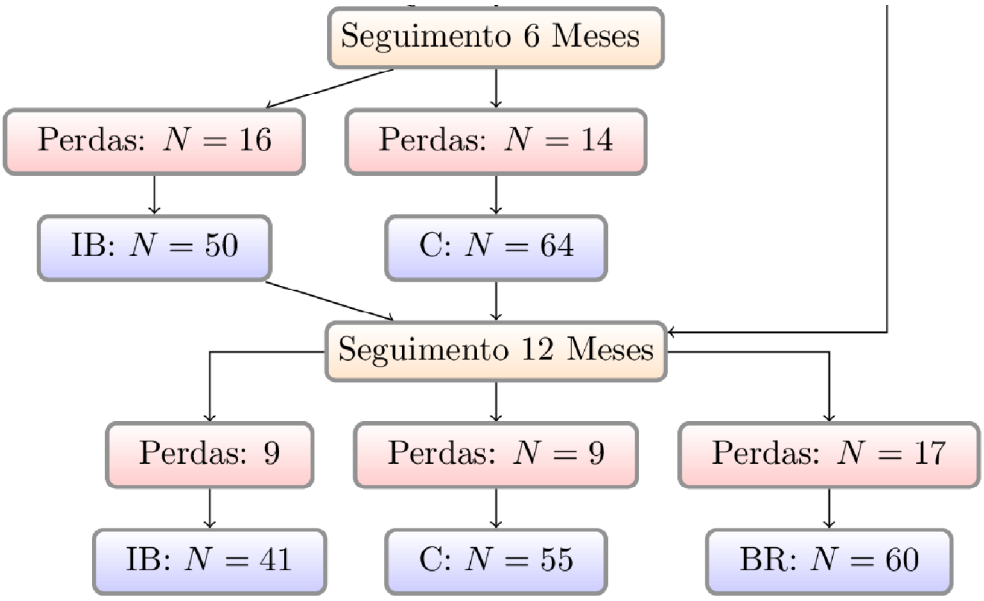
In[530]:=
```
Export[prefix <> "esquema.tex", stresquemanova, "String"]
```

Out[530]=
```
/Users/neylemke/Luisa/BancodeDadosDoutorado/esquema.tex
```

In[531]:=
```
compilaTex[stresquemanova, prefix]
```

Out[531]=





Levantamento Sócio Demográfico e Fisiológico

```
lisvar = {"RELIGI", "RELIGIPR", "RACA", "INSTRCHE", "CLASSE"};
```

Out[580]= {RELIGI, RELIGIPR, RACA, INSTRCHE, CLASSE}

In[598]:=

```
partlsd = (Delete[GroupBy[Select[datasetold, #RECUSA == 0 &], {#GRUPO} &], 1]);
tabci = geratablsd[partlsd, lisvar];
Export[prefix <> "tablsd.tex", geratablsdTex[tabci], "String"]
compilaTex[geratablsdTex[tabci], prefix]
```

Out[600]= /Users/neylemke/Luisa/BancodeDadosDoutorado/tablsd.tex

Out[601]=

		Variveis Scio Demogrficas			
		C		I	
		Estatística		Estatística	
		N	%	N	%
Preferência Religiosa	Não tem	7	4,52	14	10,77
	Católica	47	30,32	58	44,62
	Evangélica/protestante	27	17,42	11	8,46
	Espírita	2	1,29	3	2,31
	Judaica	0	0,00	0	0,00
	Afro-brasileira	0	0,00	0	0,00
	Orientais/budismo	0	0,00	0	0,00
	Outra	1	0,65	2	1,54
	Prejudicado/não sabe	0	0,00	0	0,00
	Total	155	100	130	100
Prática da Religião	Não tenho religião	4	2,58	11	8,46
	Não freqüento,porém acredito	22	14,19	28	21,54
	Freqüento menos que 1x/mês	17	10,97	20	15,38
	Freqüento pelo menos 2x/mês	7	4,52	8	6,15
	Freqüento 1x/semana	23	14,84	13	10,00
	Freqüento 2x/semana ou mais	11	7,10	8	6,15
	Total	155	100	130	100
Raça	Branca	48	30,97	53	40,77
	Preta	1	0,65	3	2,31
	Parda	34	21,94	30	23,08
	Amarela	0	0,00	0	0,00
	Indígena	0	0,00	2	1,54
	Outros	1	0,65	0	0,00
	Total	155	100	130	100
Instrução do Chefe	Até 3ª Série Fundamental	4	2,58	3	2,31
	4ª Série Fundamental	10	6,45	11	8,46
	Fundamental completo	25	16,13	29	22,31
	Médio completo	35	22,58	29	22,31
	Superior completo	10	6,45	16	12,31
	Total	155	100	130	100
Classe Social	E	0	0,00	0	0,00
	D	0	0,00	0	0,00
	C2	8	5,16	4	3,08
	C1	14	9,03	11	8,46
	B2	32	20,65	40	30,77
	B1	14	9,03	10	7,69
	A2	10	6,45	11	8,46
	A1	4	2,58	6	4,62
	Total	155	100	130	100

In[594]:=

```
partlsd = (Delete[
    GroupBy[Select[datasetold, #RECUSA == 0  && #RECUSAIB == 0 &], {#GRUPO} &], 1]);
tabci = geratablsd[partlsd, lisvar];
Export[prefix <> "tablsd6.tex", geratablsdTex[tabci], "String"]
compilaTex[geratablsdTex[tabci], prefix]
```

Out[596]= /Users/neylemke/Luisa/BancodeDadosDoutorado/tablsd6.tex

Out[597]=

		Variveis Scio Demogrficas			
		C		I	
		Estatística		Estatística	
		N	%	*N*	%
Preferência Religiosa	Não tem	14	15,91	12	16,67
	Católica	58	65,91	43	59,72
	Evangélica/protestante	11	12,50	16	22,22
	Espírita	3	3,41	1	1,39
	Judaica	0	0,00	0	0,00
	Afro-brasileira	0	0,00	0	0,00
	Orientais/budismo	0	0,00	0	0,00
	Outra	2	2,27	0	0,00
	Prejudicado/não sabe	0	0,00	0	0,00
	Total	88	100	72	100
Prática da Religião	Não tenho religião	11	12,50	11	15,28
	Não freqüento,porém acredito	28	31,82	12	16,67
	Freqüento menos que 1x/mês	20	22,73	17	23,61
	Freqüento pelo menos 2x/mês	8	9,09	4	5,56
	Freqüento 1x/semana	13	14,77	19	26,39
	Freqüento 2x/semana ou mais	8	9,09	9	12,50
	Total	88	100	72	100
Raça	Branca	53	60,23	44	61,11
	Preta	3	3,41	6	8,33
	Parda	30	34,09	22	30,56
	Amarela	0	0,00	0	0,00
	Indígena	2	2,27	0	0,00
	Outros	0	0,00	0	0,00
	Total	88	100	72	100
Instrução do Chefe	Até 3ª Série Fundamental	3	3,41	1	1,39
	4ª Série Fundamental	11	12,50	7	9,72
	Fundamental completo	29	32,95	26	36,11
	Médio completo	29	32,95	28	38,89
	Superior completo	16	18,18	10	13,89
	Total	88	100	72	100
Classe Social	E	0	0,00	0	0,00
	D	0	0,00	0	0,00
	C2	4	4,55	2	2,78
	C1	11	12,50	14	19,44
	B2	40	45,45	15	20,83
	B1	10	11,36	23	31,94
	A2	11	12,50	10	13,89
	A1	6	6,82	6	8,33
	Total	88	100	72	100

Out[603]=

```
\small{
\renewcommand{\arraystretch}{0.5}
\begin{tabular}{llrrrr}
\toprule
 & &  \multicolumn{4}{c}{ Variáveis Sócio Demográficas} \\
\cmidrule(r){2-6}
& &   \multicolumn{2}{c}{C}&
 \multicolumn{2}{c}{I}  \\

\midrule
& &   \multicolumn{2}{c}{Estat\'\i stica} &
      \multicolumn{2}{c}{Estat\'\i stica}  \\

\cmidrule(r){3-4} \cmidrule(r){5-6}
 & & $N$ & $\%$ & $N$ & $\%$ \\
  \midrule
```

In[604]:=

```
partlsd = (Delete[GroupBy[Select[datasetold,
      #RECUSA == 0  && #RECUSAIB == 0 && #RecusaIB6 == 0 &], {#GRUPO} &], 1]);
tabci = geratablsd[partlsd, lisvar];
Export[prefix <> "tablsd12.tex", geratablsdTex[tabci], "String"]
compilaTex[geratablsdTex[tabci], prefix]
```

Out[606]= /Users/neylemke/Luisa/BancodeDadosDoutorado/tablsd12.tex

Out[607]=

		Variveis Scio Demogrficas			
		C		I	
		Estatística		Estatística	
		N	%	*N*	%
Preferência Religiosa	Não tem	10	14,08	6	11,11
	Católica	49	69,01	33	61,11
	Evangélica/protestante	8	11,27	14	25,93
	Espírita	2	2,82	1	1,85
	Judaica	0	0,00	0	0,00
	Afro-brasileira	0	0,00	0	0,00
	Orientais/budismo	0	0,00	0	0,00
	Outra	2	2,82	0	0,00
	Prejudicado/não sabe	0	0,00	0	0,00
	Total	71	100	54	100
Prática da Religião	Não tenho religião	7	9,86	6	11,11
	Não freqüento,porém acredito	23	32,39	11	20,37
	Freqüento menos que 1x/mês	18	25,35	10	18,52
	Freqüento pelo menos 2x/mês	4	5,63	3	5,56
	Freqüento 1x/semana	13	18,31	16	29,63
	Freqüento 2x/semana ou mais	6	8,45	8	14,81
	Total	71	100	54	100
Raça	Branca	39	54,93	35	64,81
	Preta	3	4,23	4	7,41
	Parda	27	38,03	15	27,78
	Amarela	0	0,00	0	0,00
	Indígena	2	2,82	0	0,00
	Outros	0	0,00	0	0,00
	Total	71	100	54	100
Instrução do Chefe	Até 3ª Série Fundamental	1	1,41	0	0,00
	4ª Série Fundamental	10	14,08	2	3,70
	Fundamental completo	23	32,39	19	35,19
	Médio completo	24	33,80	25	46,30
	Superior completo	13	18,31	8	14,81
	Total	71	100	54	100
Classe Social	E	0	0,00	0	0,00
	D	0	0,00	0	0,00
	C2	3	4,23	0	0,00
	C1	8	11,27	12	22,22
	B2	34	47,89	6	11,11
	B1	8	11,27	20	37,04
	A2	8	11,27	10	18,52
	A1	6	8,45	4	7,41
	Total	71	100	54	100

In[532]:=

```
lisvarfisio =
  {{"IDADES", "Idade (anos)"}, {"PESO", "Massa (Kg)"}, {"ALTURA", "Altura (cm)"}};
partlsd = Select[#, #RECUSAIB == 0 &] & /@
   (Delete[GroupBy[Select[dataset1, #RECUSA == 0 &], {#GRUPO} &], 1]);
hashGrupos[1] = "BR";
hashGrupos[2] = "C";
hashGrupos[3] = "I";
tabci = geratabfisio[partlsd, lisvarfisio];
Export[prefix <> "tabfisio.tex", geratabfisioTex[tabci], "String"];
```

```
Export[prefix <> "tabfisio.tex", geratabfisioTex[tabci], "String"]
```

/Users/neylemke/Luisa/BancodeDadosDoutorado/tabfisio.tex

In[539]:=

```
compilaTex[geratabfisioTex[tabci], prefix]
```

Out[539]=

	Variáveis Fisiológicas					
	BR		C		I	
	Estatística		Estatística		Estatística	
	μ	σ	μ	σ	μ	σ
Idade (anos)	15,69	0,92	15,54	0,89	15,89	0,88
Massa (Kg)	61,10	11,67	64,26	13,50	61,30	11,92
Altura (cm)	166,54	7,82	167,96	7,75	166,97	9,33

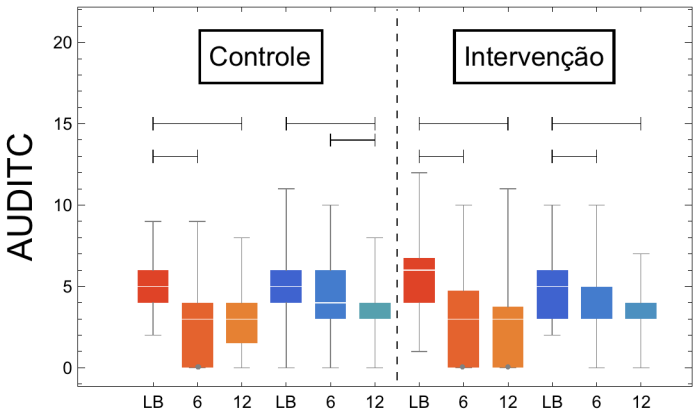
Consumo de Álcool

Vamos inicialmente nos limitar a todos que responderam ao questionário

In[1001]:=

```
Clear[errorBar2];
bbarisco = Select[dataset1, #GRUPO == "I" || #GRUPO == "C" &];
bbarisco1 = Select[bbarisco, #RECUSAIB == 0 &];
caso = "completo";
var = "AUDITC";
shortname = "audc";
varwaves = {var, "z6" <> var, "z12" <> var};
varwavesnames = ToString /@ varwaves;
varwavesnamess = {"LB", "z6", "z12"};
part1 = GroupBy[bbarisco1, {#GRUPO, #SEXOS} &];
teste = Dataset[Table[Normal[Keys[part1]][[i]] ->
      N[Mean[part1[[i]][All, "AUDITC"]]], {i, 1, Length[part1]}]];
maxplot = 21;
lissig =
  Flatten[Transpose[Flatten[Table[{Table[LocationTest[{gerapart[part1[[i]],
            varwaves[[j]]], gerapart[part1[[i]], varwaves[[k]]]}, 0],
         {i, 1, 4}]}, {k, 2, 3}, {j, 1, k - 1}], 2]]];
pos = Flatten[Table[{errorBar2[{i, maxplot - 8}, {i + 1, maxplot - 8}],
      errorBar2[{i, maxplot - 6}, {i + 2, maxplot - 6}],
      errorBar2[{i + 1, maxplot - 7}, {i + 2, maxplot - 7}]}, {i, 1, 10, 3}]];
pos2 = (First /@ Select[Transpose[{pos, lissig}], #[[2]] < 0.05 &]) /.
    errorBar2[x_, y_] → errorBar[x, y];
gr1 = BoxWhiskerChart[Flatten[
    Table[gerapart[part1[[i]], #] & /@ varwaves, {i, 1, 4}], 1],
  ChartLabels → {"LB", 6, 12, "LB", 6, 12, "LB", 6, 12, "LB", 6, 12},
  ChartStyle → {ColorData["Rainbow"][0.95], ColorData["Rainbow"][0.9],
    ColorData["Rainbow"][0.85], ColorData["Rainbow"][0.2],
    ColorData["Rainbow"][0.25], ColorData["Rainbow"][0.35],
    ColorData["Rainbow"][0.95], ColorData["Rainbow"][0.9],
    ColorData["Rainbow"][0.85], ColorData["Rainbow"][0.2],
    ColorData["Rainbow"][0.25], ColorData["Rainbow"][0.3]},
  PlotRange → {0, maxplot}, FrameLabel → {"", Style[var, 18]}, Epilog →
   {pos2, Inset[Framed[Style["Intervenção", 14]], {11.42, maxplot}, {Right, Top}],
    Inset[Framed[Style["Controle", 14]], {2.025, maxplot}, {Left, Top}],
    {Dashed, Line[{{6.5, -0.75}, {6.5, maxplot + 1}}]}}]

timetable =
  Flatten[Table[{varwavesnamess[[j]] <> " $\\times$ " <> varwavesnamess[[k]],
      {"C", "I"}, {"F", "M", "F", "M"}, Table[
       LocationTest[{gerapart[part1[[i]], varwavesnames[[j]]], gerapart[part1[[i]],
          varwavesnames[[k]]]}, 0], {i, 1, 4}]}, {k, 2, 3}, {j, 1, k - 1}], 1];
tabci = Table[LocationTest[{gerapart[part1[[i]], #], gerapart[part1[[i + 2]], #]},
      0, "MannWhitney"] & /@ varwaves, {i, 1, 2}];
tabmd = tabmd = Table[{lis = gerapart[part1[[i]], #];
       N[Mean[lis]], N[StandardDeviation[lis]]}, {i, 1, 4}] & /@ varwaves;
Export[prefix <> "tabmd" <> shortname <> caso <> ".tex",
 geraTabMD[tabmd, var, 3], "String"]
Export[prefix <> "tabtime" <> shortname <> caso <> ".tex",
 geratabtime[timetable, 2], "String"]
Export[prefix <> "tabci" <> shortname <> caso <> ".tex", geraTabCG[tabci, 3], "String"]
Export[prefix <> "figcomp" <> shortname <> caso <> ".pdf", gr1]
```

Out[1016]=



Out[1020]= /Users/neylemke/Luisa/BancodeDadosDoutorado/tabmdaudccompleto.tex

Out[1021]= /Users/neylemke/Luisa/BancodeDadosDoutorado/tabtimeaudccompleto.tex

Out[1022]= /Users/neylemke/Luisa/BancodeDadosDoutorado/tabciaudccompleto.tex

Out[1023]= /Users/neylemke/Luisa/BancodeDadosDoutorado/figcompaudccompleto.pdf

In[787]:=

```
compilaTex[geraTabMD[tabmd, var, 3], prefix]
```

Out[787]=

		AUDITC					
		Linha de Base		6 meses		12 meses	
		Estatística		Estatística		Estatística	
Grupo	Sexo	μ	σ	μ	σ	μ	σ
Controle	Mulheres	4,878	1,452	2,918	2,431	2,694	1,960
	Homens	5,367	2,251	4,533	2,488	3,167	2,001
Controle	Mulheres	5,692	2,364	2,949	2,635	2,641	2,378
	Homens	5,185	2,185	3,667	2,896	3,370	1,621

In[1025]:=
```
compilaTex[geratabtime[timetable, 2], prefix]
```

Out[1025]=

Grupos	Sexo	Comparações		
		LB × z6	LB × z12	z6 × z12
Controle	Mulher	$1{,}69 \cdot 10^{-6}$	$4{,}29 \cdot 10^{-8}$	0,89
	Homem	0,08	0,00	0,03
Intervenção	Mulher	$6{,}62 \cdot 10^{-6}$	$7{,}56 \cdot 10^{-8}$	0,66
	Homem	0,02	0,00	0,97

In[666]:=
```
compilaTex[geraTabCG[tabci, 3], prefix]
```

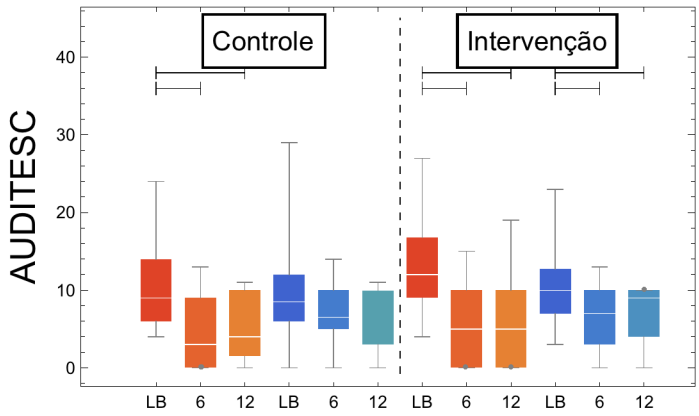
Out[666]=

	Comparações entre Grupos		
	Linha de Base	6 meses	12 meses
Mulheres	0,089	0,983	0,728
Homens	0,576	0,189	0,447

In[1068]:=

```
bbarisco1 = Select[bbarisco, #RECUSAIB == 0 &];
caso = "completo";
var = "AUDITESC";
shortname = "audesc";
varwaves = {var, "z6" <> var, "z12" <> var};
part1 = GroupBy[bbarisco1, {#GRUPO, #SEXOS} &];
teste = Dataset[Table[Normal[Keys[part1]][[i]] ->
      N[Mean[part1[[i]][All, "AUDITC"]]], {i, 1, Length[part1]}]];
maxplot = 44;
lissig =
  Flatten[Transpose[Flatten[Table[{Table[LocationTest[{gerapart[part1[[i]],
            varwaves[[j]]], gerapart[part1[[i]], varwaves[[k]]]}, 0],
         {i, 1, 4}]}, {k, 2, 3}, {j, 1, k - 1}], 2]]];
pos = Flatten[Table[{errorBar2[{i, maxplot - 8}, {i + 1, maxplot - 8}],
      errorBar2[{i, maxplot - 6}, {i + 2, maxplot - 6}],
      errorBar2[{i + 1, maxplot - 7}, {i + 2, maxplot - 7}]}, {i, 1, 10, 3}]];
pos2 = (First /@ Select[Transpose[{pos, lissig}], #[[2]] < 0.05 &]) /.
    errorBar2[x_, y_] → errorBar[x, y];
gr1 = BoxWhiskerChart[Flatten[
    Table[gerapart[part1[[i]], #] & /@ varwaves, {i, 1, 4}], 1],
  ChartLabels → {"LB", 6, 12, "LB", 6, 12, "LB", 6, 12, "LB", 6, 12},
  ChartStyle → {ColorData["Rainbow"][0.95], ColorData["Rainbow"][0.9],
    ColorData["Rainbow"][0.85], ColorData["Rainbow"][0.2],
    ColorData["Rainbow"][0.25], ColorData["Rainbow"][0.35],
    ColorData["Rainbow"][0.95], ColorData["Rainbow"][0.9],
    ColorData["Rainbow"][0.85], ColorData["Rainbow"][0.2],
    ColorData["Rainbow"][0.25], ColorData["Rainbow"][0.3]},
  PlotRange → {0, maxplot}, FrameLabel → {"", Style[var, 18]}, Epilog →
   {pos2, Inset[Framed[Style["Intervenção", 14]], {11.42, maxplot + 2}, {Right, Top}],
    Inset[Framed[Style["Controle", 14]], {2.025, maxplot + 2}, {Left, Top}],
    {Dashed, Line[{{6.5, -0.75}, {6.5, maxplot + 1}}]}}]

timetable =
  Flatten[Table[{varwavesnamess[[j]] <> " $\\times$ " <> varwavesnamess[[k]],
      {"C", "I"}, {"F", "M", "F", "M"}, Table[LocationTest[
        {gerapart[part1[[i]], varwaves[[j]]], gerapart[part1[[i]], varwaves[[k]]]},
        0], {i, 1, 4}]}, {k, 2, 3}, {j, 1, k - 1}], 1];
tabci = Table[LocationTest[{gerapart[part1[[i]], #], gerapart[part1[[i + 2]], #]},
       0, "MannWhitney"] & /@ varwaves, {i, 1, 2}];
tabmd = tabmd = Table[{lis = gerapart[part1[[i]], #];
        N[Mean[lis]], N[StandardDeviation[lis]]}, {i, 1, 4}] & /@ varwaves;
Export[prefix <> "tabmd" <> shortname <> caso <> ".tex",
 geraTabMD[tabmd, var, 3], "String"]
Export[prefix <> "tabtime" <> shortname <> caso <> ".tex",
 geratabtime[timetable, 3], "String"]
Export[prefix <> "tabci" <> shortname <> caso <> ".tex", geraTabCG[tabci, 3], "String"]
Export[prefix <> "figcomp" <> shortname <> caso <> ".pdf", gr1]
```

Out[1079]=



Out[1083]= /Users/neylemke/Luisa/BancodeDadosDoutorado/tabmdaudesccompleto.tex

Out[1084]= /Users/neylemke/Luisa/BancodeDadosDoutorado/tabtimeaudesccompleto.tex

Out[1085]= /Users/neylemke/Luisa/BancodeDadosDoutorado/tabciaudesccompleto.tex

Out[1086]= /Users/neylemke/Luisa/BancodeDadosDoutorado/figcompaudesccompleto.pdf

In[1109]:=
```
compilaTex[geraTabMD[tabmd, var, 3], prefix]
compilaTex[geratabtime[timetable, 2], prefix]
compilaTex[geraTabCG[tabci, 3], prefix]
```

Out[1109]=

		AUDITC					
		Linha de Base		6 meses		12 meses	
		Estatística		Estatística		Estatística	
Grupo	Sexo	μ	σ	μ	σ	μ	σ
Controle	Mulheres	4,703	1,507	3,027	2,533	2,595	2,254
	Homens	5,222	1,801	4,389	2,660	3,278	2,608
Controle	Mulheres	5,889	2,423	2,815	3,051	2,481	2,860
	Homens	4,643	1,781	3,929	3,407	3,714	2,234

Out[1110]=

		Comparações		
Grupos	Sexo	LB × z6	LB × z12	z6 × z12
Controle	Mulher	0,00	0,00	0,55
	Homem	0,18	0,03	0,21
Intervenção	Mulher	0,00	0,00	0,72
	Homem	0,50	0,23	0,83

Out[1111]=

	Comparações entre Grupos		
	Linha de Base	6 meses	12 meses
Mulheres	0,040	0,549	0,574
Homens	0,343	0,628	0,549

Out[1088]=

Grupos	Sexo	Comparações		
		LB × z6	LB × z12	z6 × z12
Controle	Mulher	$6{,}33 \cdot 10^{-8}$	$3{,}26 \cdot 10^{-7}$	0,61
	Homem	0,07	0,11	0,89
Intervenção	Mulher	$2{,}44 \cdot 10^{-7}$	$9{,}03 \cdot 10^{-7}$	0,81
	Homem	0,01	0,03	0,62

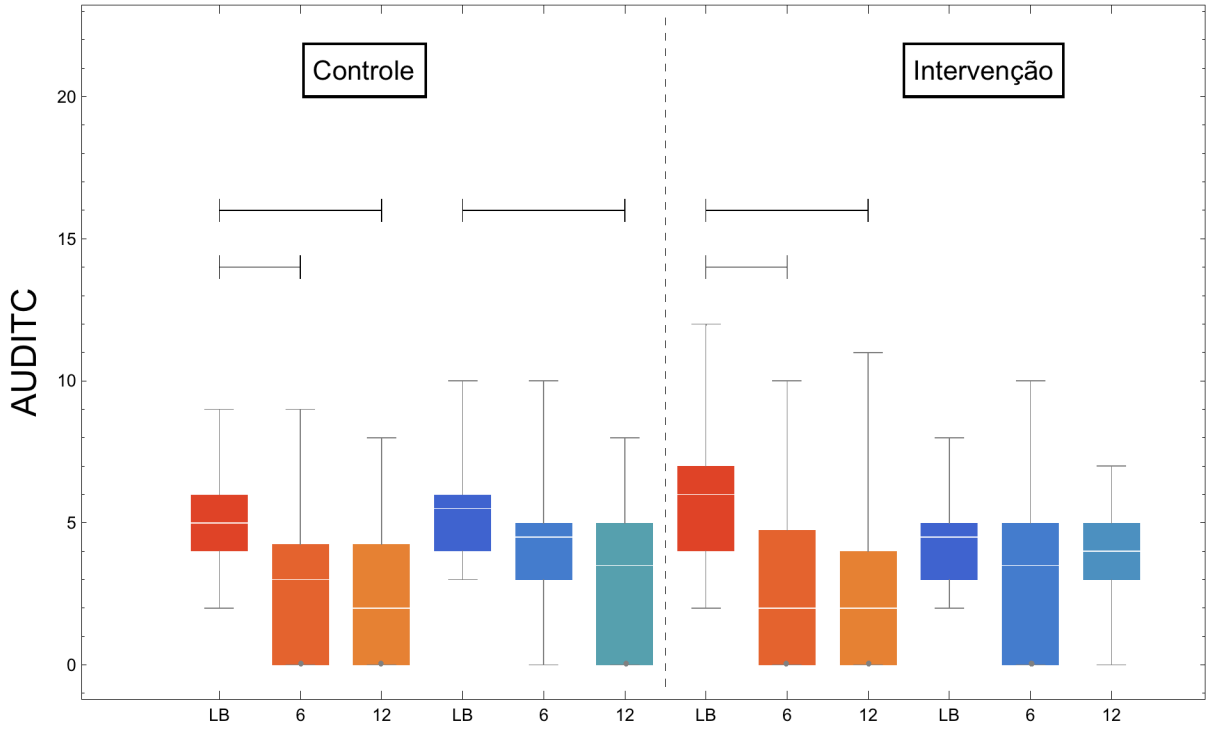
Out[1089]=

	Comparações entre Grupos		
	Linha de Base	6 meses	12 meses
Mulheres	0,016	0,541	0,652
Homens	0,597	0,752	0,926

Agora só mantemos os que responderam todos os ítens

In[2115]:=
```
bbarisco1 = Select[bbarisco, #RECUSAIB == 0 && #"RecusaIB6" == 0 && #RecusaIB12 == 0 &];
caso = "parcial";
var = "AUDITC";
shortname = "audc";
varwaves = {var, "z6" <> var, "z12" <> var};
part1 = GroupBy[bbarisco1, {#GRUPO, #SEXOS} &];
teste = Dataset[Table[Normal[Keys[part1]][[i]] ->
      N[Mean[part1[[i]][All, "AUDITC"]]], {i, 1, Length[part1]}]];
maxplot = 22;
lissig =
  Flatten[Transpose[Flatten[Table[{Table[LocationTest[{gerapart[part1[[i]],
            varwaves[[j]]], gerapart[part1[[i]], varwaves[[k]]]}, 0],
         {i, 1, 4}]}, {k, 2, 3}, {j, 1, k - 1}], 2]]];
pos = Flatten[Table[{errorBar2[{i, maxplot - 8}, {i + 1, maxplot - 8}],
      errorBar2[{i, maxplot - 6}, {i + 2, maxplot - 6}],
      errorBar2[{i + 1, maxplot - 7}, {i + 2, maxplot - 7}]}, {i, 1, 10, 3}]];
pos2 = (First /@ Select[Transpose[{pos, lissig}], #[[2]] < 0.05 &]) /.
    errorBar2[x_, y_] → errorBar[x, y];
gr1 = BoxWhiskerChart[Flatten[
    Table[gerapart[part1[[i]], #] & /@ varwaves, {i, 1, 4}], 1],
  ChartLabels → {"LB", 6, 12, "LB", 6, 12, "LB", 6, 12, "LB", 6, 12},
  ChartStyle → {ColorData["Rainbow"][0.95], ColorData["Rainbow"][0.9],
    ColorData["Rainbow"][0.85], ColorData["Rainbow"][0.2],
    ColorData["Rainbow"][0.25], ColorData["Rainbow"][0.35],
    ColorData["Rainbow"][0.95], ColorData["Rainbow"][0.9],
    ColorData["Rainbow"][0.85], ColorData["Rainbow"][0.2],
    ColorData["Rainbow"][0.25], ColorData["Rainbow"][0.3]},
  PlotRange → {0, maxplot}, FrameLabel → {"", Style[var, 18]}, Epilog →
   {pos2, Inset[Framed[Style["Intervenção", 14]], {11.42, maxplot}, {Right, Top}],
    Inset[Framed[Style["Controle", 14]], {2.025, maxplot}, {Left, Top}],
    {Dashed, Line[{{6.5, -0.75}, {6.5, maxplot + 1}}]}}]

timetable =
  Flatten[Table[{varwavesnamess[[j]] <> " $\\times$ " <> varwavesnamess[[k]],
     {"C", "I"}, {"F", "M", "F", "M"}, Table[LocationTest[
       {gerapart[part1[[i]], varwaves[[j]]], gerapart[part1[[i]], varwaves[[k]]]},
       0], {i, 1, 4}]}, {k, 2, 3}, {j, 1, k - 1}], 1];
tabci = Table[LocationTest[{gerapart[part1[[i]], #], gerapart[part1[[i + 2]], #]},
      0, "MannWhitney"] & /@ varwaves, {i, 1, 2}];
tabmd = tabmd = Table[{lis = gerapart[part1[[i]], #];
       N[Mean[lis]], N[StandardDeviation[lis]]}, {i, 1, 4}] & /@ varwaves;
Export[prefix <> "tabmd" <> shortname <> caso <> ".tex",
 geraTabMD[tabmd, var, 3], "String"]
Export[prefix <> "tabtime" <> shortname <> caso <> ".tex",
 geratabtime[timetable, 2], "String"]
Export[prefix <> "tabci" <> shortname <> caso <> ".tex", geraTabCG[tabci, 3], "String"]
Export[prefix <> "figcomp" <> shortname <> caso <> ".pdf", gr1]
```

Out[2126]=



Out[2130]= /Users/neylemke/Luisa/BancodeDadosDoutorado/tabmdaudcparcial.tex

Out[2131]= /Users/neylemke/Luisa/BancodeDadosDoutorado/tabtimeaudcparcial.tex

Out[2132]= /Users/neylemke/Luisa/BancodeDadosDoutorado/tabciaudcparcial.tex

Out[2133]= /Users/neylemke/Luisa/BancodeDadosDoutorado/figcompaudcparcial.pdf

In[2134]:=
```
compilaTex[geraTabMD[tabmd, var, 3], prefix]
compilaTex[geratabtime[timetable, 2], prefix]
compilaTex[geraTabCG[tabci, 3], prefix]
```

Out[2134]=

		AUDITC					
		Linha de Base		6 meses		12 meses	
		Estatística		Estatística		Estatística	
Grupo	Sexo	μ	σ	μ	σ	μ	σ
Controle	Mulheres	4,703	1,507	3,027	2,533	2,595	2,254
	Homens	5,222	1,801	4,389	2,660	3,278	2,608
Controle	Mulheres	5,889	2,423	2,815	3,051	2,481	2,860
	Homens	4,643	1,781	3,929	3,407	3,714	2,234

Out[2135]=

		Comparações		
Grupos	Sexo	LB × z6	LB × z12	z6 × z12
Controle	Mulher	0,00	0,00	0,55
	Homem	0,18	0,03	0,21
Intervenção	Mulher	0,00	0,00	0,72
	Homem	0,50	0,23	0,83

Out[2136]=

	Comparações entre Grupos		
	Linha de Base	6 meses	12 meses
Mulheres	0,040	0,549	0,574
Homens	0,343	0,628	0,549

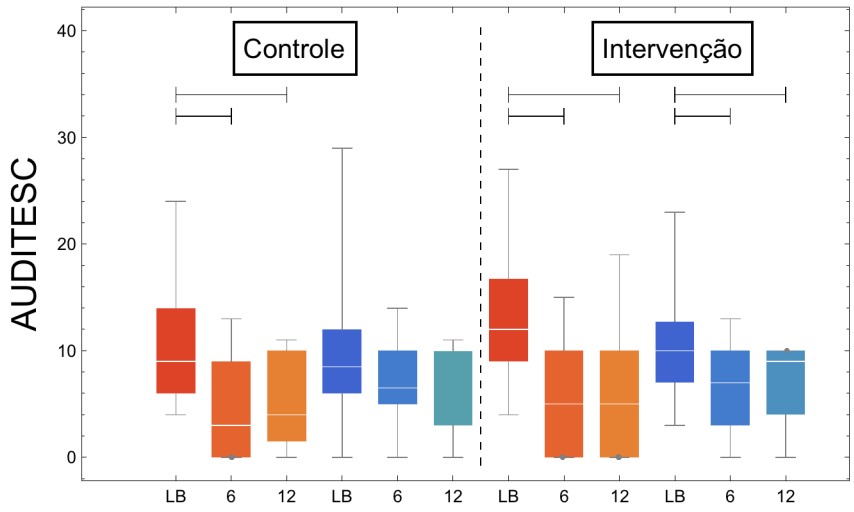
Agora para AUDITESC

Todos os que iniciaram o levantamento

In[2182]:=

```
bbarisco1 = Select[bbarisco, #RECUSAIB == 0 &];
caso = "completo";
var = "AUDITESC";
shortname = "audesc";
varwaves = {var, "z6" <> var, "z12" <> var};
part1 = GroupBy[bbarisco1, {#GRUPO, #SEXOS} &];
teste = Dataset[Table[Normal[Keys[part1]][[i]] ->
      N[Mean[part1[[i]][All, "AUDITC"]]], {i, 1, Length[part1]}]];
maxplot = 40;
lissig =
  Flatten[Transpose[Flatten[Table[{Table[LocationTest[{gerapart[part1[[i]],
            varwaves[[j]]], gerapart[part1[[i]], varwaves[[k]]]}, 0],
         {i, 1, 4}]}, {k, 2, 3}, {j, 1, k - 1}], 2]]];
pos = Flatten[Table[{errorBar2[{i, maxplot - 8}, {i + 1, maxplot - 8}],
      errorBar2[{i, maxplot - 6}, {i + 2, maxplot - 6}],
      errorBar2[{i + 1, maxplot - 7}, {i + 2, maxplot - 7}]}, {i, 1, 10, 3}]];
pos2 = (First /@ Select[Transpose[{pos, lissig}], #[[2]] < 0.05 &]) /.
    errorBar2[x_, y_] → errorBar[x, y];
gr1 = BoxWhiskerChart[Flatten[
    Table[gerapart[part1[[i]], #] & /@ varwaves, {i, 1, 4}], 1],
  ChartLabels → {"LB", 6, 12, "LB", 6, 12, "LB", 6, 12, "LB", 6, 12},
  ChartStyle → {ColorData["Rainbow"][0.95], ColorData["Rainbow"][0.9],
    ColorData["Rainbow"][0.85], ColorData["Rainbow"][0.2],
    ColorData["Rainbow"][0.25], ColorData["Rainbow"][0.35],
    ColorData["Rainbow"][0.95], ColorData["Rainbow"][0.9],
    ColorData["Rainbow"][0.85], ColorData["Rainbow"][0.2],
    ColorData["Rainbow"][0.25], ColorData["Rainbow"][0.3]},
  PlotRange → {0, maxplot}, FrameLabel → {"", Style[var, 18]}, Epilog → {pos2,
    Inset[Framed[Style["Intervenção", 14]], {11.42, maxplot + 1.2}, {Right, Top}],
    Inset[Framed[Style["Controle", 14]], {2.025, maxplot + 1.2}, {Left, Top}],
    {Dashed, Line[{{6.5, -0.75}, {6.5, maxplot + 1}}]}}]

timetable =
  Flatten[Table[{varwavesnamess[[j]] <> " $\\times$ " <> varwavesnamess[[k]],
      {"C", "I"}, {"F", "M", "F", "M"}, Table[LocationTest[
        {gerapart[part1[[i]], varwaves[[j]]], gerapart[part1[[i]], varwaves[[k]]]},
        0], {i, 1, 4}]}, {k, 2, 3}, {j, 1, k - 1}], 1];
tabci = Table[LocationTest[{gerapart[part1[[i]], #], gerapart[part1[[i + 2]], #]},
       0, "MannWhitney"] & /@ varwaves, {i, 1, 2}];
tabmd = tabmd = Table[{lis = gerapart[part1[[i]], #];
        N[Mean[lis]], N[StandardDeviation[lis]]}, {i, 1, 4}] & /@ varwaves;
Export[prefix <> "tabmd" <> shortname <> caso <> ".tex",
 geraTabMD[tabmd, var, 3], "String"]
Export[prefix <> "tabtime" <> shortname <> caso <> ".tex",
 geratabtime[timetable, 2], "String"]
Export[prefix <> "tabci" <> shortname <> caso <> ".tex", geraTabCG[tabci, 3], "String"]
Export[prefix <> "figcomp" <> shortname <> caso <> ".pdf", gr1]
```

Out[2193]=



Out[2197]= /Users/neylemke/Luisa/BancodeDadosDoutorado/tabmdaudesccompleto.tex

Out[2198]= /Users/neylemke/Luisa/BancodeDadosDoutorado/tabtimeaudesccompleto.tex

Out[2199]= /Users/neylemke/Luisa/BancodeDadosDoutorado/tabciaudesccompleto.tex

Out[2200]= /Users/neylemke/Luisa/BancodeDadosDoutorado/figcompaudesccompleto.pdf

In[2159]:=

```
geratabtime[timetable, 2]
```

Out[2159]=

```
% Gerado por /Users/neylemke/Luisa/BancodeDadosDoutorado/bba4.nb em 31/10/2015
\begin{tabular}{ccrrr}
\toprule

    & & \multicolumn{3}{c}{Compara\c{c}\~oes} \\  \cmidrule(r){3-5}
   Grupos & Sexo& LB $\times$ z6& LB $\times$ z12& z6 $\times$ z12\\
\midrule
\multirow{2}{*}{Controle}&Mulher
  & \nprounddigits{2}\numprint{6.327632532907716e-8}
  & \nprounddigits{2}\numprint{3.256720712336177e-7}
  & \nprounddigits{2}\numprint{0.6109808011191342}\\
&Homem & \nprounddigits{2}\numprint{0.06643316210897267}
  & \nprounddigits{2}\numprint{0.11072418181602} &
  \nprounddigits{2}\numprint{0.8912556131226116}\\
\multirow{2}{*}{Interven\c{c}\~ao}&Mulher &
  \nprounddigits{2}\numprint{2.435942380321672e-7} &
  \nprounddigits{2}\numprint{9.030339752064134e-7} &
  \nprounddigits{2}\numprint{0.8133230033252302}\\
&Homem & \nprounddigits{2}\numprint{0.011111774490400036}
  & \nprounddigits{2}\numprint{0.027333531986248064}
  & \nprounddigits{2}\numprint{0.6225451833419815}\\
 \bottomrule
\end{tabular}
```

In[2160]:=
```
compilaTex[geraTabMD[tabmd, var, 3], prefix]
compilaTex[geratabtime[timetable, 2], prefix]
compilaTex[geraTabCG[tabci, 3], prefix]
```

Out[2160]=

		AUDITESC					
		Linha de Base		6 meses		12 meses	
		Estatística		Estatística		Estatística	
Grupo	Sexo	μ	σ	μ	σ	μ	σ
Controle	Mulheres	10,082	4,681	4,449	3,900	4,714	3,884
	Homens	9,800	5,786	6,933	3,591	6,733	4,110
Controle	Mulheres	13,359	6,599	5,179	4,605	5,487	4,904
	Homens	10,111	4,742	6,296	4,313	7,037	3,535

Out[2161]=

		Comparações		
Grupos	Sexo	LB × z6	LB × z12	z6 × z12
Controle	Mulher	$6{,}33 \cdot 10^{-8}$	$3{,}26 \cdot 10^{-7}$	0,61
	Homem	0,07	0,11	0,89
Intervenção	Mulher	$2{,}44 \cdot 10^{-7}$	$9{,}03 \cdot 10^{-7}$	0,81
	Homem	0,01	0,03	0,62

Out[2162]=

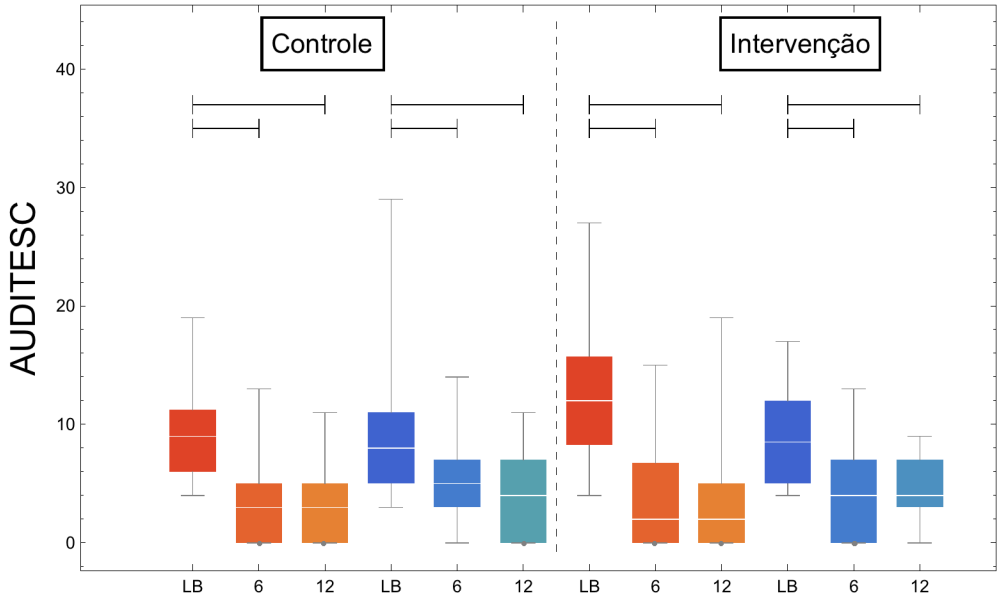
	Comparações entre Grupos		
	Linha de Base	6 meses	12 meses
Mulheres	0,016	0,541	0,652
Homens	0,597	0,752	0,926

Só os que ficaram até o fim

In[1137]:=

```
bbarisco1 = Select[bbarisco, #RECUSAIB == 0 && #"RecusaIB6" == 0 && #RecusaIB12 == 0 &];
part1 = GroupBy[bbarisco1, {#GRUPO, #SEXOS} &];
caso = "parcial";
var = "AUDITESC";
shortname = "audesc";
varwaves = {var, "z6" <> var, "z12" <> var};
part1 = GroupBy[bbarisco1, {#GRUPO, #SEXOS} &];
teste = Dataset[Table[Normal[Keys[part1]][[i]] ->
      N[Mean[part1[[i]][All, "AUDITC"]]], {i, 1, Length[part1]}]];
maxplot = 43;
lissig =
  Flatten[Transpose[Flatten[Table[{Table[LocationTest[{gerapart[part1[[i]],
            varwaves[[j]]], gerapart[part1[[i]], varwaves[[k]]]}, 0],
         {i, 1, 4}]}, {k, 2, 3}, {j, 1, k - 1}], 2]]];
pos = Flatten[Table[{errorBar2[{i, maxplot - 8}, {i + 1, maxplot - 8}],
      errorBar2[{i, maxplot - 6}, {i + 2, maxplot - 6}],
      errorBar2[{i + 1, maxplot - 7}, {i + 2, maxplot - 7}]}, {i, 1, 10, 3}]];
pos2 = (First /@ Select[Transpose[{pos, lissig}], #[[2]] < 0.05 &]) /.
    errorBar2[x_, y_] → errorBar[x, y];
gr1 = BoxWhiskerChart[Flatten[
    Table[gerapart[part1[[i]], #] & /@ varwaves, {i, 1, 4}], 1],
  ChartLabels → {"LB", 6, 12, "LB", 6, 12, "LB", 6, 12, "LB", 6, 12},
  ChartStyle → {ColorData["Rainbow"][0.95], ColorData["Rainbow"][0.9],
    ColorData["Rainbow"][0.85], ColorData["Rainbow"][0.2],
    ColorData["Rainbow"][0.25], ColorData["Rainbow"][0.35],
    ColorData["Rainbow"][0.95], ColorData["Rainbow"][0.9],
    ColorData["Rainbow"][0.85], ColorData["Rainbow"][0.2],
    ColorData["Rainbow"][0.25], ColorData["Rainbow"][0.3]},
  PlotRange → {0, maxplot}, FrameLabel → {"", Style[var, 18]}, Epilog → {pos2,
    Inset[Framed[Style["Intervenção", 14]], {11.42, maxplot + 1.7}, {Right, Top}],
    Inset[Framed[Style["Controle", 14]], {2.025, maxplot + 1.7}, {Left, Top}],
    {Dashed, Line[{{6.5, -0.75}, {6.5, maxplot + 1}}]}}]

timetable =
  Flatten[Table[{varwavesnamess[[j]] <> " $\\times$ " <> varwavesnamess[[k]],
      {"C", "I"}, {"F", "M", "F", "M"}, Table[LocationTest[
        {gerapart[part1[[i]], varwaves[[j]]], gerapart[part1[[i]], varwaves[[k]]]},
        0], {i, 1, 4}]}, {k, 2, 3}, {j, 1, k - 1}], 1];
tabci = Table[LocationTest[{gerapart[part1[[i]], #], gerapart[part1[[i + 2]], #]},
       0, "MannWhitney"] & /@ varwaves, {i, 1, 2}];
tabmd = tabmd = Table[{lis = gerapart[part1[[i]], #];
        N[Mean[lis]], N[StandardDeviation[lis]]}, {i, 1, 4}] & /@ varwaves;
Export[prefix <> "tabmd" <> shortname <> caso <> ".tex",
 geraTabMD[tabmd, var, 3], "String"]
Export[prefix <> "tabtime" <> shortname <> caso <> ".tex",
 geratabtime[timetable, 3], "String"]
Export[prefix <> "tabci" <> shortname <> caso <> ".tex", geraTabCG[tabci, 3], "String"]
Export[prefix <> "figcomp" <> shortname <> caso <> ".pdf", gr1]
```

Out[1149]=



Out[1153]= /Users/neylemke/Luisa/BancodeDadosDoutorado/tabmdaudescparcial.tex

Out[1154]= /Users/neylemke/Luisa/BancodeDadosDoutorado/tabtimeaudescparcial.tex

Out[1155]= /Users/neylemke/Luisa/BancodeDadosDoutorado/tabciaudescparcial.tex

Out[1156]= /Users/neylemke/Luisa/BancodeDadosDoutorado/figcompaudescparcial.pdf

In[1157]:=
```
compilaTex[geraTabMD[tabmd, var, 3], prefix]
compilaTex[geratabtime[timetable, 2], prefix]
compilaTex[geraTabCG[tabci, 3], prefix]
```

Out[1157]=

		AUDITESC					
		Linha de Base		6 meses		12 meses	
		Estatística		Estatística		Estatística	
Grupo	Sexo	μ	σ	μ	σ	μ	σ
Controle	Mulheres	9,297	3,748	3,703	3,365	3,000	2,789
	Homens	9,111	5,850	5,278	3,578	4,556	4,033
Controle	Mulheres	13,074	6,668	3,815	4,532	3,481	4,644
	Homens	8,714	3,911	4,786	4,300	4,286	2,840

Out[1158]=

		Comparações		
Grupos	Sexo	LB × z6	LB × z12	z6 × z12
Controle	Mulher	$3{,}29 \cdot 10^{-8}$	$4{,}36 \cdot 10^{-10}$	0,47
	Homem	0,02	0,01	0,57
Intervenção	Mulher	$9{,}80 \cdot 10^{-7}$	$2{,}33 \cdot 10^{-7}$	0,75
	Homem	0,02	0,00	1,00

Out[1159]=

	Comparações entre Grupos		
	Linha de Base	6 meses	12 meses
Mulheres	0,020	0,598	0,721
Homens	0,834	0,660	0,985

Frequência

In[1364]:=
```
bbarisco1 = Select[bbarisco, #RECUSAIB == 0 && #"RecusaIB6" == 0 && #RecusaIB12 == 0 &];
caso = "parcial";
var = "AFQBEB10";
shortname = "audesc";
varwaves = {var, "z6" <> var, "z12" <> var};
```

Inicial

In[1369]:=
```
datasetz1 = Select[dataset1, #RECUSAIB == 0 &];
datasetcontrolez1 = Select[datasetz1, #GRUPO == "C" &];
datasetintervencaoz1 = Select[datasetz1, #GRUPO == "I" &];
datasettotalz1 = Select[datasetz1, #GRUPO == "I" || #GRUPO == "C" &];
```

In[1377]:=
```
concTexHelper[list_] :=
 If[list == {}, "", First[list] <> " & " <> concTexHelper[Rest[list]]]
concTex[list_] := StringTake[concTexHelper[list], {1, -3}] <> "\\\\\n"

geraTabPart[tabci_, titulo_, prec_] := Module[
  {stringtable, comment, header, footer, lis1}, header = "\\begin{tabular}{lrrrrrr}
       \\toprule
&\\multicolumn{6}{c}{" <> titulo <> "}\\\\
\\midrule
        & \\multicolumn{2}{c}{Mulheres} &
      \\multicolumn{2}{c}{Homens} & \\multicolumn{2}{c}{Total} \\\\
       \\cmidrule(r){2-3}  \\cmidrule(r){4-5}  \\cmidrule(r){6-7}
       & N & \% & N & \% & N & \%  \\\\\n  \\midrule \n";
  stringtable = StringJoin[Table[
     lis1 = geraNumTex[#, prec] & /@ tabci[[i, 2 ;; -1]];
     tabci[[i, 1]] <> " & " <> concTex[lis1] <> "\n", {i, 1, Length[tabci]}]
   ];
  stringtable = corrigeAcentos[stringtable];
  geraTable[header, stringtable]]


geraTabHelper[tabci_, titulo_, prec_] := Module[{header, stringtable},
  header = "\\midrule
&\\multicolumn{6}{c}{" <> titulo <> "}\\\\
\\midrule
        & \\multicolumn{2}{c}{Mulheres} &
      \\multicolumn{2}{c}{Homens} & \\multicolumn{2}{c}{Total} \\\\
       \\cmidrule(r){2-3}  \\cmidrule(r){4-5}  \\cmidrule(r){6-7}
       & N & \% & N & \% & N & \%  \\\\\n  \\midrule \n";
  stringtable = StringJoin[Table[
     lis1 = geraNumTex[#, prec] & /@ tabci[[i, 2 ;; -1]];
     tabci[[i, 1]] <> " & " <> concTex[lis1] <> "\n", {i, 1, Length[tabci]}]
   ];
  header <> stringtable
 ]
```

Syntax::stresc: Unknown stringescape \c.

In[1381]:=
```
geraTabVar[listab_, titulo_, prec_] := Module[
  {stringtable, comment, header, footer, lis1}, header = "\\begin{tabular}{lrrrrrr}
       \\toprule" <> "\\multicolumn{6}{c}{" <> titulo <> "}\\\\";
  stringtable = StringJoin[Table[geraTabHelperVar[
      listab[[i, 1]], listab[[i, 2]], prec], {i, 1, Length[listab]}]];
  stringtable = corrigeAcentos[stringtable];
  geraTable[header, stringtable]]
geraTabHelperVar[tabci_, titulo_, prec_] := Module[{header, stringtable},
  header = "\\midrule
&\\multicolumn{6}{c}{" <> titulo <> "}\\\\
\\midrule
        & \\multicolumn{2}{c}{Controle}
      & \\multicolumn{2}{c}{Interven\\c{c}\\~ao}
      & \\multicolumn{2}{c}{Total} \\\\
       \\cmidrule(r){2-3}  \\cmidrule(r){4-5}  \\cmidrule(r){6-7}
       & N & \% & N & \% & N & \%  \\\\\n  \\midrule \n";
  stringtable = StringJoin[Table[
     lis1 = geraNumTex[#, prec] & /@ tabci[[i, 2 ;; -1]];
     tabci[[i, 1]] <> " & " <> concTex[lis1] <> "\n", {i, 1, Length[tabci]}]
   ];
  header <> stringtable
 ]
```

In[1383]:=
```
tabciz1 = Append[Table[
    Flatten[{hashfreq[value], geraporcento2[datasetcontrolez1, #AFREQBEB == value &],
      geraporcento2[datasetintervencaoz1, #AFREQBEB == value &],
      geraporcento2[datasettotalz1, #AFREQBEB == value &]}], {value, 0, 4}],
   {"Total", Length[datasetcontrolez1], 100, Length[datasetintervencaoz1],
    100, Length[datasettotalz1], 100}];
```

Seis Meses

In[1384]:=
```
datasetz6 = Select[dataset1, #RECUSAIB == 0 && #RecusaIB6 == 0 &];
datasetcontrolez6 = Select[datasetz6, #GRUPO == "C" &];
datasetintervencaoz6 = Select[datasetz6, #GRUPO == "I" &];
datasettotalz6 = Select[datasetz6, #GRUPO == "I" || #GRUPO == "C" &];
tabciz6 = Append[Table[
    Flatten[{hashfreq[value], geraporcento2[datasetcontrolez6, #z6FREQBE == value &],
      geraporcento2[datasetintervencaoz6, #z6FREQBE == value &],
      geraporcento2[datasettotalz6, #z6FREQBE == value &]}], {value, 0, 4}],
   {"Total", Length[datasetcontrolez6], 100, Length[datasetintervencaoz6],
    100, Length[datasettotalz6], 100}];
```

Doze Meses

In[1389]:=

```
datasetz12 = Select[dataset1, #RECUSAIB == 0 && #RecusaIB6 == 0 &&  #RecusaIB12 == 0 &];
datasetcontrolez12 = Select[datasetz12, #GRUPO == "C" &];
datasetintervencaoz12 = Select[datasetz12, #GRUPO == "I" &];
datasettotalz12 = Select[datasetz12, #GRUPO == "I" || #GRUPO == "C" &];
tabciz12 = Append[Table[Flatten[
      {hashfreq[value], geraporcento2[datasetcontrolez12, #z12FREQB == value &],
       geraporcento2[datasetintervencaoz12, #z12FREQB == value &],
       geraporcento2[datasettotalz12, #z12FREQB == value &]}], {value, 0, 4}],
   {"Total", Length[datasetcontrolez12], 100, Length[datasetintervencaoz12],
    100, Length[datasettotalz12], 100}];



Export[prefix <> "tabVarFreq.tex", geraTabVar[
   {{tabciz1, "Linha de Base"}, {tabciz6, "6 Meses"}, {tabciz12, "12 Meses"}},
   "Frequ\\^encia com que bebeu 30 dias", 2], "String"];
```

In[1394]:=

```
compilaTex[geraTabVar[
  {{tabciz1, "Linha de Base"}, {tabciz6, "6 Meses"}, {tabciz12, "12 Meses"}},
  "Frequ\\^encia com que bebeu 30 dias", 2], prefix]
```

Out[1394]=

Frequência com que bebeu 30 dias						
	Linha de Base					
	Controle		Intervenção		Total	
	N	%	N	%	N	%
Cerca de 1 × mês	2	2,53	0	0	2	1,38
2 a 3 × mês	20	25,32	21	31,82	41	28,28
1 a 2 × semana	27	34,18	20	30,30	47	32,41
3 a 4 × semana	19	24,05	20	30,30	39	26,90
Quase todos os dias	10	12,66	3	4,55	13	8,97
Total	79	100	66	100	145	100
	6 Meses					
	Controle		Intervenção		Total	
	N	%	N	%	N	%
Cerca de 1 × mês	16	24,62	18	36,00	34	29,57
2 a 3 × mês	15	23,08	9	18,00	24	20,87
1 a 2 × semana	20	30,77	14	28,00	34	29,57
3 a 4 × semana	13	20,00	6	12,00	19	16,52
Quase todos os dias	1	1,54	2	4,00	3	2,61
Total	65	100	50	100	115	100
	12 Meses					
	Controle		Intervenção		Total	
	N	%	N	%	N	%
Cerca de 1 × mês	21	38,18	17	41,46	38	39,58
2 a 3 × mês	9	16,36	7	17,07	16	16,67
1 a 2 × semana	12	21,82	9	21,95	21	21,88
3 a 4 × semana	11	20,00	8	19,51	19	19,79
Quase todos os dias	2	3,64	0	0	2	2,08
Total	55	100	41	100	96	100

Maior Dose Consumida

In[1395]:=

```
tabciz1 = Append[Table[
    Flatten[{hashaoc[value], geraporcento2[datasetcontrolez1, #AOCMAISB == value &],
      geraporcento2[datasetintervencaoz1, #AOCMAISB == value &],
      geraporcento2[datasettotalz1, #AOCMAISB == value &]}], {value, 0, 3}],
   {"Total", Length[datasetcontrolez1], 100, Length[datasetintervencaoz1],
    100, Length[datasettotalz1], 100}];
```

Seis Meses

In[1413]:=

```
datasetz6 = Select[dataset1, #RECUSAIB == 0 && #RecusaIB6 == 0 &];
datasetcontrolez6 = Select[datasetz6, #GRUPO == "C" &];
datasetintervencaoz6 = Select[datasetz6, #GRUPO == "I" &];
datasettotalz6 = Select[datasetz6, #GRUPO == "I" || #GRUPO == "C" &];
tabciz6 = Append[Table[
    Flatten[{hashaoc[value], geraporcento2[datasetcontrolez6, #z6OCMAIS == value &],
      geraporcento2[datasetintervencaoz6, #z6OCMAIS == value &],
      geraporcento2[datasettotalz6, #z6OCMAIS == value &]}], {value, 0, 3}],
   {"Total", Length[datasetcontrolez6], 100, Length[datasetintervencaoz6],
    100, Length[datasettotalz6], 100}];
```

Doze Meses

In[1418]:=

```
datasetz12 = Select[dataset1, #RECUSAIB == 0 && #RecusaIB6 == 0 &&  #RecusaIB12 == 0 &];
datasetcontrolez12 = Select[datasetz12, #GRUPO == "C" &];
datasetintervencaoz12 = Select[datasetz12, #GRUPO == "I" &];
datasettotalz12 = Select[datasetz12, #GRUPO == "I" || #GRUPO == "C" &];
tabciz12 = Append[Table[
    Flatten[{hashaoc[value], geraporcento2[datasetcontrolez12, #z12OCMAB == value &],
      geraporcento2[datasetintervencaoz12, #z12OCMAB == value &],
      geraporcento2[datasettotalz12, #z12OCMAB == value &]}], {value, 0, 3}],
   {"Total", Length[datasetcontrolez12], 100, Length[datasetintervencaoz12],
    100, Length[datasettotalz12], 100}];
```

```
Export[prefix <> "tabVarAOC.tex",
  geraTabVar[{{tabciz1, "Linha de Base"}, {tabciz6, "6 Meses"},
    {tabciz12, "12 Meses"}}, "Maior Dose Consumida", 2], "String"];
```

In[1424]:=

```
compilaTex[geraTabVar[{{tabciz1, "Linha de Base"}, {tabciz6, "6 Meses"},
   {tabciz12, "12 Meses"}}, "Maior Dose Consumida", 2], prefix]
```

Out[1424]=

Maior Dose Consumida						
	Linha de Base					
	Controle		Intervenção		Total	
	N	%	N	%	N	%
0 doses	6	7,59	6	9,09	12	8,28
1 ou 2 doses	13	16,46	12	18,18	25	17,24
3 ou 4 doses	13	16,46	15	22,73	28	19,31
5 ou mais doses	46	58,23	31	46,97	77	53,10
Total	79	100	66	100	145	100
	6 Meses					
	Controle		Intervenção		Total	
	N	%	N	%	N	%
0 doses	18	27,69	19	38,00	37	32,17
1 ou 2 doses	16	24,62	7	14,00	23	20,00
3 ou 4 doses	16	24,62	11	22,00	27	23,48
5 ou mais doses	15	23,08	12	24,00	27	23,48
Total	65	100	50	100	115	100
	12 Meses					
	Controle		Intervenção		Total	
	N	%	N	%	N	%
0 doses	22	40,00	17	41,46	39	40,63
1 ou 2 doses	11	20,00	7	17,07	18	18,75
3 ou 4 doses	12	21,82	11	26,83	23	23,96
5 ou mais doses	10	18,18	6	14,63	16	16,67
Total	55	100	41	100	96	100

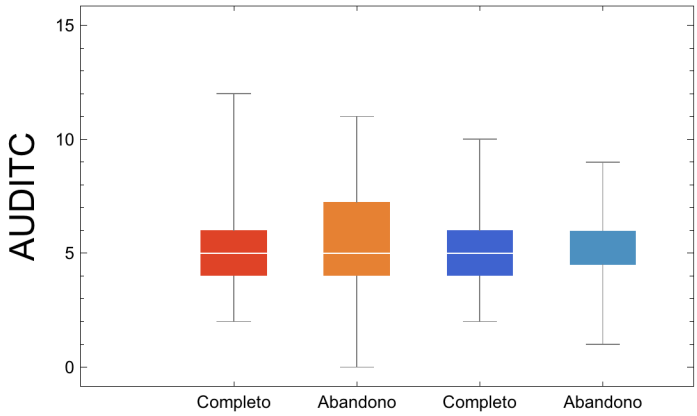
Attrition

```
bbacomp = Select[bbarisco, #RECUSAIB == 0 && #"RecusaIB6" == 0 && #RecusaIB12 == 0 &];
bbaabandonaram =
  Select[bbarisco, #RECUSAIB == 0 && (#"RecusaIB6" != 0 || #RecusaIB12 != 0) &];


partcomp = GroupBy[bbacomp, #SEXOS &];
partabandonaram = GroupBy[bbaabandonaram, #SEXOS &];




lisvars = {"AUDITESC", "AUDITC", "DROGAS12"};

tabci =
  Transpose[{LocationTest[{Select[Normal[partcomp[[1]][All, #]], IntegerQ], Select[
          Normal[partabandonaram[[1]][All, #]], IntegerQ]}],
      LocationTest[{Select[Normal[partcomp[[2]][All, #]], IntegerQ],
        Select[Normal[partabandonaram[[2]][All, #]], IntegerQ]}]} & /@ lisvars];
Export[prefix <> "tabciattrition.tex", geraTabAtt[tabci, 3], "String"]
```

/Users/neylemke/Luisa/BancodeDadosDoutorado/tabciattrition.tex

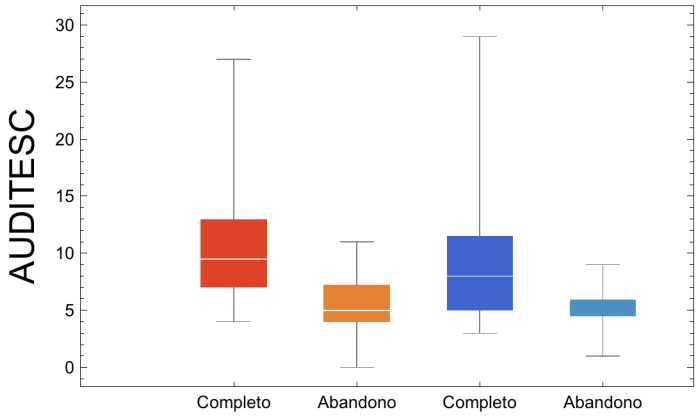
0.252366

```
g1 = BoxWhiskerChart[{Normal[partcomp[[1]][All, "AUDITC"]],
   Normal[partabandonaram[[1]][All, "AUDITC"]], Normal[
    partcomp[[2]][All, "AUDITC"]], Normal[partabandonaram[[2]][All, "AUDITC"]]},
  ChartLabels → {"Completo", "Abandono", "Completo", "Abandono"},
  ChartStyle → {ColorData["Rainbow"][0.95], ColorData["Rainbow"][0.85],
    ColorData["Rainbow"][0.2], ColorData["Rainbow"][0.3]},
  PlotRange → {0, 15}, FrameLabel → {"", Style["AUDITC", 18]}]

Export["/Users/neylemke/Dropbox/Luisa/tese/attritionauditc.pdf", g1]
```



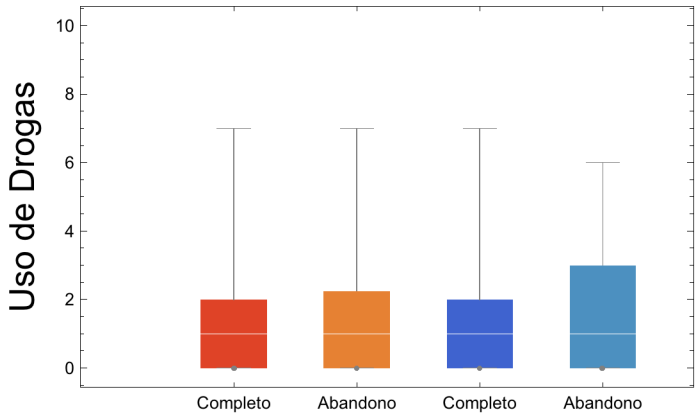
/Users/neylemke/Dropbox/Luisa/tese/attritionauditc.pdf

```
g1 = BoxWhiskerChart[{Normal[partcomp[[1]][All, "AUDITESC"]],
    Normal[partabandonaram[[1]][All, "AUDITC"]], Normal[
     partcomp[[2]][All, "AUDITESC"]], Normal[partabandonaram[[2]][All, "AUDITC"]]},
  ChartLabels → {"Completo", "Abandono", "Completo", "Abandono"},
  ChartStyle → {ColorData["Rainbow"][0.95], ColorData["Rainbow"][0.85],
    ColorData["Rainbow"][0.2], ColorData["Rainbow"][0.3]},
  PlotRange → {0, 30}, FrameLabel → {"", Style["AUDITESC", 18]}]
Export["/Users/neylemke/Dropbox/Luisa/tese/attritionauditesc.pdf", g1]
```



/Users/neylemke/Dropbox/Luisa/tese/attritionauditesc.pdf

```
bbacomp = Select[bbarisco, #RECUSAIB == 0 && #"RecusaIB6" == 0 && #RecusaIB12 == 0 &];
bbaabandonaram =
  Select[bbarisco, #RECUSAIB == 0 && (#"RecusaIB6" != 0 || #RecusaIB12 != 0) &];

partcomp = GroupBy[bbacomp, #SEXOS &];
partabandonaram = GroupBy[bbaabandonaram, #SEXOS &];
g1 = BoxWhiskerChart[{Normal[partcomp[[1]][All, "DROGAS12"]], Normal[
    partabandonaram[[1]][All, "DROGAS12"]], Normal[partcomp[[2]][All, "DROGAS12"]],
   Normal[partabandonaram[[2]][All, "DROGAS12"]]},
  ChartLabels → {"Completo", "Abandono", "Completo", "Abandono"},
  ChartStyle → {ColorData["Rainbow"][0.95], ColorData["Rainbow"][0.85],
    ColorData["Rainbow"][0.2], ColorData["Rainbow"][0.3]},
  PlotRange → {0, 10}, FrameLabel → {"", Style["Uso de Drogas", 18]}]
Export["/Users/neylemke/Dropbox/Luisa/tese/attritiondrogas.pdf", g1]
```



/Users/neylemke/Dropbox/Luisa/tese/attritiondrogas.pdf

Correlação entre Uso de Alcool e uso de Drogas

In[1179]:=
```
bbacomp = Select[bbarisco, #RECUSAIB == 0 && #"RecusaIB6" == 0 && #RecusaIB12 == 0 &];
partcomp = GroupBy[bbacomp, #SEXOS &];
dataset2 = bbacomp;
```

In[1335]:=

```
lisvar = {"AUDITC", "DROGAS30", "DROGAS12",
   "z6AUDITC", "z6DROGAS30", "z12AUDITC", "z12DROGAS30"};
lisvar2 = {"var name", "AUDITC", "DROGAS30", "DROGAS12",
   "z6AUDITC", "z6DROGAS30", "z12AUDITC", "z12DROGAS30"};
corrTabTeste = Table[listemp = Cases[Transpose[{Normal[dataset2[All, lisvar[[i]]]],
        Normal[dataset2[All, lisvar[[j]]]]}], {_Integer, _Integer}];
   N[CorrelationTest[listemp], 2], {i, 1, Length[lisvar]}, {j, 1, Length[lisvar]}];
corrTab = Table[listemp = Cases[Transpose[{Normal[dataset2[All, lisvar[[i]]]],
        Normal[dataset2[All, lisvar[[j]]]]}], {_Integer, _Integer}];
   N[Correlation[listemp[[All, 1]], listemp[[All, 2]]]]
   , {i, 1, Length[lisvar]}, {j, 1, Length[lisvar]}];
corrTabTable = TableForm[corrTab,
   TableHeadings → {hashVarNames /@ lisvar, hashVarNames /@ lisvar}];
headerString = StringJoin[" & " <> # & /@ hashVarNames /@ lisvar] <>
   "\\\\\n \\midrule\n ";
colString = "l|" <> StringJoin[Table["c", {i, 1, Length[corrTab]}]];
corrTabTex =
  "\n\n\\begin{tabular}{" <> colString <> "}\n\\toprule\n" <> headerString <>
   StringJoin[Table[StringJoin[" " <> hashVarNames[lisvar[[j]]], Table[
         " & \\nprounddigits{2}" <> If[ corrTabTeste[[i, j]] > 0.05, "\\numprint{" <>
            ToString[CForm[corrTab[[i, j]]]], "{\\bf \\numprint{ " <> ToString[
             CForm[corrTab[[i, j]]]] <> "}" ] <> "}", {i, 1, Length[corrTab]}]] <>
      "\\\\\n", {j, 1, Length[corrTab]}]] <> " \\bottomrule\n\\end{tabular}";
Export["/Users/neylemke/Dropbox/Luisa/tese/corrdrogasaudc.tex",
  corrTabTex, "String"];
compilaTex[corrTabTex, prefix]
```

Out[1344]=

	LB:AUDITC	LB:DROGAS30	LB:DROGAS12	6:AUDITC	6:DROGAS30	12:AUDITC	12:DROGAS30
LB:AUDITC	**1,00**	**0,28**	**0,34**	0,12	**0,21**	0,09	0,13
LB:DROGAS30	**0,28**	**1,00**	**0,82**	**0,22**	**0,54**	**0,18**	**0,32**
LB:DROGAS12	**0,34**	**0,82**	**1,00**	**0,22**	**0,60**	**0,14**	**0,25**
6:AUDITC	0,12	**0,22**	**0,22**	**1,00**	**0,36**	**0,59**	0,04
6:DROGAS30	**0,21**	**0,54**	**0,60**	**0,36**	**1,00**	0,10	**0,38**
12:AUDITC	0,09	**0,18**	**0,14**	**0,59**	0,10	**1,00**	**0,29**
12:DROGAS30	0,13	**0,32**	**0,25**	0,04	**0,38**	**0,29**	**1,00**

In[1354]:=

```
lisvar = {"AUDITESC", "DROGAS30", "DROGAS12",
   "z6AUDITESC", "z6DROGAS30", "z12AUDITESC", "z12DROGAS30"};
lisvar2 = {"var name", "AUDITESC", "DROGAS30", "DROGAS12",
   "z6AUDITESC", "z6DROGAS30", "z12AUDITESC", "z12DROGAS30"};
corrTabTeste = Table[listemp = Cases[Transpose[{Normal[dataset2[All, lisvar[[i]]]],
        Normal[dataset2[All, lisvar[[j]]]]}], {_Integer, _Integer}];
   N[CorrelationTest[listemp], 2], {i, 1, Length[lisvar]}, {j, 1, Length[lisvar]}];
corrTab = Table[listemp = Cases[Transpose[{Normal[dataset2[All, lisvar[[i]]]],
        Normal[dataset2[All, lisvar[[j]]]]}], {_Integer, _Integer}];
   N[Correlation[listemp[[All, 1]], listemp[[All, 2]]]]
   , {i, 1, Length[lisvar]}, {j, 1, Length[lisvar]}];
corrTabTable = TableForm[corrTab,
   TableHeadings → {hashVarNames /@ lisvar, hashVarNames /@ lisvar}];
headerString = StringJoin[" & " <> # & /@ hashVarNames /@ lisvar] <>
   "\\\\\n \\midrule\n ";
colString = "l|" <> StringJoin[Table["c", {i, 1, Length[corrTab]}]];
corrTabTex =
  "\n\n\\begin{tabular}{" <> colString <> "}\n\\toprule\n" <> headerString <>
   StringJoin[Table[StringJoin[" " <> hashVarNames[lisvar[[j]]], Table[
         " & \\nprounddigits{2}" <> If[ corrTabTeste[[i, j]] > 0.05, "\\numprint{" <>
            ToString[CForm[corrTab[[i, j]]]], "{\\bf \\numprint{ " <> ToString[
             CForm[corrTab[[i, j]]]] <> "}" ] <> "}", {i, 1, Length[corrTab]}]] <>
      "\\\\\n", {j, 1, Length[corrTab]}]] <> " \\bottomrule\n\\end{tabular}";
Export["/Users/neylemke/Dropbox/Luisa/tese/corrdrogasaudesc.tex",
  corrTabTex, "String"];
compilaTex[corrTabTex, prefix]
```

Out[1363]=

	LB:AUDITESC	LB:DROGAS30	LB:DROGAS12	6:AUDITESC	6:DROGAS30	12:AUDITESC	12:DROGAS30
LB:AUDITESC	**1,00**	**0,18**	**0,30**	0,06	**0,28**	−0,04	0,06
LB:DROGAS30	**0,18**	**1,00**	**0,82**	**0,20**	**0,54**	**0,14**	**0,32**
LB:DROGAS12	**0,30**	**0,82**	**1,00**	**0,20**	**0,60**	0,11	**0,25**
6:AUDITESC	0,06	**0,20**	**0,20**	**1,00**	**0,33**	**0,56**	0,08
6:DROGAS30	**0,28**	**0,54**	**0,60**	**0,33**	**1,00**	0,05	**0,38**
12:AUDITESC	−0,04	**0,14**	0,11	**0,56**	0,05	**1,00**	**0,28**
12:DROGAS30	0,06	**0,32**	**0,25**	0,08	**0,38**	**0,28**	**1,00**

Out[1334]=

	LB:AUDITESC	LB:DROGAS30	LB:DROGAS12	6:AUDITESC	6:DROGAS30	12:AUDITESC	12:DROGAS30
LB:AUDITESC	**1,00**	**0,18**	**0,30**	0,06	**0,28**	−0,04	0,06
LB:DROGAS30	**0,18**	**1,00**	**0,82**	**0,20**	**0,54**	**0,14**	**0,32**
LB:DROGAS12	**0,30**	**0,82**	**1,00**	**0,20**	**0,60**	0,11	**0,25**
6:AUDITESC	0,06	**0,20**	**0,20**	**1,00**	**0,33**	**0,56**	0,08
6:DROGAS30	**0,28**	**0,54**	**0,60**	**0,33**	**1,00**	0,05	**0,38**
12:AUDITESC	−0,04	**0,14**	0,11	**0,56**	0,05	**1,00**	**0,28**
12:DROGAS30	0,06	**0,32**	**0,25**	0,08	**0,38**	**0,28**	**1,00**

In[1191]:=

```
Prepend[Prepend[Table[par = geraCorr[lisvar[[i]], lisvar[[j]]];
      If[par[[2]] < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]],
      {i, 1, Length[lisvar]}, {j, 1, Length[lisvar]}], lisvar] //
    Transpose, lisvar2] // Transpose // Grid
```

var name	AUDITC	DROGAS30	DROGAS12	z6AUDITC	z6DROGAS30	z12AUDITC	z12DROGAS30

Out[1191]=

AUDITC	If[AUDITC < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]]	If[DROGAS30 < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]]	If[DROGAS12 < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]]	If[z6AUDITC < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]]	If[z6DROGAS30 < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]]	If[z12AUDITC < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]]	If[z12DROGAS30 < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]]
DROGAS30	If[AUDITC < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]]	If[DROGAS30 < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]]	If[DROGAS12 < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]]	If[z6AUDITC < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]]	If[z6DROGAS30 < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]]	If[z12AUDITC < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]]	If[z12DROGAS30 < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]]
DROGAS12	If[AUDITC < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]]	If[DROGAS30 < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]]	If[DROGAS12 < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]]	If[z6AUDITC < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]]	If[z6DROGAS30 < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]]	If[z12AUDITC < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]]	If[z12DROGAS30 < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]]
z6AUDITC	If[AUDITC < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]]	If[DROGAS30 < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]]	If[DROGAS12 < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]]	If[z6AUDITC < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]]	If[z6DROGAS30 < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]]	If[z12AUDITC < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]]	If[z12DROGAS30 < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]]

```
z6DROGAS30  If[AUDITC < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]]  If[DROGAS30 < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]]  If[DROGAS12 < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]]  If[z6AUDITC < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]]  If[z6DROGAS30 < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]]  If[z12AUDITC < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]]  If[z12DROGAS30 < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]]
z12AUDITC  If[AUDITC < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]]  If[DROGAS30 < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]]  If[DROGAS12 < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]]  If[z6AUDITC < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]]  If[z6DROGAS30 < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]]  If[z12AUDITC < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]]  If[z12DROGAS30 < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]]
z12DROGAS30  If[AUDITC < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]]  If[DROGAS30 < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]]  If[DROGAS12 < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]]  If[z6AUDITC < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]]  If[z6DROGAS30 < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]]  If[z12AUDITC < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]]  If[z12DROGAS30 < 0.05, Style[par[[1]], Black], Style[par[[1]], Red]]
```

```
lisvar = {"AUDITC", "DROGAS30BIT", "DROGAS12BIT",
   "z6AUDITC", "z6DROGAS30BIT", "z12AUDITC", "z12DROGAS30BIT"};

corrTabTeste =
  Table[listemp = Cases[Transpose[{Normal[dataset2[All, lisvar[[i]]]], Normal[
        dataset2[All, lisvar[[j]]]]}], {_Integer, _Integer}];
   N[CorrelationTest[listemp], 2], {i, 1, Length[lisvar]}, {j, 1, Length[lisvar]}];
corrTab = Table[listemp = Cases[Transpose[{Normal[dataset2[All, lisvar[[i]]]],
       Normal[dataset2[All, lisvar[[j]]]]}], {_Integer, _Integer}];
   N[Correlation[listemp[[All, 1]], listemp[[All, 2]]]]
   , {i, 1, Length[lisvar]}, {j, 1, Length[lisvar]}];
corrTabTable =
 TableForm[corrTab, TableHeadings → {hashVarNames /@ lisvar, hashVarNames /@ lisvar}]
```

	LB:AUDITC	LB:DROGAS30	LB:DROGAS12	6:AUDITC	6:DROGAS30	1
LB:AUDITC	1.	0.255164	0.207206	0.196494	0.242668	(
LB:DROGAS30	0.255164	1.	0.716903	0.298139	0.381742	(
LB:DROGAS12	0.207206	0.716903	1.	0.329318	0.397508	(
6:AUDITC	0.196494	0.298139	0.329318	1.	0.394896	(
6:DROGAS30	0.242668	0.381742	0.397508	0.394896	1.	(
12:AUDITC	0.202875	0.395852	0.344292	0.537164	0.134535	1
12:DROGAS30	0.0564159	0.358624	0.247055	0.0491241	0.206708	(

```
headerString =
  StringJoin[" & " <> # & /@ hashVarNames /@ lisvar] <> "\\\\\n \\midrule\n ";
colString = "l|" <> StringJoin[Table["c", {i, 1, Length[corrTab]}]];
corrTabTex =
  "\n\n\\begin{tabular}{" <> colString <> "}\n\\toprule\n" <> headerString <>
   StringJoin[Table[StringJoin[" " <> hashVarNames[lisvar[[j]]], Table[
         " & \\nprounddigits{2}" <> If[ corrTabTeste[[i, j]] > 0.05, "\\numprint{" <>
            ToString[CForm[corrTab[[i, j]]]], "{\\bf \\numprint{ " <> ToString[
             CForm[corrTab[[i, j]]]] <> "}" ] <> "}", {i, 1, Length[corrTab]}]] <>
      "\\\\\n", {j, 1, Length[corrTab]}]] <> " \\bottomrule\n\\end{tabular}";
Export["/Users/neylemke/Dropbox/Luisa/tese/corrdrogasbit.tex",
 corrTabTex, "String"]
```

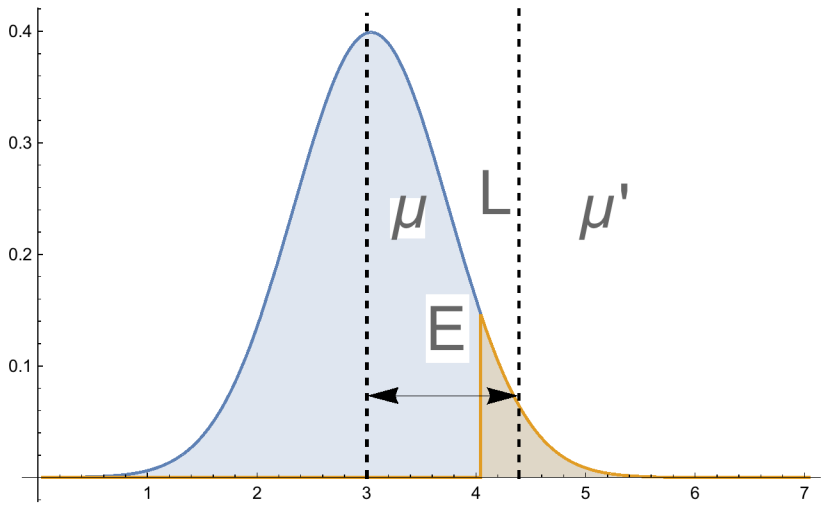
```
/Users/neylemke/Dropbox/Luisa/tese/corrdrogasbit.tex
```

Regressão à Média

Caso Gaussiano

```
Plot[{1 / (Sqrt[2 π]) Exp[- (x - 3) ^ 2], If[x > 4 , 1 / (Sqrt[2 π]) Exp[- (x - 3) ^ 2], 0]},
 {x, 0, 7}, Filling → Axis, PlotRange → All]
```

O objetivo é estimar a variação da média ao escolhermos indivíduos com variável x>L e no caso onde as medidas não estão correlacionadas e obedecem a mesma distribuição. Esse efeito é denotado pela variável E.



A quantidade E pode ser calculada através de :

$$E = \frac{\int_L^\infty x\,\mathrm{PDF}(x)\,dx}{\int_L^\infty \mathrm{PDF}(x)\,dx} - \mu$$

No Caso de uma Normal temos:

$$-\mu + \frac{\sqrt{\frac{2}{\pi}}\left(e^{-\frac{(L-\mu)^2}{2\sigma^2}}\sigma^2 + \sqrt{\frac{\pi}{2}}\,\mu\,\sigma\,\mathrm{Erfc}\left[\frac{L-\mu}{\sqrt{2}\,\sigma}\right]\right)}{\sigma\,\mathrm{Erfc}\left[\frac{L-\mu}{\sqrt{2}\,\sigma}\right]}$$

Que pode ser simplificado como :

$$\sigma\,\frac{\phi(z)}{\Phi(z)}$$

onde ϕ é a PDF da Normal Φ é a CDF e

$$z = \frac{c - \mu}{\sigma}$$

No caso com dados correlacionados temos:

$$E = \frac{\sigma_w^2}{\sqrt{\sigma_b^2 + \sigma_w^2}}\,\frac{\phi(z)}{\Phi(z)}$$

$$\sigma_t^2 = \sigma_b^2 + \sigma_w^2$$

$$z = \frac{c-\mu}{\sigma_t}$$

$$\sigma_b^2 = \rho\, \sigma_t^2$$

Temos que

$$\sigma_w^2 = \sigma_t^2 - \sigma_b^2 = \sigma_t^2 - \rho\, \sigma_t^2$$
$$= (1-\rho)\sigma_t^2$$

$$E = (1-\rho)\,(\phi(z))/\Phi(z)\,\sigma_t$$

Vamos definir uma função que estime o efeito sobre uma distribuição experimental.

Simulação

Vamos testar o caso ρ=0

Vamos testar essa expressão gerando um conjunto de dados gerados por simulação de Monte Carlo.

```
μ = 1.5;
σ = 2;
L = 4;
lispiloto = Table[RandomVariate[NormalDistribution[μ, σ]], {1000}];
lispart = Select[lispiloto, # > L &];
liswave = Table[RandomVariate[NormalDistribution[μ, σ]], {Length[lispart]}];
{Mean[lispart] - Mean[lispiloto], calcEfeito[lispiloto, L, 0]}
```

```
{3.48927, 3.50537}
```

Só para constar vamos aplicar isso nos nossos dados.

```
lisRTM = Cases[Normal[dataset1[All, "AUDITESC"]], _Integer] // N;
L = 4;
z = (L - Mean[lisRTM]) / StandardDeviation[lisRTM];
ρ = Abs[geraCorr[dataset1, "AUDITESC", "z6AUDITESC"][[1]]];
μ = Mean[lisRTM];
σ = StandardDeviation[lisRTM];
efeito = calcEfeito[lisRTM, L, ρ];
efeito / Abs[Mean[bbacomp[All, "z6AUDITESC"]] - Mean[bbacomp[All, "AUDITESC"]] // N]
```

```
0.723247
```

In[1438]:=

```
lisRTM = Cases[Normal[dataset1[All, "AUDITESC"]], _Integer] // N;
lisRTMC = Cases[Normal[dataset1[All, "AUDITC"]], _Integer] // N;
```

Caso Exponencial

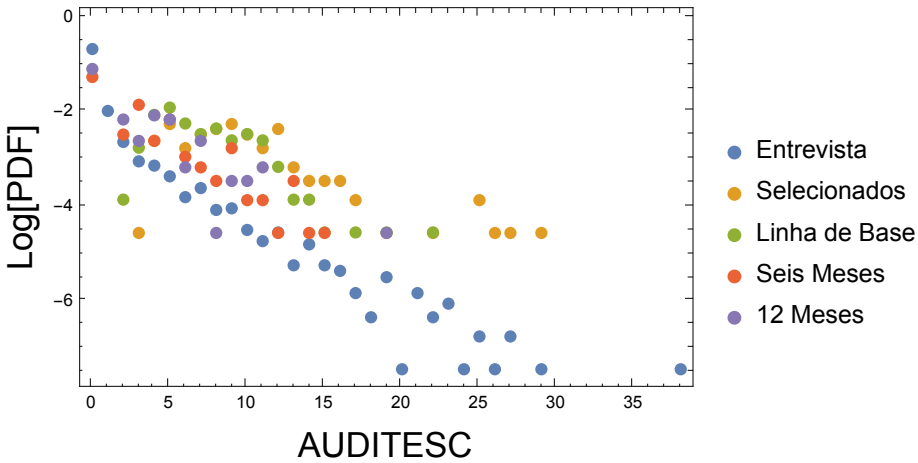
In[1428]:=

```
partlsd = Delete[Select[#, #RECUSAIB == 0 && #RecusaIB12 == 0 &] & /@
    (Delete[GroupBy[Select[dataset1, #RECUSA == 0 &], {#GRUPO} &], 1]), 1];
liscontrole = (Cases[Normal[partlsd[[1]][All, "AUDITESC"]], _Integer] // N);
lisintervencao = (Cases[Normal[partlsd[[2]][All, "AUDITESC"]], _Integer] // N);
liscontrole1 = (Cases[Normal[partlsd[[1]][All, "z1AUDITESC"]], _Integer] // N);
lisintervencao1 = (Cases[Normal[partlsd[[2]][All, "z1AUDITESC"]], _Integer] // N);
liscontrolez6 = (Cases[Normal[partlsd[[1]][All, "z6AUDITESC"]], _Integer] // N);
lisintervencaoz6 = (Cases[Normal[partlsd[[2]][All, "z6AUDITESC"]], _Integer] // N);
liscontrolez12 = (Cases[Normal[partlsd[[1]][All, "z12AUDITESC"]], _Integer] // N);
lisintervencaoz12 =
  (Cases[Normal[partlsd[[2]][All, "z12AUDITESC"]], _Integer] // N);
```

Vamos represntar nossos dados, junto com um ajuste linear. A linearidade da curva mostra de forma clara que os dados são distribuídos como um exponencial.

In[1440]:=
```
gr1 = ListPlot[{Tally[lisRTM] /. {x_, y_} → {x, Log[y / Length[lisRTM]]},
    Tally[Join[liscontrole, lisintervencao]] /.
     {x_, y_} → {x, Log[y / Length[Join[liscontrole, lisintervencao]]]},
    Tally[Join[liscontrole1, lisintervencao1]] /.
     {x_, y_} → {x, Log[y / Length[Join[liscontrole1, lisintervencao1]]]},
    Tally[Join[liscontrolez6, lisintervencaoz6]] /.
     {x_, y_} → {x, Log[y / Length[Join[liscontrolez6, lisintervencaoz6]]]},
    Tally[Join[liscontrolez12, lisintervencaoz12]] /.
     {x_, y_} → {x, Log[y / Length[Join[liscontrolez12, lisintervencaoz12]]]}},
   PlotStyle → PointSize[0.02], PlotLegends → PointLegend[{"Entrevista",
      "Selecionados", "Linha de Base", "Seis Meses", "12 Meses"}], Frame → True,
   FrameLabel → {Style["AUDITESC", FontSize → 18], Style["Log[PDF]", FontSize → 18]}]
```

Out[1440]=

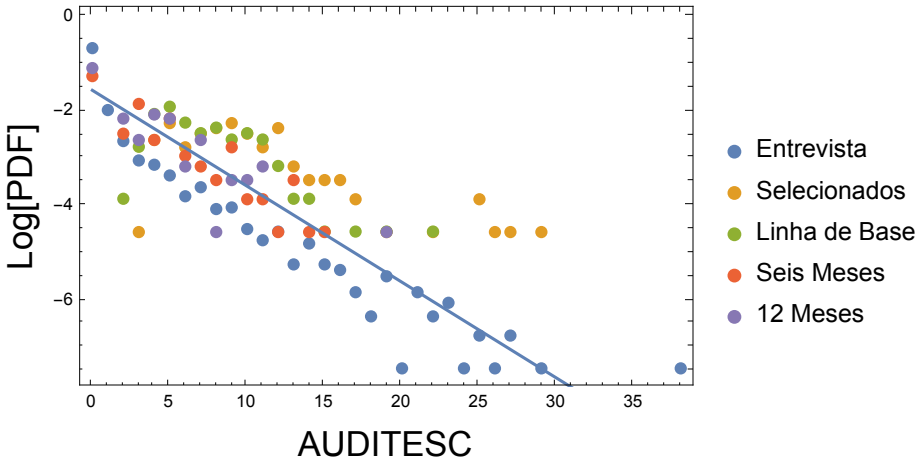


In[1441]:=
```
lm = LinearModelFit[Tally[Join[liscontrolez6, lisintervencaoz6]] /.
    {x_, y_} → {x, Log[y / Length[Join[liscontrolez6, lisintervencaoz6]]]}, x, x]
```

Out[1441]= FittedModel[-1.56848 - 0.202856 x]

In[1442]:=
```
gr4 = Plot[Normal[lm], {x, 0, 35}];
gr5 = Show[{gr1, gr4}]
```

Out[1443]=

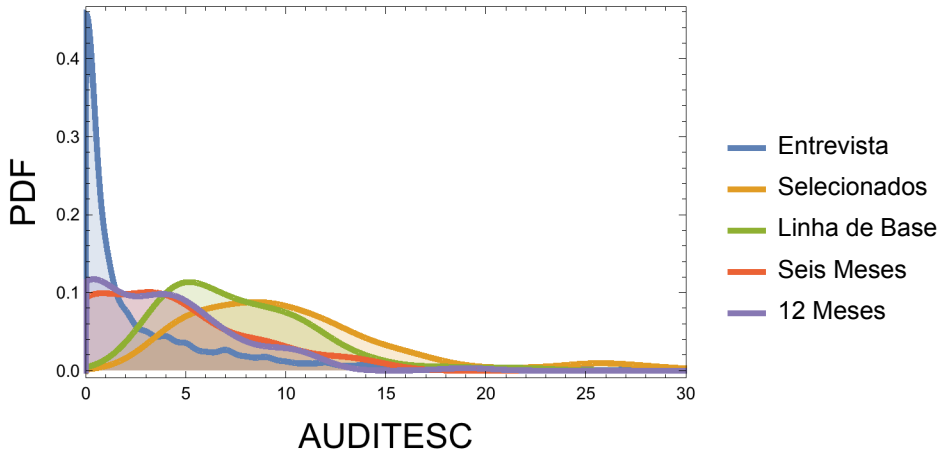


```
Export[prefix <> "expdist.pdf", gr5]
```

/Users/neylemke/Luisa/BancodeDadosDoutorado/expdist.pdf

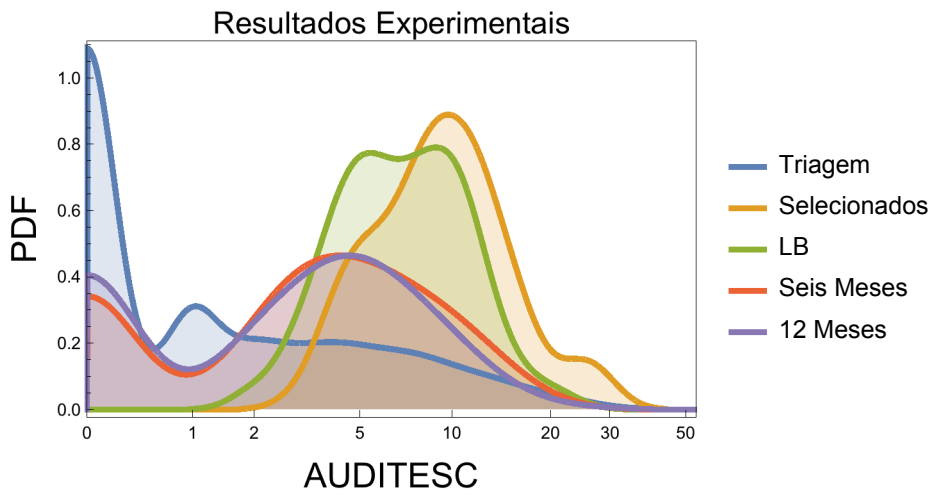
In[1444]:=
```
SmoothHistogram[{lisRTM, Join[liscontrole, lisintervencao],
  Join[liscontrole1, lisintervencao1], Join[liscontrolez6, lisintervencaoz6],
  Join[liscontrolez12, lisintervencaoz12]}, PlotLegends → LineLegend[
   {"Entrevista", "Selecionados", "Linha de Base", "Seis Meses", "12 Meses"}],
 Axes → True, PlotRange → {{0, 30}, All}, Filling → Bottom,
 PlotStyle → {Thickness[0.01]}, Frame → True,
 FrameLabel → {Style["AUDITESC", FontSize → 18], Style["PDF", FontSize → 18]}]
```

Out[1444]=



In[2201]:=
```
gr1 = SmoothHistogram[Log[# + 1] & /@ {lisRTM, Join[liscontrole, lisintervencao],
    Join[liscontrole1, lisintervencao1], Join[liscontrolez6, lisintervencaoz6],
    Join[liscontrolez12, lisintervencaoz12]}, PlotLegends →
   LineLegend[{"Triagem", "Selecionados", "LB", "Seis Meses", "12 Meses"}],
  Axes → True, PlotRange → {{0, 4}, All}, Filling → Bottom,
  PlotStyle → {Thickness[0.01]}, Frame → True,
  FrameLabel → {Style["AUDITESC", FontSize → 18], Style["PDF", FontSize → 18]},
  FrameTicks → {{Automatic, None}, {{0, {Log[1 + 1], 1}, {Log[3], 2}, {Log[6], 5},
      {Log[11], 10}, {Log[21], 20}, {Log[31], 30}, {Log[51], 50}}, None}},
  PlotLabel → Style["Resultados Experimentais", "FontSize" → 16]]
```

Out[2201]=



In[2202]:=
```
Export[prefix <> "logdist.pdf", gr1]
```

Out[2202]= /Users/neylemke/Luisa/BancodeDadosDoutorado/logdist.pdf

No caso de uma distribuição exponencial

$$\text{PDF}(x) = \frac{e^{-\beta x}}{\beta}$$

Podemos testar essa previão nos nossos dados:

```
Exp[lm["BestFitParameters"][[1]]]
```

```
β = -lm["BestFitParameters"][[2]]
```

0.208361

0.202856

Note que aplicamos o logaritmo antes de realizar a modelagem.

Outra hipótese testável é que os casos mais extremos, θ, observados devem obeder a equação :

$$N \frac{e^{-\beta \theta}}{\beta} \sim 1$$

$$-\beta \theta = \text{Log}\left(\frac{\beta}{N}\right)$$

$$\theta = \frac{-1}{\beta} \text{Log}\left(\frac{\beta}{N}\right)$$

```
-Log[β / 2000] / β
```

```
45.3334
```

```
-Log[β / 84] / β
```

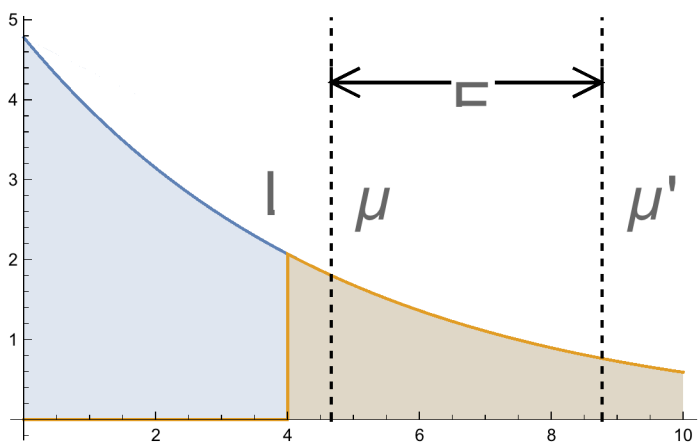
```
28.6532
```

Comparando com os dados observamos que esses resultados
são compatíveis com os dados empíricos. O que fortalece a idéia de que essa distribuição é exponencial.

Vamos generalizar os resultados anteriores para esse caso:

$$E = \frac{\int_L^\infty x \, \text{PDF}(x) \, dx}{\int_L^\infty \text{PDF}(x) \, dx} - \mu$$

```
Plot[{(1 / β) Exp[-β x], If[x > 4 , (1 / β) Exp[-β x], 0]},
 {x, 0, 10}, Filling → Axis, PlotRange → All]
```



```
Clear[L, μ, σ, x, β];
Integrate[x 1 / β Exp[-β x], {x, L, ∞}, Assumptions → {σ > 0}] /
  Integrate[1 / β Exp[-β x], {x, L, ∞}, Assumptions → {σ > 0}] -
 Integrate[x 1 / β Exp[-β x], {x, 0, ∞}, Assumptions → {β > 0}] /
  Integrate[1 / β Exp[-β x], {x, 0, ∞}, Assumptions → {Re[β] > 0}]
```

$$\text{ConditionalExpression}\left[-\frac{1}{\beta}+\frac{1+L\,\beta}{\beta},\ \text{Re}[\beta]>0\right]$$

$$\textbf{Simplify}\left[-\frac{1}{\beta}+\frac{1+L\,\beta}{\beta}\right]$$

L

Calculamos também o desvio padrão desse caso.

```
Clear[L, μ, σ, x];
Integrate[x^2 1 / β Exp[-β x], {x, L, ∞}, Assumptions → {σ > 0}] /
  Integrate[1 / β Exp[-β x], {x, L, ∞}, Assumptions → {σ > 0}] -
 (Integrate[x 1 / β Exp[-β x], {x, L, ∞}, Assumptions → {β > 0}] /
    Integrate[1 / β Exp[-β x], {x, L, ∞}, Assumptions → {Re[β] > 0}])^2
```

$$\text{ConditionalExpression}\left[-\frac{(1+L\,\beta)^2}{\beta^2}+\frac{2+L\,\beta\,(2+L\,\beta)}{\beta^2},\ \text{Re}[\beta]>0\right]$$

$$\textbf{Sqrt}\left[\textbf{Simplify}\left[-\frac{(1+L\,\beta)^2}{\beta^2}+\frac{2+L\,\beta\,(2+L\,\beta)}{\beta^2}\right]\right]$$

$$\sqrt{\frac{1}{\beta^2}}$$

Esse resultado mostra que efeito é L e o desvio é igual a $1/\beta$. Na tabela abaixo reunimos esses resultados.

```
Clear[μ, σ, L, β]
Grid[{ {"Distribuição", μ , σ},
  {"Exponencial", 1 / β, 1 / β},
  {"Exp. com Limiar", L + 1 / β, 1 / β}}, Dividers → All
]
```

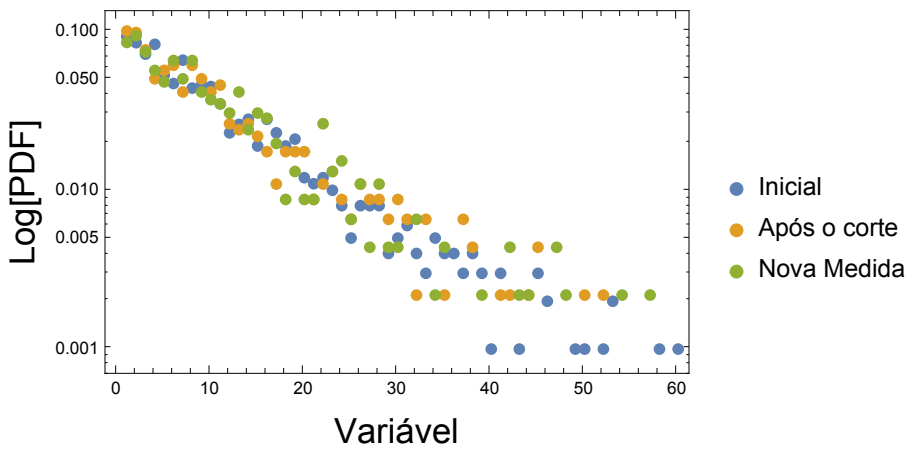
Distribuição	μ	σ
Exponencial	$\frac{1}{\beta}$	$\frac{1}{\beta}$
Exp. com Limiar	$L+\frac{1}{\beta}$	$\frac{1}{\beta}$

Podemos comparar com os resultados de simulações de Monte Carlo.

```
λ = β;
β = 0.2;
L = 4;
lispiloto = Table[RandomVariate[ExponentialDistribution[λ]], {1000}];
lispart = Select[lispiloto, # > L &];
liswave = Table[RandomVariate[ExponentialDistribution[λ]], {Length[lispart]}];
{Mean[lispart] - Mean[lispiloto], L}
```

```
{3.88531, 4}
```

```
ListLogPlot[N[BinCounts[#, 0.5] / Length[#] & /@ {lispiloto, lispart, liswave}],
 PlotStyle → PointSize[0.02], PlotLegends →
  PointLegend[{"Inicial", "Após o corte", "Nova Medida"}], Frame → True,
 FrameLabel → {Style["Variável", FontSize → 18], Style["Log[PDF]", FontSize → 18]}]
```



A fração do efeito nesse caso explicada por RTM é 0.74737139.

In[2210]:=

```
fefeito =
  fefeito = calcEfeito[lisRTM, 4, 0] / Abs[Mean[Join[liscontrole, lisintervencao]] -
      Mean[Join[liscontrolez6, lisintervencaoz6]] // N];
dist = Table[
   L = 4;
   λ = 0.209;
   lispiloto = Table[RandomVariate[ExponentialDistribution[λ]], {84}];
   lispart = Select[lispiloto, # > L &];
   liswave = Table[RandomVariate[ExponentialDistribution[λ]], {Length[lispart]}];
   L / (Mean[lispart] - Mean[lispiloto]), {10 000}];
pvalue = Length[Select[dist, # < fefeito &]] / Length[dist] // N;
```

In[1448]:=
```
fefeito
```
Out[1448]= 0.747371

```
StringTemplate[
  "A fração do efeito nesse caso explicada por RTM é `fracao`. Podemos
    através de uma simulação de Monte Carlo estimar a significância
    Estatísitca desse resultado em `pvalue`. Conclusão
o efeito medido é maior que o esperado. "][<| "fracao" → fefeito,
  "pvalue" → pvalue|>]
```

A fração do efeito nesse caso explicada por RTM é 0.74737139.
Podemos através de uma simulação de Monte Carlo estimar a
significância Estatísitca desse resultado em 0.021. Conclusão
o efeito medido é maior que o esperado.

In[1449]:=
```
fefeito = calcEfeito[lisRTM, 4, 0] /
  Abs[Mean[Join[liscontrole, lisintervencao]] - Mean[lisRTM] // N]
```
Out[1449]= 0.584771

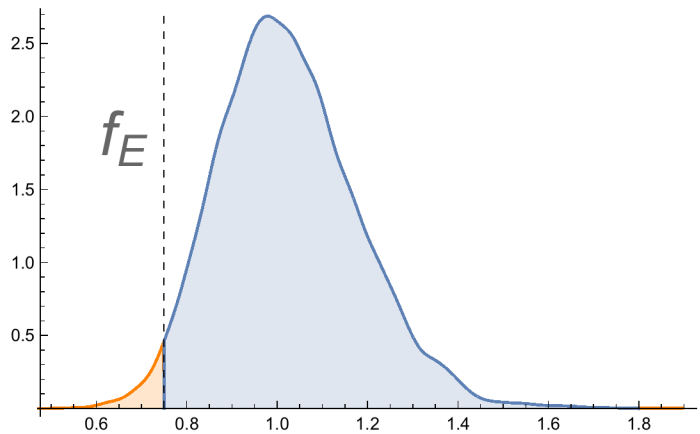
```
fefeito = calcEfeito[lisRTM, 4, 0]
```
4.52315

In[1450]:=
```
Abs[Mean[Join[liscontrole, lisintervencao]] -
  Mean[Join[liscontrolez6, lisintervencaoz6]]]
```
Out[1450]= 6.05208

```
calcEfeito[lisRTM, 4, 0]
```
4.52315

In[1451]:=
```
1 / 2.5
```
Out[1451]= 0.4

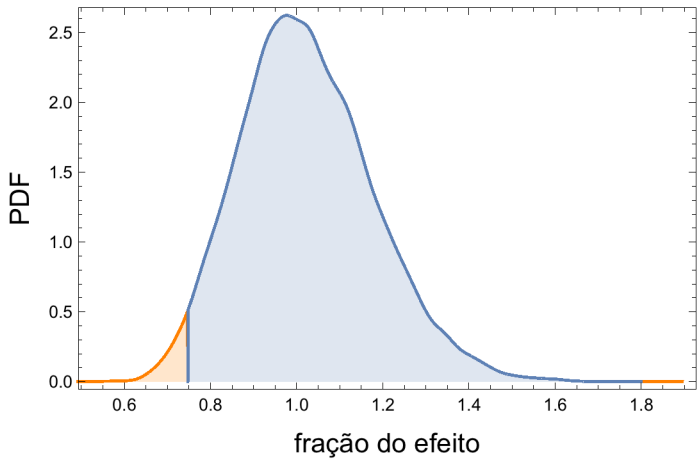
In[2213]:=
```
frametext = Style[#, "FontSize" → 14] & /@ {"fração do efeito", "PDF"};
gr1 = SmoothHistogram[dist, Filling → Bottom,
   PlotRange → {{fefeito, 1.8}, All}, Frame → True];
gr2 = SmoothHistogram[dist, Filling → Bottom,
   PlotRange → {{0, fefeito}, All}, PlotStyle → Orange];
gr3 = SmoothHistogram[dist, PlotRange → {All, All},
   PlotStyle → Orange, Frame → True, FrameLabel → frametext];
Export[prefix <> "pvalue.pdf", Show[gr3, gr2, gr1]]
```
Out[2217]= /Users/neylemke/Luisa/BancodeDadosDoutorado/pvalue.pdf



In[2218]:=

```
Show[gr3, gr2, gr1]
```

Out[2218]=



Grupo Risco mais Restrito

```
bbariscorest = Select[bbarisco,
   #AUDITESC ≥ 8 && (#GRUPO == "C" || #GRUPO == "I") && #RECUSA == 0 && #RecusaIB6 == 0 &];
```

```
(bbariscorest[All, "z6AUDITESC"] // Mean // N)
```

```
4.32911
```

```
(bbariscorest[All, "AUDITESC"] // Mean // N)
```

```
12.7342
```

```
(bbariscorest[All, "AUDITESC"] // Mean // N) -
 (bbariscorest[All, "z6AUDITESC"] // Mean // N)
```

```
8.40506
```

```
calcEfeito[lisRTM, 8, 0]
```

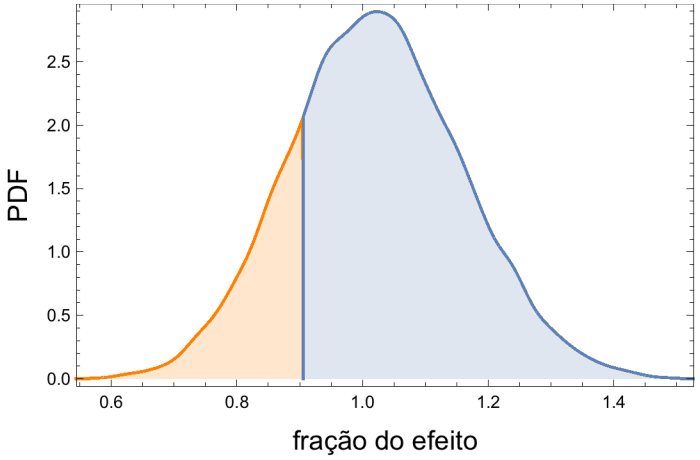
7.61034

```
7.61 / 8.40
```

0.905952

```
fefeito = calcEfeito[lisRTM, 8, 0] / Abs[(bbariscorest[All, "AUDITESC"] // Mean // N) -
      (bbariscorest[All, "z6AUDITESC"] // Mean // N)];
dist = Table[
   L = 8;
   λ = 0.209;
   lispiloto = Table[RandomVariate[ExponentialDistribution[λ]], {84}];
   lispart = Select[lispiloto, # > L &];
   liswave = Table[RandomVariate[ExponentialDistribution[λ]], {Length[lispart]}];
   L / (Mean[lispart] - Mean[lispiloto]), {10 000}];
pvalue = Length[Select[dist, # < fefeito &]] / Length[dist] // N;
```

```
frametext = Style[#, "FontSize" → 14] & /@ {"fração do efeito", "PDF"};
gr1 = SmoothHistogram[dist, Filling → Bottom,
   PlotRange → {{fefeito, 1.8}, All}, Frame → True];
gr2 = SmoothHistogram[dist, Filling → Bottom,
   PlotRange → {{0, fefeito}, All}, PlotStyle → Orange];
gr3 = SmoothHistogram[dist, PlotRange → {All, All},
   PlotStyle → Orange, Frame → True, FrameLabel → frametext];
Show[gr3, gr2, gr1]
```



Simulação do Modelo pqq

Vamos inicialmente definir as variáveis.

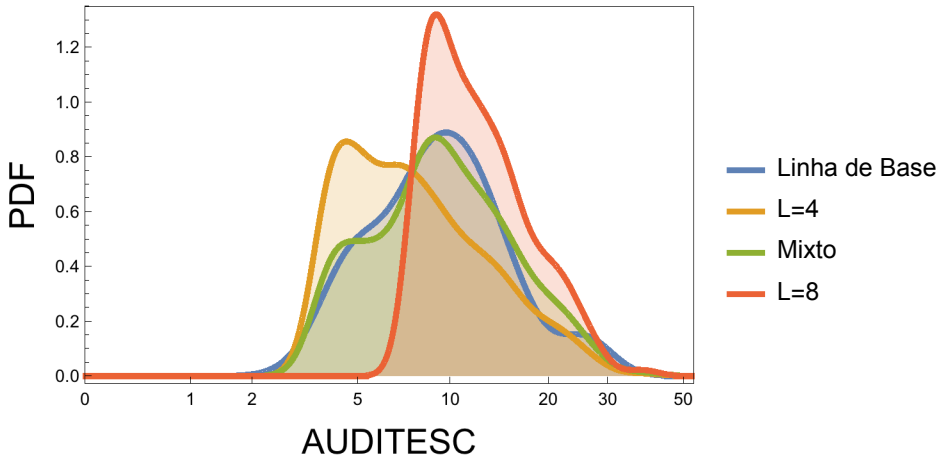
```
lisRTM = Cases[Normal[dataset1[All, "AUDITESC"]], _Integer] // N;
partlsd = Delete[Select[#, #RECUSAIB == 0 && #RecusaIB12 == 0 &] & /@
    (Delete[GroupBy[Select[dataset1, #RECUSA == 0 &], {#GRUPO} &], 1]), 1];
liscontrole = (Cases[Normal[partlsd[[1]][All, "AUDITESC"]], _Integer] // N);
lisintervencao = (Cases[Normal[partlsd[[2]][All, "AUDITESC"]], _Integer] // N);
liscontrole1 = (Cases[Normal[partlsd[[1]][All, "z1AUDITESC"]], _Integer] // N);
lisintervencao1 = (Cases[Normal[partlsd[[2]][All, "z1AUDITESC"]], _Integer] // N);
liscontrolez6 = (Cases[Normal[partlsd[[1]][All, "z6AUDITESC"]], _Integer] // N);
lisintervencaoz6 = (Cases[Normal[partlsd[[2]][All, "z6AUDITESC"]], _Integer] // N);
liscontrolez12 = (Cases[Normal[partlsd[[1]][All, "z12AUDITESC"]], _Integer] // N);
lisintervencaoz12 =
  (Cases[Normal[partlsd[[2]][All, "z12AUDITESC"]], _Integer] // N);
size = Length[Join[liscontrole, lisintervencao]];
size0 = Length[lisRTM];
```

Geração de um Modelo para o Grupo Risco

A idéia é considerar todos com Audit alto e parte dos com 4<=AUDITESC<8. Empiricamente a fração mais adequada foi de 40%.

```
lisRTM4 = Select[lisRTM, # >= 4 &];
lisRTM8 = Select[lisRTM, # >= 8 &];
temp = Select[lisRTM, # >= 4 && # < 8 &];
lisRTM45 = Join[RandomSample[temp, Floor[Length[temp] / 2.5]], lisRTM8];
```

```
gr2 = SmoothHistogram[{Log[Join[liscontrole, lisintervencao] + 1],
    Log[lisRTM4 + 1], Log[lisRTM45 + 1], Log[lisRTM8 + 1]},
  PlotLegends → LineLegend[{"Linha de Base", "L=4",  "Mixto", "L=8"}],
  Axes → True, PlotRange → {{0, 4}, All}, Filling → Bottom,
  Filling → Bottom, PlotStyle → {Thickness[0.01]}, Frame → True,
  FrameLabel → {Style["AUDITESC", FontSize → 18], Style["PDF", FontSize → 18]},
  FrameTicks → {{Automatic, None}, {{0, {Log[1 + 1], 1}, {Log[3], 2}, {Log[6], 5},
      {Log[11], 10}, {Log[21], 20}, {Log[31], 30}, {Log[51], 50}}, None}}]
```




```
Export[prefix <> "gerarlb.pdf", Show[gr2]]
```

/Users/neylemke/Luisa/BancodeDadosDoutorado/gerarlb.pdf

Determinação dos parâmetros ótimos p e q

Para determinar p e q ótimos. Calculamos a soma cumulativa do Log(f_i + 1).

$$\varphi_f\ (k) = \sum_{i=0}^{k} \mathrm{Log}\ (f_i + 1)$$

Essa quantidade foi utilizada pois é finita se $f_i = 0$ e diminui o efeito de concentração das frequências nas proximidades de 0. Para comparar duas distribuições quaisquer usamos uma versão discreta da Métrica de Kolmogorov:

$$\in\ (f,\ g) = \sum_{k=0}^{M} |\ \varphi_f\ (k) - \varphi_g\ (k)\ |$$

onde M é o valor máximo entre os valores presentes em f e em g.

Para determinar o modelo ideal rodamos um programa em python e geramos várias comparações entre as distribuições obtidas por simulação e as distribuições experimentais e determinamos os

parâmetros mais próximos.

In[1452]:=

```
size0 = Length[lisRTM];
size = Length[Join[liscontrole, lisintervencao]];

listDist = ParallelTable[Print[p, ",", q]; Sum[
      simul = Table[Steps[p, q, 0, 150], {size0}];
      temp1 = Select[simul, # >= 8 &];
      temp2 = Select[simul, # < 8 && # >= 4 &];
      temp3 = RandomSample[temp2, Floor[Length[temp2] / 2.5]];
      temp4 = Join[temp1, temp3];
      sizelocal = Length[temp4];
      simul2 = RandomSample[temp4, Min[Length[temp4], size]];
      (* Print[sizelocal,",",size,",",Length[simul2]]; *)
      simul3 = Steps[p, q, #, 25] & /@ simul2;
   simul4 = Steps[p, q, #, 25] & /@ simul3;
      {p, q, compara[simul, lisRTM]}, {j, 1, 100}] / 100,
   {p, 0.6, 0.99, 0.01}, {q, 0.50, 0.65, 0.005}];
distListPythonTri = Flatten[listDist, 1];
```

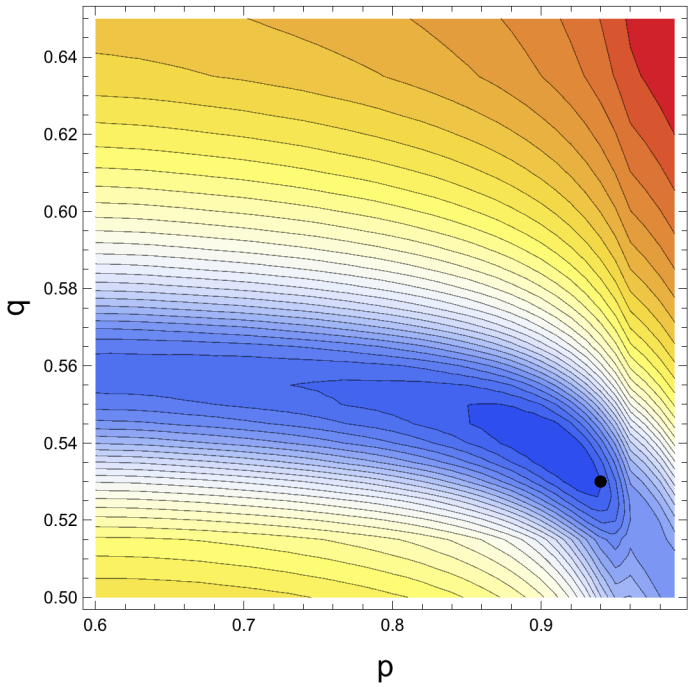
In[1456]:=

```
distListPythonTri = Flatten[listDist, 1];
{p, q, error} = First[MinimalBy[distListPythonTri, Last] // N];
```

In[1458]:=

```
frametext = Style[#, "FontSize" → 16] & /@ {"p", "q"};
lispoints = distListPythonTri /. {x_, y_, z_} → {x, y};
lisfilt =
  Flatten[MeanFilter[Partition[distListPythonTri, 31] /. {x_, y_, z_} → Log[z], 3]];
gr1 = ListContourPlot[Table[Append[lispoints[[i]], lisfilt[[i]]],
    {i, 1, Length[lispoints]}], Contours → 30,
  ColorFunction → ColorData["TemperatureMap"],
  Epilog → {PointSize[0.02], Point[{p, q}]}, FrameLabel → frametext]
```

Out[1461]=



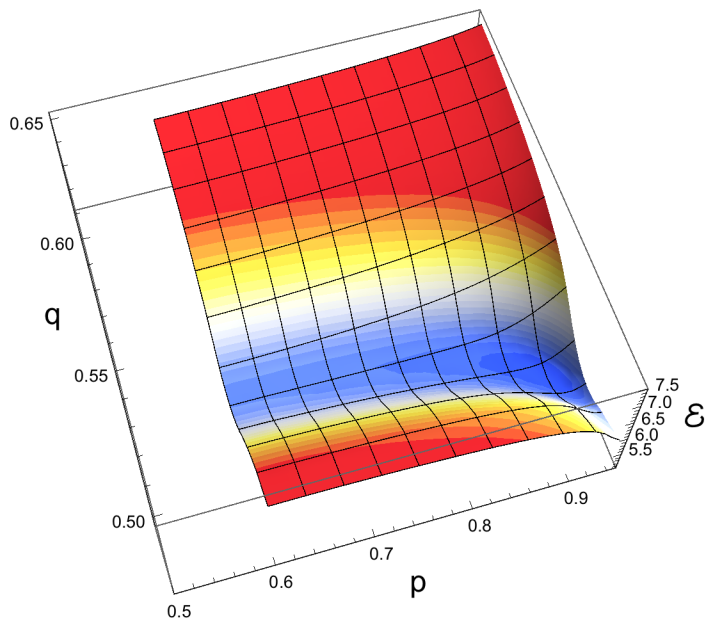

```
Export[prefix <> "erro2d.pdf", gr1]
```

/Users/neylemke/Luisa/BancodeDadosDoutorado/erro2d.pdf

In[2225]:=

```
frametext = Style[#, "FontSize" → 16] & /@ {"p", "q", "  ℰ"};
gr1 =
 ListPlot3D[Table[Append[lispoints[[i]], lisfilt[[i]]], {i, 1, Length[lispoints]}],
  InterpolationOrder → 3, ColorFunction → "Temperature",
  PlotRange → {{0.5, 0.95}, Automatic, Automatic}, MeshFunctions → {#3 &, #1 &, #2 &},
  Mesh → {30, 10, 10}, MeshStyle → {None, Automatic, Automatic}, MeshShading →
   {{Directive[{EdgeForm[], #}] & /@ Table[ColorData["TemperatureMap"][shade],
       {shade, 0, 2, 0.05}]}}, AxesLabel → frametext]


Export[prefix <> "erro3d.pdf", Show[gr1]]
```

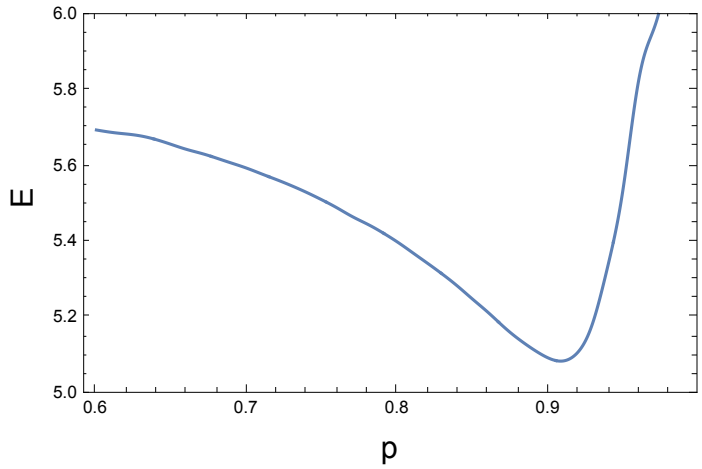
Out[2226]=



Out[2227]= /Users/neylemke/Luisa/BancodeDadosDoutorado/erro3d.pdf

In[1465]:=
```
frametext = Style[#, "FontSize" → 16] & /@ {"p", " E"};
gr1 = ListPlot[
  Select[Table[Append[lispoints[[i]], lisfilt[[i]]], {i, 1, Length[lispoints]}],
    #[[2]] == 0.54 &] /. {x_, y_, z_} → {x, z}, Frame → True, FrameLabel → frametext,
  Joined → True, InterpolationOrder → 5, PlotRange → {Automatic, {5, 6}}]
Export[prefix <> "erro1d.pdf", Show[gr1]]
```

Out[1466]=

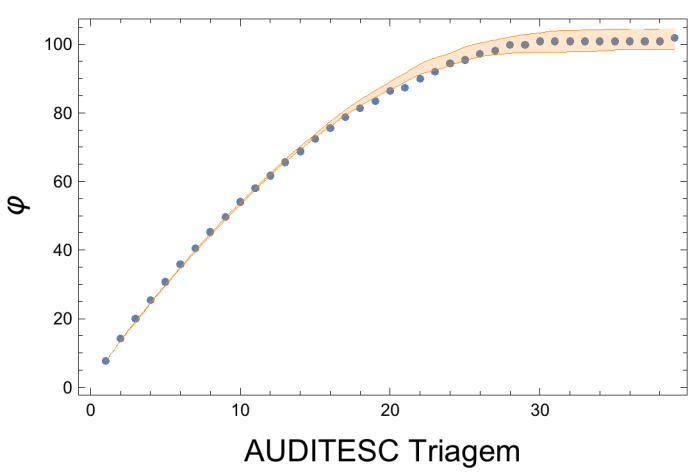


Out[1467]= /Users/neylemke/Luisa/BancodeDadosDoutorado/erro1d.pdf

In[2336]:=

```
lisvariassimul = {};
lisvariassimul2 = {};
lisvariassimul3 = {};
lisvariassimul4 = {};
{p, q, error} = First[MinimalBy[distListPythonTri, Last] // N];
size0 = Length[lisRTM];
size = Length[Join[liscontrole, lisintervencao]];
Do[
 simul = (Nest[Step[p, q], #, 150] & /@ Table[0, {size0}]);
 lisvariassimul = Append[lisvariassimul, simul];
 temp1 = Select[simul, # >= 8 &];
 temp2 = Select[simul, # < 8 && # >= 4 &];
 temp3 = RandomSample[temp2, Floor[Length[temp2] / 2.5]];
 temp4 = Join[temp1, temp3];
 sizelocal = Length[temp4];
 simul2 = RandomSample[temp4, Min[Length[temp4], size]];
 simul3 = Nest[Step[p, q], #, 25] & /@ simul2;
   simul4 = Nest[Step[p, q], #, 25] & /@ simul3;
 lisvariassimul2 = Append[lisvariassimul2, simul2];
 lisvariassimul3 = Append[lisvariassimul3, simul3];
 lisvariassimul4 = Append[lisvariassimul3, simul4];
 ,
 {10}]
lisdata = lisRTM;
lisSumvarias = geraParcialSums[#, Min[lisdata], Max[lisdata]] & /@ lisvariassimul;
lisExp = geraParcialSums[lisdata, Min[lisdata], Max[lisdata]];
frametext = Style[#, "FontSize" → 16] & /@ {"AUDITESC Triagem", "φ"};
gr1 = Show[{ListPlot[lisExp, Frame → True, FrameLabel → frametext],
   ListPlot[{Mean[lisSumvarias] + StandardDeviation[lisSumvarias],
     Mean[lisSumvarias] - StandardDeviation[lisSumvarias]}, Joined → True,
    Filling → {1 → {2}}, PlotStyle → {{Thin, Orange}}, InterpolationOrder → 5]
  }]
Export[prefix <> "varphipqqtri.pdf", Show[gr1]]
```

Out[2348]=

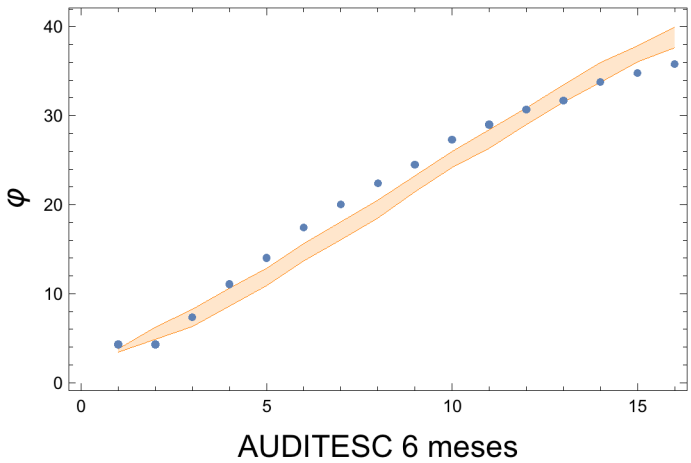


Out[2349]= /Users/neylemke/Luisa/BancodeDadosDoutorado/varphipqqtri.pdf

In[1482]:=

```
frametext = Style[#, "FontSize" → 16] & /@ {"AUDITESC 6 meses", "φ"};
lisdata = Join[liscontrolez6, lisintervencaoz6];
lisdatasimul = lisvariassimul3;
lisSumvarias = geraParcialSums[#, Min[lisdata], Max[lisdata]] & /@ lisdatasimul;
lisExp = geraParcialSums[lisdata, Min[lisdata], Max[lisdata]];
gr1 = Show[{ListPlot[{Mean[lisSumvarias] + StandardDeviation[lisSumvarias],
      Mean[lisSumvarias] - StandardDeviation[lisSumvarias]},
     Joined → True, Filling → {1 → {2}}, PlotStyle → {{Thin, Orange}},
     Frame → True, FrameLabel → frametext], ListPlot[lisExp]
   }]
Export[prefix <> "varphipqqz6.pdf", Show[gr1]]
```

Out[1487]=

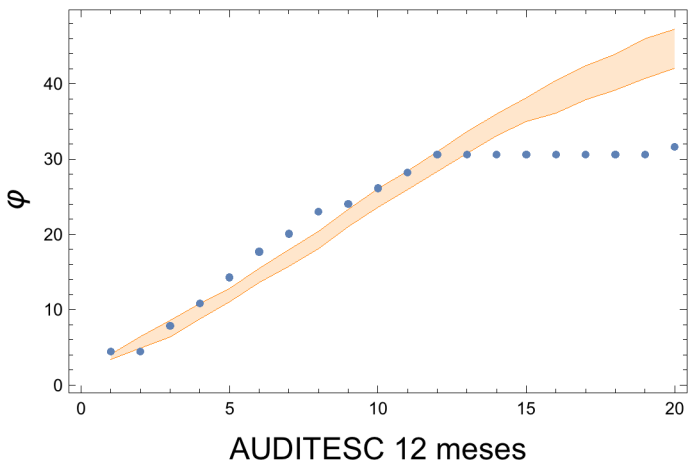


Out[1488]= /Users/neylemke/Luisa/BancodeDadosDoutorado/varphipqqz6.pdf

In[1489]:=

```
frametext = Style[#, "FontSize" → 16] & /@ {"AUDITESC 12 meses", "φ"};
lisdata = Join[liscontrolez12, lisintervencaoz12];
lisdatasimul = lisvariassimul4;
lisSumvarias = geraParcialSums[#, Min[lisdata], Max[lisdata]] & /@ lisdatasimul;
lisExp = geraParcialSums[lisdata, Min[lisdata], Max[lisdata]];
gr1 = Show[{ListPlot[{Mean[lisSumvarias] + StandardDeviation[lisSumvarias],
      Mean[lisSumvarias] - StandardDeviation[lisSumvarias]},
     Joined → True, Filling → {1 → {2}}, PlotStyle → {{Thin, Orange}},
     Frame → True, FrameLabel → frametext], ListPlot[lisExp]
   }]

Export[prefix <> "varphipqqz12.pdf", Show[gr1]]
```

Out[1494]=



Out[1495]= /Users/neylemke/Luisa/BancodeDadosDoutorado/varphipqqz12.pdf

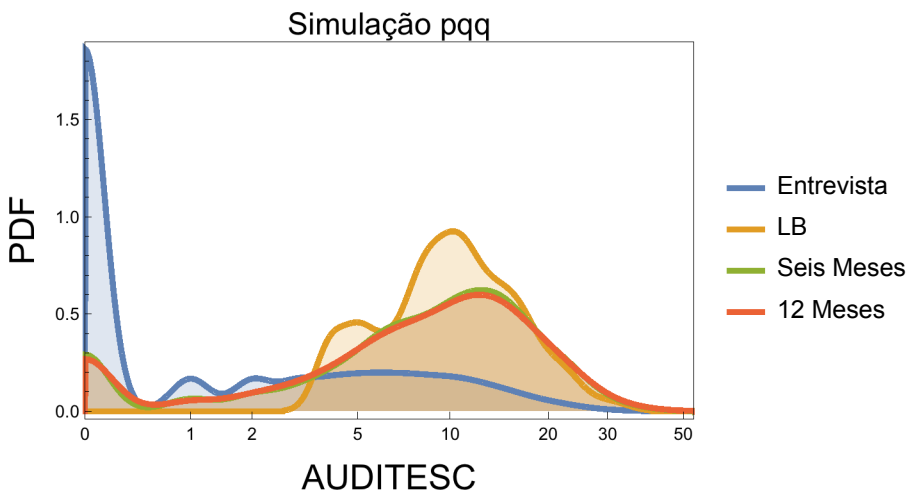
In[2317]:=

```
Mean[Mean /@ lisvariassimul3 - Mean[Join[liscontrolez6, lisintervencaoz6]]]
Mean[Mean /@ lisvariassimul4 - Mean[Join[liscontrolez12, lisintervencaoz12]]]
```

Out[2317]= 5.15521

Out[2318]= 5.66951

```
gr1 = SmoothHistogram[
  {Log[Flatten[lisvariassimul] + 1], Log[Flatten[lisvariassimul2] + 1],
   Log[Flatten[lisvariassimul3] + 1], Log[Flatten[lisvariassimul4] + 1]},
  PlotLegends → LineLegend[{"Entrevista", "LB", "Seis Meses", "12 Meses"}],
  Axes → True, PlotRange → {{0, 4}, All}, Filling → Bottom,
  PlotStyle → {Thickness[0.01]}, Frame → True,
  FrameLabel → {Style["AUDITESC", FontSize → 18], Style["PDF", FontSize → 18]},
  FrameTicks → {{Automatic, None}, {{0, {Log[1 + 1], 1}, {Log[3], 2}, {Log[6], 5},
      {Log[11], 10}, {Log[21], 20}, {Log[31], 30}, {Log[51], 50}}, None}},
  PlotLabel → Style["Simulação pqq", "FontSize" → 16]]
Export[prefix <> "expdistpqq.pdf", gr1]
```



/Users/neylemke/Luisa/BancodeDadosDoutorado/expdistpqq.pdf

Variacao no r

In[1498]:=

```
size0 = Length[lisRTM];
size = Length[Join[liscontrole, lisintervencao]];
{p, q, error} = First[MinimalBy[distListPythonTri, Last] // N]
listDistr = ParallelTable[Print[r]; Sum[
      simul = Table[Steps[p, q, 0, 150], {size0}];
      temp1 = Select[simul, # >= 8 &];
      temp2 = Select[simul, # < 8 && # >= 4 &];
      temp3 = RandomSample[temp2, Floor[Length[temp2] / 2.5]];
      temp4 = Join[temp1, temp3];
      sizelocal = Length[temp4];
      simul2 = RandomSample[temp4, Min[Length[temp4], size]];
      (* Print[sizelocal,",",size,",",Length[simul2]]; *)
      simul3 = Steps[p, r, #, 25] & /@ simul2;
    simul4 = Steps[p, r, #, 25] & /@ simul3;
      {r, compara[simul3, Join[liscontrolez6, lisintervencaoz6]] +
        compara[simul4, Join[liscontrolez12, lisintervencaoz12]]},
      {j, 1, 100}] / 100, {r, 0.50, 0.75, 0.005}];
```

Out[1500]= {0.94, 0.53, 57.7031}

(kernel 4) 0.5

(kernel 3) 0.525

(kernel 2) 0.55

(kernel 1) 0.575

(kernel 1) 0.58

(kernel 4) 0.505

(kernel 3) 0.53

(kernel 2) 0.555

(kernel 1) 0.585

(kernel 4) 0.51

(kernel 2) 0.56

(kernel 3) 0.535

(kernel 1) 0.59

(kernel 4) 0.515

(kernel 2) 0.565

(kernel 3) 0.54

(kernel 1) 0.595

(kernel 2) 0.57

(kernel 4) 0.52

(kernel 3) 0.545

(kernel 1) 0.6

(kernel 2) 0.615

(kernel 4) 0.635

(kernel 3) 0.655

(kernel 1) 0.605

(kernel 4) 0.64

(kernel 2) 0.62

(kernel 3) 0.66

(kernel 1) 0.61

(kernel 4) 0.645

(kernel 2) 0.625

(kernel 3) 0.665

(kernel 1) 0.675

(kernel 4) 0.65

(kernel 3) 0.67

(kernel 2) 0.63

(kernel 1) 0.68

(kernel 4) 0.695

(kernel 3) 0.715

(kernel 2) 0.735

(kernel 1) 0.685

(kernel 4) 0.7

(kernel 3) 0.72

(kernel 2) 0.74

(kernel 1) 0.69

(kernel 4) 0.705

(kernel 2) 0.745

(kernel 3) 0.725

(kernel 4) 0.71

(kernel 2) 0.75

(kernel 3) 0.73

```
simul2
```

```
{6, 16, 5, 16, 12, 7, 5, 9, 16, 15, 14, 8, 19, 13, 14, 19, 15, 9, 11, 9, 16, 8, 5, 11, 12,
 13, 5, 7, 16, 16, 6, 9, 25, 17, 12, 8, 5, 10, 11, 16, 9, 11, 5, 10, 8, 10, 12, 7, 10,
 8, 10, 21, 8, 12, 13, 13, 17, 6, 9, 10, 9, 11, 11, 5, 4, 11, 8, 6, 18, 10, 21, 8,
 10, 24, 4, 14, 5, 16, 4, 9, 6, 14, 16, 9, 21, 12, 21, 11, 10, 8, 5, 4, 17, 8, 8, 13}
```

In[1502]:=

```
distListPythonRisco = listDistr;
```

In[2319]:=

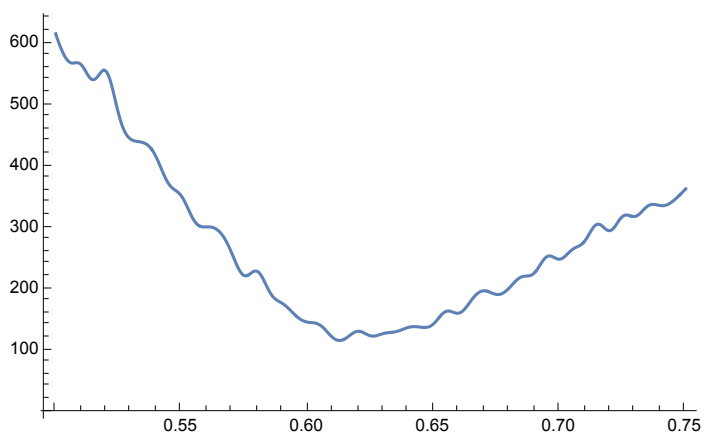
```
lisvariassimul = {};
lisvariassimul2 = {};
lisvariassimul3 = {};
lisvariassimul4 = {};
{p, q, error} = First[MinimalBy[distListPythonTri, Last] // N];
r = First[First[MinimalBy[distListPythonRisco, Last]]];
Do[

 simul = (Steps[p, q, #, 150] & /@ Table[0, {size0}]);
 lisvariassimul = Append[lisvariassimul, simul];
 temp1 = Select[simul, # >= 8 &];
 temp2 = Select[simul, # < 8 && # >= 4 &];
 temp3 = RandomSample[temp2, Floor[Length[temp2] / 2.5]];
 temp4 = Join[temp1, temp3];
 sizelocal = Length[temp4];
 simul2 = RandomSample[temp4, Min[Length[temp4], size]];
 simul3 = Steps[p, r, #, 25] & /@ simul2;
   simul4 = Steps[p, r, #, 25] & /@ simul3;
 lisvariassimul2 = Append[lisvariassimul2, simul2];
 lisvariassimul3 = Append[lisvariassimul3, simul3];
 lisvariassimul4 = Append[lisvariassimul4, simul4];
 ,
 {10}]

First[First[MinimalBy[distListPythonRisco, Last]]]
```

0.62

In[1510]:=

```
ListPlot[distListPythonRisco, Joined → True, InterpolationOrder → 4]
```

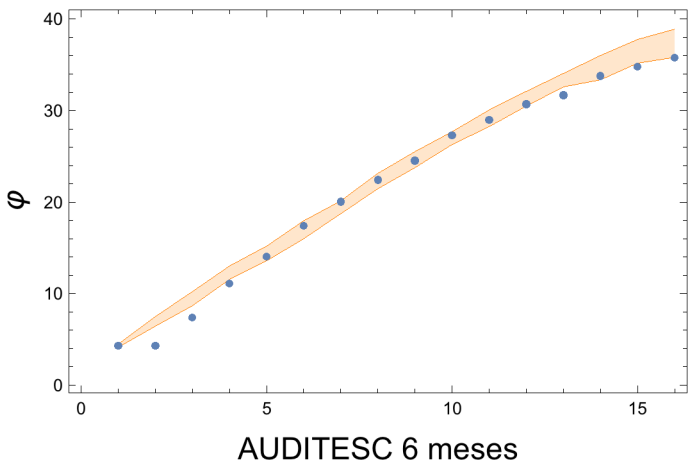
Out[1510]=



In[1511]:=

```
frametext = Style[#, "FontSize" → 16] & /@ {"AUDITESC 6 meses", "φ"};
lisdata = Join[liscontrolez6, lisintervencaoz6];
lisdatasimul = lisvariassimul3;
lisSumvarias = geraParcialSums[#, Min[lisdata], Max[lisdata]] & /@ lisdatasimul;
lisExp = geraParcialSums[lisdata, Min[lisdata], Max[lisdata]];
gr1 = Show[{ListPlot[{Mean[lisSumvarias] + StandardDeviation[lisSumvarias],
      Mean[lisSumvarias] - StandardDeviation[lisSumvarias]},
     Joined → True, Filling → {1 → {2}}, PlotStyle → {{Thin, Orange}},
     Frame → True, FrameLabel → frametext], ListPlot[lisExp]
  }]
Export[prefix <> "varphipqrz6.pdf", gr1]
```

Out[1516]=

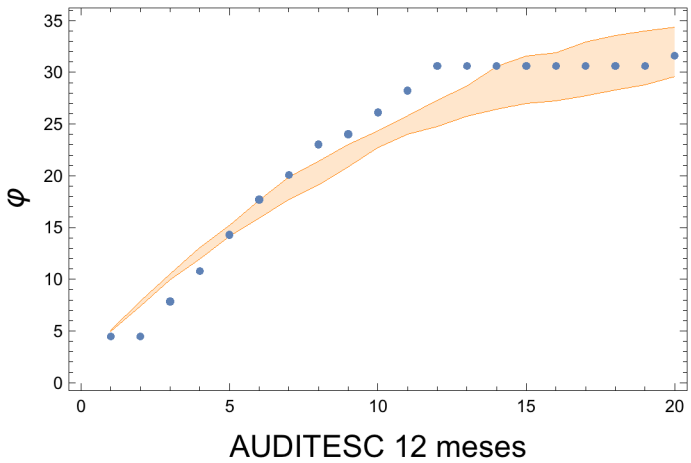


Out[1517]= /Users/neylemke/Luisa/BancodeDadosDoutorado/varphipqrz6.pdf

In[1518]:=

```
frametext = Style[#, "FontSize" → 16] & /@ {"AUDITESC 12 meses", "φ"};
lisdata = Join[liscontrolez12, lisintervencaoz12];
lisdatasimul = lisvariassimul4;
lisSumvarias = geraParcialSums[#, Min[lisdata], Max[lisdata]] & /@ lisdatasimul;
lisExp = geraParcialSums[lisdata, Min[lisdata], Max[lisdata]];
gr1 = Show[{ListPlot[{Mean[lisSumvarias] + StandardDeviation[lisSumvarias],
      Mean[lisSumvarias] - StandardDeviation[lisSumvarias]},
     Joined → True, Filling → {1 → {2}}, PlotStyle → {{Thin, Orange}},
     Frame → True, FrameLabel → frametext], ListPlot[lisExp]
   }]
Export[prefix <> "varphipqrz12.pdf", gr1]
```

Out[1523]=



Out[1524]= /Users/neylemke/Luisa/BancodeDadosDoutorado/varphipqrz12.pdf

In[2328]:=

```
Mean[Mean /@ lisvariassimul3 - Mean[Join[liscontrolez6, lisintervencaoz6]]]
Mean[Mean /@ lisvariassimul4 - Mean[Join[liscontrolez12, lisintervencaoz12]]]
```

Out[2328]= 1.16667

Out[2329]= -0.651042

```
r
```

0.625`

0.625

```
(r - 0.5) / (q - 0.5)
```

4.8

```
r - 0.5
```

0.115

```
q - 0.5
```

0.04

In[2356]:=
```
Mean[Mean /@ lisvariassimul2] - Mean[Mean /@ lisvariassimul4] // N
```

Out[2356]= 1.49176

In[2355]:=
```
Mean[Join[liscontrole, lisintervencao]] -
 Mean[Join[liscontrolez12, lisintervencaoz12]]
```

Out[2355]= 6.625

In[2357]:=
```
6.62 / 1.49
```

Out[2357]= 4.44295

In[2354]:=
```
6.05 / 1.24
```

Out[2354]= 4.87903

In[2335]:=
```
Mean[Mean /@ lisvariassimul2] - Mean[Mean /@ lisvariassimul3] // N
```

Out[2335]= 4.95833

In[2351]:=
```
4.95 / 1.24
```

Out[2351]= 3.99194

In[2368]:=
```
Length[Select[Join[liscontrolez12, lisintervencaoz12], # < 8 &]]
```

Out[2368]= 84

In[2366]:=
```
ff[x_] := Length[Select[x, # < 8 &]]
```

In[2369]:=
```
Mean[ff /@ lisvariassimul4] // N
```

Out[2369]= 41.2727

In[2371]:=
```
84 / 41.
```

Out[2371]= 2.04878

```
Correlation[lisvariassimul4[[1]], lisvariassimul3[[1]]] // N
```

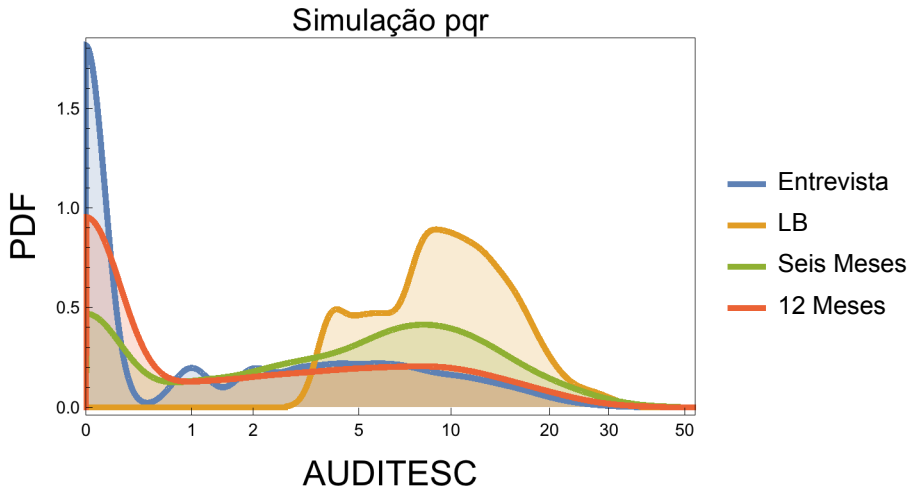
0.797665

```
Correlation[lisvariassimul2[[1]], lisvariassimul3[[1]]] // N
```

0.672024

In[1525]:=
```
gr1 = SmoothHistogram[
  {Log[Flatten[lisvariassimul] + 1], Log[Flatten[lisvariassimul2] + 1],
   Log[Flatten[lisvariassimul3] + 1], Log[Flatten[lisvariassimul4] + 1]},
  PlotLegends → LineLegend[{"Entrevista", "LB", "Seis Meses", "12 Meses"}],
  Axes → True, PlotRange → {{0, 4}, All}, Filling → Bottom,
  PlotStyle → {Thickness[0.01]}, Frame → True,
  FrameLabel → {Style["AUDITESC", FontSize → 18], Style["PDF", FontSize → 18]},
  FrameTicks → {{Automatic, None}, {{0, {Log[1 + 1], 1}, {Log[3], 2}, {Log[6], 5},
      {Log[11], 10}, {Log[21], 20}, {Log[31], 30}, {Log[51], 50}}, None}},
  PlotLabel → Style["Simulação pqr", "FontSize" → 16]]
Export[prefix <> "expdistpqr.pdf", gr1]
```

Out[1525]=



Out[1526]= /Users/neylemke/Luisa/BancodeDadosDoutorado/expdistpqr.pdf

Grupos C e I

In[2068]:=

```
size0 = Length[lisRTM];
size = Length[liscontrole];
{p, q, error} = First[MinimalBy[distListPythonTri, Last] // N]

lisr1 = Table[listDistr = ParallelTable[Print[r]; Sum[
        simul = Table[Steps[p, q, 0, 150], {size0}];
        temp1 = Select[simul, # >= 8 &];
        temp2 = Select[simul, # < 8 && # >= 4 &];
        temp3 = RandomSample[temp2, Floor[Length[temp2] / 2.5]];
        temp4 = Join[temp1, temp3];
        sizelocal = Length[temp4];
        simul2 = RandomSample[temp4, Min[Length[temp4], size]];
        (* Print[sizelocal,",",size,",",Length[simul2]]; *)
        simul3 = Steps[p, r, #, 25] & /@ simul2;
   simul4 = Steps[p, r, #, 25] & /@ simul3;
        {r, compara[simul3, Join[liscontrolez6]] + compara[simul4,
           Join[liscontrolez12]]}, {j, 1, 100}] / 100, {r, 0.55, 0.7, 0.005}];
   First[First[MinimalBy[listDistr, Last]]], {10}];
```

Out[2070]= {0.94, 0.53, 57.7031}

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In[2002]:=
```
r1 = First[First[MinimalBy[listDistr, Last]]]
```

Out[2002]= 0.6

In[2072]:=
```
lisr1
```

Out[2072]= {0.625, 0.615, 0.665, 0.61, 0.625, 0.61, 0.64, 0.625, 0.64, 0.63}

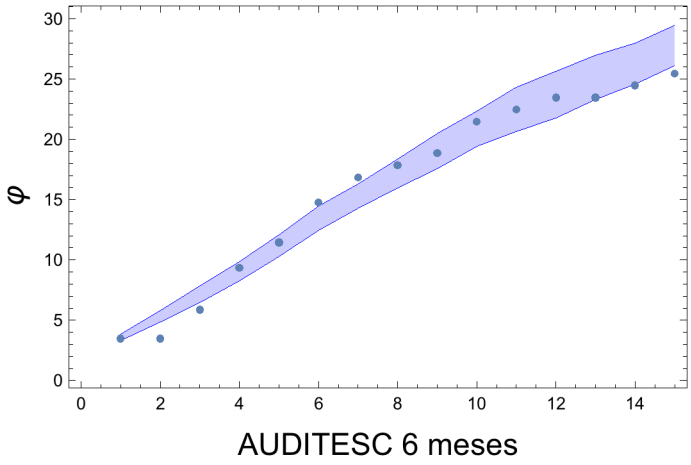
In[2003]:=

```
lisvariassimul = {};
lisvariassimul2 = {};
lisvariassimul3 = {};
lisvariassimul4 = {};
lisdata = Join[liscontrolez6];
size = Length[lisdata];
{p, q, error} = First[MinimalBy[distListPythonTri, Last] // N];
r = First[First[MinimalBy[listDistr, Last]]];
Do[
 simul = (Steps[p, q, #, 150] & /@ Table[0, {size0}]);
 lisvariassimul = Append[lisvariassimul, simul];
 temp1 = Select[simul, # >= 8 &];
 temp2 = Select[simul, # < 8 && # >= 4 &];
 temp3 = RandomSample[temp2, Floor[Length[temp2] / 2.5]];
 temp4 = Join[temp1, temp3];
 sizelocal = Length[temp4];
 simul2 = RandomSample[temp4, Min[Length[temp4], size]];
 simul3 = Steps[p, r, #, 25] & /@ simul2;
   simul4 = Steps[p, r, #, 25] & /@ simul3;
 lisvariassimul2 = Append[lisvariassimul2, simul2];
 lisvariassimul3 = Append[lisvariassimul3, simul3];
 lisvariassimul4 = Append[lisvariassimul4, simul4];
 ,
 {10}]

frametext = Style[#, "FontSize" → 16] & /@ {"AUDITESC 6 meses", "φ"};

lisdatasimul = lisvariassimul3;
lisSumvarias = geraParcialSums[#, Min[lisdata], Max[lisdata]] & /@ lisdatasimul;
lisExp = geraParcialSums[lisdata, Min[lisdata], Max[lisdata]];
gr1 = Show[{ListPlot[{Mean[lisSumvarias] + StandardDeviation[lisSumvarias],
      Mean[lisSumvarias] - StandardDeviation[lisSumvarias]},
     Joined → True, Filling → {1 → {2}}, PlotStyle → {{Thin, Blue}},
     Frame → True, FrameLabel → frametext], ListPlot[lisExp]
   }]
```

Out[2016]=



In[2017]:=

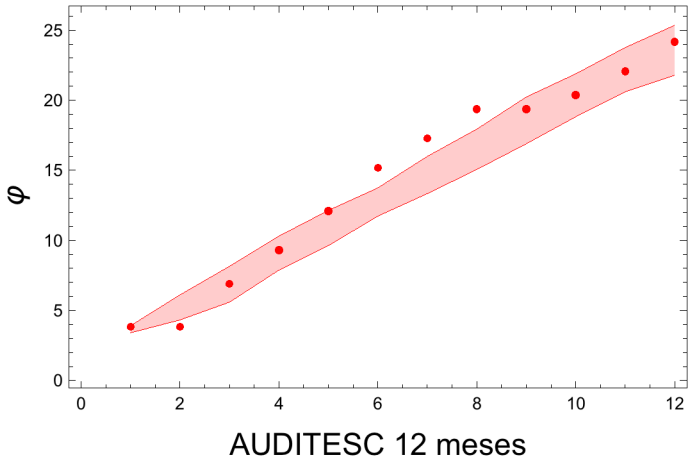
```
lisvariassimul = {};
lisvariassimul2 = {};
lisvariassimul3 = {};
lisvariassimul4 = {};
lisdata = Join[liscontrolez12];
size = Length[lisdata];
{p, q, error} = First[MinimalBy[distListPythonTri, Last] // N];
r = First[First[MinimalBy[listDistr, Last]]];
Do[

 simul = (Steps[p, q, #, 150] & /@ Table[0, {size0}]);
 lisvariassimul = Append[lisvariassimul, simul];
 temp1 = Select[simul, # >= 8 &];
 temp2 = Select[simul, # < 8 && # >= 4 &];
 temp3 = RandomSample[temp2, Floor[Length[temp2] / 2.5]];
 temp4 = Join[temp1, temp3];
 sizelocal = Length[temp4];
 simul2 = RandomSample[temp4, Min[Length[temp4], size]];
 simul3 = Steps[p, r, #, 25] & /@ simul2;
   simul4 = Steps[p, r, #, 25] & /@ simul3;
 lisvariassimul2 = Append[lisvariassimul2, simul2];
 lisvariassimul3 = Append[lisvariassimul3, simul3];
 lisvariassimul4 = Append[lisvariassimul4, simul4];
 ,
 {10}]

frametext = Style[#, "FontSize" → 16] & /@ {"AUDITESC 12 meses", "φ"};

lisdatasimul = lisvariassimul3;
lisSumvarias = geraParcialSums[#, Min[lisdata], Max[lisdata]] & /@ lisdatasimul;
lisExp = geraParcialSums[lisdata, Min[lisdata], Max[lisdata]];
gr2 = Show[{ListPlot[{Mean[lisSumvarias] + StandardDeviation[lisSumvarias],
      Mean[lisSumvarias] - StandardDeviation[lisSumvarias]}, Joined → True,
     Filling → {1 → {2}}, PlotStyle → {{Thin, Red}}, Frame → True,
     FrameLabel → frametext], ListPlot[lisExp, PlotStyle → {{Thin, Red}}]
   }]
```

Out[2030]=



In[2073]:=

```
size0 = Length[lisRTM];
size = Length[lisintervencao];
{p, q, error} = First[MinimalBy[distListPythonTri, Last] // N]
lisr2 = Table[listDistr = ParallelTable[Print[r]; Sum[
      simul = Table[Steps[p, q, 0, 150], {size0}];
      temp1 = Select[simul, # >= 8 &];
      temp2 = Select[simul, # < 8 && # >= 4 &];
      temp3 = RandomSample[temp2, Floor[Length[temp2] / 2.5]];
      temp4 = Join[temp1, temp3];
      sizelocal = Length[temp4];
      simul2 = RandomSample[temp4, Min[Length[temp4], size]];
      (* Print[sizelocal,",",size,",",Length[simul2]]; *)
      simul3 = Steps[p, r, #, 25] & /@ simul2;
   simul4 = Steps[p, r, #, 25] & /@ simul3;
      {r, compara[simul3, Join[lisintervencaoz6]] + compara[simul4,
         Join[lisintervencaoz12]]}, {j, 1, 100}] / 100, {r, 0.55, 0.7, 0.005}];
  First[First[MinimalBy[listDistr, Last]]]
  , {10}]
```

Out[2075]= {0.94, 0.53, 57.7031}

(kernel 4) 0.55

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(kernel 3) 0.695

(kernel 1) 0.64

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(kernel 2) 0.68

(kernel 3) 0.7

(kernel 1) 0.645

(kernel 4) 0.665

(kernel 2) 0.685

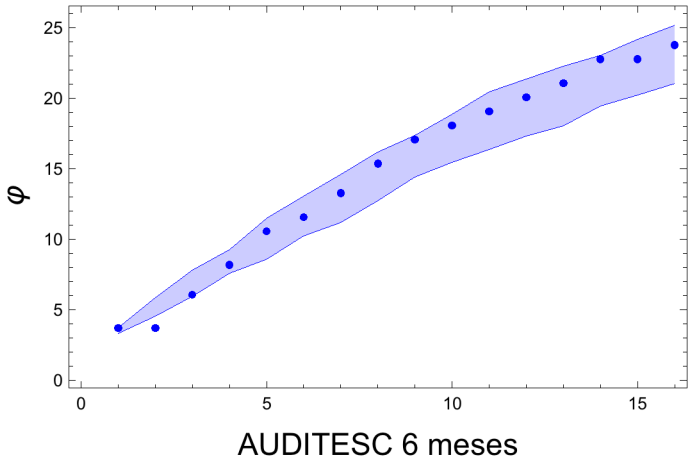
Out[2076]= {0.595, 0.605, 0.59, 0.6, 0.59, 0.59, 0.59, 0.59, 0.595, 0.6}

In[2282]:=

```
lisvariassimul = {};
lisvariassimul2 = {};
lisvariassimul3 = {};
lisvariassimul4 = {};
lisdata = Join[lisintervencaoz6];
size = Length[lisdata];
{p, q, error} = First[MinimalBy[distListPythonTri, Last] // N];
r = First[First[MinimalBy[listDistr, Last]]];
r = 0.63
Do[

 simul = (Steps[p, q, #, 150] & /@ Table[0, {size0}]);
 lisvariassimul = Append[lisvariassimul, simul];
 temp1 = Select[simul, # >= 8 &];
 temp2 = Select[simul, # < 8 && # >= 4 &];
 temp3 = RandomSample[temp2, Floor[Length[temp2] / 2.5]];
 temp4 = Join[temp1, temp3];
 sizelocal = Length[temp4];
 simul2 = RandomSample[temp4, Min[Length[temp4], size]];
 simul3 = Steps[p, r, #, 25] & /@ simul2;
   simul4 = Steps[p, r, #, 25] & /@ simul3;
 lisvariassimul2 = Append[lisvariassimul2, simul2];
 lisvariassimul3 = Append[lisvariassimul3, simul3];
 lisvariassimul4 = Append[lisvariassimul4, simul4];
 ,
 {10}]

frametext = Style[#, "FontSize" → 16] & /@ {"AUDITESC 6 meses", "φ"};

lisdatasimul = lisvariassimul3;
lisSumvarias = geraParcialSums[#, Min[lisdata], Max[lisdata]] & /@ lisdatasimul;
lisExp = geraParcialSums[lisdata, Min[lisdata], Max[lisdata]];
gr1 = Show[{ListPlot[{Mean[lisSumvarias] + StandardDeviation[lisSumvarias],
      Mean[lisSumvarias] - StandardDeviation[lisSumvarias]}, Joined → True,
     Filling → {1 → {2}}, PlotStyle → {{Thin, Blue}}, Frame → True,
     FrameLabel → frametext], ListPlot[lisExp, PlotStyle → {{Thin, Blue}}]
   }]
```

Out[2290]= 0.63

Out[2296]=



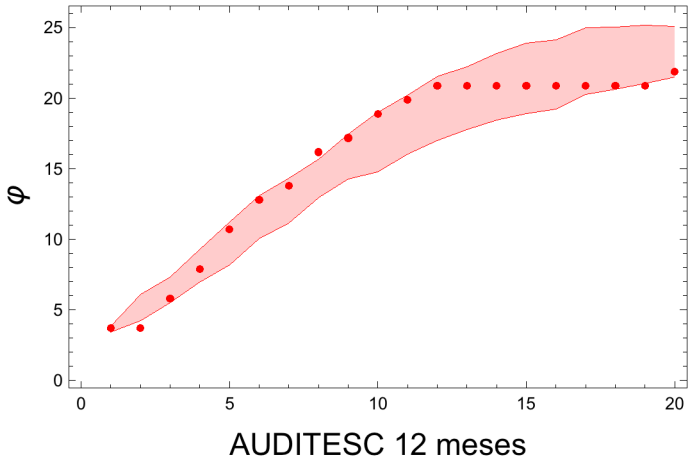
In[2050]:=
```
r2 = First[First[MinimalBy[listDistr, Last]]]
```

Out[2050]= 0.59

In[2251]:=

```
lisvariassimul = {};
lisvariassimul2 = {};
lisvariassimul3 = {};
lisvariassimul4 = {};
lisdata = Join[lisintervencaoz12];
size = Length[lisdata];
{p, q, error} = First[MinimalBy[distListPythonTri, Last] // N];
r = First[First[MinimalBy[listDistr, Last]]];
r = 0.63;
Do[

 simul = (Steps[p, q, #, 150] & /@ Table[0, {size0}]);
 lisvariassimul = Append[lisvariassimul, simul];
 temp1 = Select[simul, # >= 8 &];
 temp2 = Select[simul, # < 8 && # >= 4 &];
 temp3 = RandomSample[temp2, Floor[Length[temp2] / 2.5]];
 temp4 = Join[temp1, temp3];
 sizelocal = Length[temp4];
 simul2 = RandomSample[temp4, Min[Length[temp4], size]];
 simul3 = Steps[p, r, #, 25] & /@ simul2;
   simul4 = Steps[p, r, #, 25] & /@ simul3;
 lisvariassimul2 = Append[lisvariassimul2, simul2];
 lisvariassimul3 = Append[lisvariassimul3, simul3];
 lisvariassimul4 = Append[lisvariassimul4, simul4];
 ,
 {10}]

frametext = Style[#, "FontSize" → 16] & /@ {"AUDITESC 12 meses", "φ"};

lisdatasimul = lisvariassimul3;
lisSumvarias = geraParcialSums[#, Min[lisdata], Max[lisdata]] & /@ lisdatasimul;
lisExp = geraParcialSums[lisdata, Min[lisdata], Max[lisdata]];
gr2 = Show[{ListPlot[{Mean[lisSumvarias] + StandardDeviation[lisSumvarias],
      Mean[lisSumvarias] - StandardDeviation[lisSumvarias]}, Joined → True,
     Filling → {1 → {2}}, PlotStyle → {{Thin, Red}}, Frame → True,
     FrameLabel → frametext], ListPlot[lisExp, PlotStyle → {{Thin, Red}}]
   }]
```

Out[2265]=



In[2066]:=
```
r1 - r2
```
Out[2066]= 0.01

In[2298]:=
```
Export[prefix <> "comppqrCIB.pdf", Show[gr1, gr2]]
"/Users/neylemke/Luisa/BancodeDadosDoutorado/lis
```

In[2301]:=
```
Mean[lisr1]
```
Out[2301]= 0.6285

In[2300]:=
```
lisr2
```
Out[2300]= {0.595, 0.605, 0.59, 0.6, 0.59, 0.59, 0.59, 0.59, 0.595, 0.6}

In[2302]:=
```
Mean[lisr2]
```
Out[2302]= 0.5945

In[2109]:=
```
StandardDeviation[lisr1]
```
Out[2109]= 0.016675

In[2110]:=
```
StandardDeviation[lisr2]
```
Out[2110]= 0.00550252

In[1700]:=
```
r
```
Out[1700]= 0.615

In[2112]:=
```
LocationTest[{lisr1, lisr2}]
```
Out[2112]= 0.000155655

In[2113]:=
```
Mean[lisr1]
```
Out[2113]= 0.6285

In[2114]:=
```
Mean[lisr2]
```
Out[2114]=
```
0.5945
```

Grupos

AUDITESC

```
partGrupos = GroupBy[bbarisco, {#GRUPO, #SEXOS} &];
```

```
labels = {{"C", "F"}, {"C", "M"}, {"I", "F"}, {"I", "M"}};
```

```
l = 1;
lisevol = {"AUDITESC", "z6AUDITESC", "z12AUDITESC"} /. Normal[partGrupos[[l]][
      All, {"GRUPO", "SEXO", "AUDITESC", "z6AUDITESC", "z12AUDITESC"}]];
lisclus = ClusteringComponents[lisevol, 2, 1, Method → "KMeans"];
```

```
lisevol = {"AUDITESC" * 1., "z6AUDITESC", "z12AUDITESC"} /. Normal[
   partGrupos[[l]][All, {"GRUPO", "SEXO", "AUDITESC", "z6AUDITESC", "z12AUDITESC"}]]
```
```
{{7., 10 , 10 }, {11., 10 , 10 }}
```

```
ngrupos = {3, 3, 3, 3};
ngrupos2 = {3, 2, 3, 3};
Table[
 lisevol = {"AUDITESC" * 1., "z6AUDITESC", "z12AUDITESC"} /. Normal[partGrupos[[l]][
      All, {"GRUPO", "SEXO", "AUDITESC", "z6AUDITESC", "z12AUDITESC"}]];
 lisclus = ClusteringComponents[lisevol, ngrupos[[l]], 1, Method → "KMeans"];
 (* lisevol2=
   Table[N[Mean/@Transpose[lisevol[[Flatten[Position[lisclus,k]]]]]],{k,1,2}];*)
 {P3 =
   PieChart[Tally[lisclus] /. {x_, y_} → y, ChartStyle → 8,
    ChartLabels -> {"G1", "G2", "G3"}, PlotLabel → StringReplace[labels[[l]],
      {"C" → "Control", "I" → "Intervention", "M" → "Male", "F" → "Female"}] ],

gr3 = BoxWhiskerChart[Table[Transpose[lisevol[[Flatten[Position[lisclus, k]]]]],
      {k, 1, ngrupos2[[l]]}], ChartLabels →
      {{"\!\(\*SubscriptBox[\(G\), \(1\)]\)", "\!\(\*SubscriptBox[\(G\), \(2\)]\)",
        "\!\(\*SubscriptBox[\(G\), \(3\)]\)"}, {"BL", "6", "12"}},
    PlotLabel → StringReplace[labels[[l]], {"C" → "Control", "I" → "Intervention",
        "M" → "Male", "F" → "Female"}], FrameLabel → "AuditESC"]}, {l, 1, 4}]
```

Part::partw: Part {1, 2, 1, 3, 2, 2, 2, 3} of {{7., 10 , 10 }, {11. , 10 , 10 }} does not exist >>

Transpose::nmtx: The first two levels of {} cannot be transposed >>

ClusteringComponents::distcomp:
The values of the options DistanceFunction -> EuclideanDistance and Method -> KMeans are incompatible >>

Tally::list:
List expected at position 1 in Tally[ClusteringComponents[{{0., 10 , 10 }, {4., 10 , 10 }, {17., 10 , 10 }, {10., 10 , 10 }, {10., 10 , 10 }}, 3, 1, Method→ KMeans]]. >>

PieChart::ldata:
Tally[ClusteringComponents[{{0., 10 , 10 }, {4., 10 , 10 }, {17., 10 , 10 }, {10., 10 , 10 }, {10., 10 , 10 }}, 3, 1, Method→ KMeans]] is not a valid dataset or list of datasets >>

PieChart::ldata:
Tally[ClusteringComponents[{{0., 10 , 10 }, {4., 10 , 10 }, {17., 10 , 10 }, {10., 10 , 10 }, {10., 10 , 10 }}, 3, 1, Method→ KMeans]] is not a valid dataset or list of datasets >>

PieChart::ldata:
Tally[ClusteringComponents[{{0., 10 , 10 }, {4., 10 , 10 }, {17., 10 , 10 }, {10., 10 , 10 }, {10., 10 , 10 }}, 3, 1, Method→ KMeans]] is not a valid dataset or list of datasets >>

General::stop: Further output of PieChart::ldata will be suppressed during this calculation. >>

Transpose::nmtx: The first two levels of {} cannot be transposed >>

Transpose::nmtx: The first two levels of {Missing[]} cannot be transposed >>

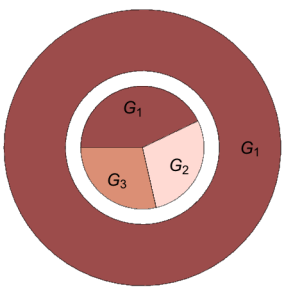
General::stop: Further output of Transpose::nmtx will be suppressed during this calculation. >>

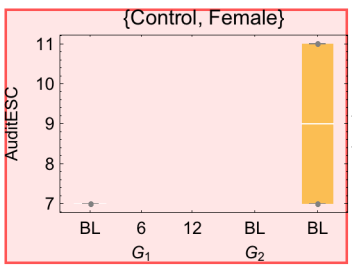
Part::partw: Part {1, 3} of {{7., 11 , 4}, {38., 10 , 10 }} does not exist. >>

ClusteringComponents::xnum:
A non-numeric, negative, or complex dissimilarity value was computed; dissimilarities must be non-negative and real valued. >>

Tally::list: List expected at position 1 in Tally[ClusteringComponents[s<<1>>]]. >>

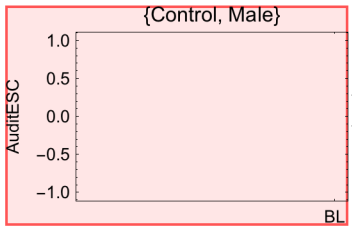
{Control, Female}

{{ 

, 

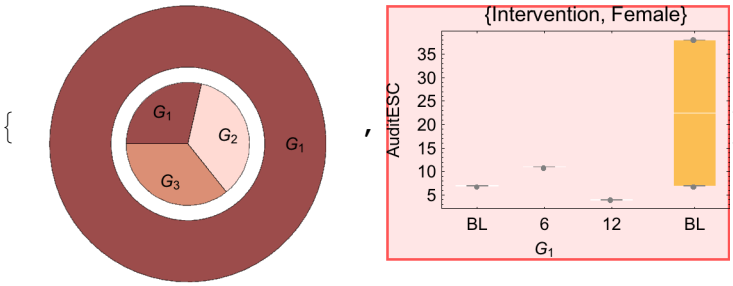
},

```
{PieChart[Tally[ClusteringComponents[{{0., 10 , 10 }, {4., 10 , 10 }, {17., 10 , 10 },
    {10., 10 , 10 }, {10., 10 , 10 }}, 3, 1, Method → KMeans]], ChartStyle → 8,
  ChartLabels → {G1, G2, G3}, PlotLabel → {Control, Male}], 
```

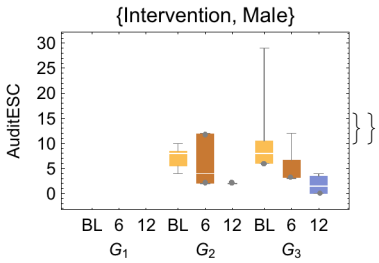


},

{Intervention, Female}




```
{PieChart[Tally[ClusteringComponents[{{8., 10 , 10 }, {6., 10 , 10 }, {10., 12, 10 },
      {14., 10 , 10 }, {10., 10 , 10 }, {23., 10 , 10 }, {11., 10 , 10 }, {16., 10 , 10 },
      {14., 10 , 10 }, {11., 11, 11}, {5., 5, 10}, {9., 5, 11}, {6., 5, 3}, {4., 7, 7},
      {29., 3, 0}, {9., 9, 5}, {8., 9, 10 }, {8., 10 , 10 }, {21., 10 , 10 }, {12., 3, 0},
      {9., 10 , 10 }, {9., 10 , 10 }, {12., 10 , 10 }, {12., 10 , 10 }, {15., 10 , 10 },
      {14., 8, 6}, {12., 10 , 10 }, {19., 10 , 10 }, {7., 6, 0}, {8., 4, 2}, {6., 10 , 10 },
      {19., 6, 10 }, {19., 6, 10 }, {10., 5, 4}, {8., 5, 7}, {18., 10 , 10 }, {12., 3, 4},
      {3., 0, 0}, {9., 10 , 10 }, {8., 14, 10}, {16., 10 , 10 }, {5., 10 , 10 },
      {7., 10 , 10 }, {8., 10 , 10 }, {5., 0, 0}, {14., 10 , 10 }, {4., 2, 2},
      {21., 10 , 10 }, {6., 10 , 10 }, {19., 10 , 10 }, {8., 10 , 10 }, {10., 10 , 10 },
      {8., 10 , 10 }, {2., 10 , 10 }, {7., 10 , 10 }}, 3, 1, Method → KMeans]],
  ChartStyle → 8, ChartLabels → {G1, G2, G3}, PlotLabel → {Intervention, Male}],
```



In[2234]:=
```
lisevol = {"AUDITESC", "z6AUDITESC", "z12AUDITESC"} /.
   Normal[bbariscol[All, {"AUDITESC", "z6AUDITESC", "z12AUDITESC"}]];
lisclus = ClusteringComponents[lisevol, 3, 1, Method → "Optimize"]
```

ClusteringComponents::internal: An internal error occurred. Please contact technical support. >>

Out[2235]=
```
ClusteringComponents[
 {{5, 5, 5}, {10, 12, 10 }, {5, 2, 10 }, {15, 9, 5}, {11, 10 , 10 }, {14, 10 , 10 },
  {13, 3, 11}, {4, 6, 0}, {5, 3, 4}, {11, 11, 11}, {5, 5, 4}, {5, 5, 10}, {5, 3, 6},
  {7, 13, 0}, {9, 5, 11}, {6, 5, 3}, {4, 7, 7}, {0, 10, 10 }, {29, 3, 0}, {21, 10 , 10 },
  {5, 9, 10 }, {4, 0, 0}, {14, 5, 0}, {9, 9, 5}, {9, 9, 2}, {9, 5, 5}, {6, 10 , 10 },
  {8, 9, 10 }, {24, 10 , 10 }, {12, 3, 0}, {14, 10 , 10 }, {6, 10 , 10 }, {13, 3, 5},
  {16, 4, 3}, {8, 0, 0}, {14, 8, 6}, {14, 10 , 10 }, {7, 6, 0}, {8, 4, 2}, {11, 0, 0},
  {11, 6, 7}, {5, 2, 3}, {19, 6, 10 }, {19, 6, 10 }, {10, 5, 4}, {18, 0, 10 }, {8, 5, 7},
  {8, 9, 4}, {9, 10, 9}, {18, 10 , 10 }, {9, 0, 0}, {12, 3, 4}, {8, 3, 3}, {3, 0, 0},
  {16, 3, 2}, {11, 0, 2}, {9, 3, 5}, {7, 0, 4}, {8, 3, 5}, {8, 14, 10}, {9, 10 , 10 },
  {10, 0, 6}, {19, 2, 0}, {6, 9, 0}, {7, 10 , 10 }, {6, 2, 2}, {8, 10 , 10 }, {5, 0, 0},
  {12, 4, 0}, {4, 2, 2}, {9, 3, 5}, {8, 5, 2}, {14, 0, 10 }, {14, 0, 0}, {6, 0, 2},
  {6, 10 , 10 }, {14, 0, 10 }, {10, 0, 0}, {10, 10 , 10 }, {9, 6, 10 }, {15, 13, 11},
  {17, 8, 7}, {8, 10 , 10 }, {7, 11, 10}, {7, 0, 7}, {10, 7, 0}, {4, 4, 5}, {10, 7, 7},
  {27, 8, 3}, {26, 10, 2}, {6, 6, 4}, {25, 2, 0}, {5, 7, 4}, {11, 10 , 10 }, {10, 4, 3},
  {12, 5, 0}, {7, 9, 5}, {13, 0, 0}, {5, 3, 4}, {25, 0, 0}, {6, 0, 0}, {13, 15, 19},
  {15, 6, 10 }, {9, 10 , 10 }, {14, 10 , 10 }, {9, 2, 2}, {4, 0, 0}, {10, 6, 10 },
  {12, 3, 0}, {12, 3, 4}, {11, 0, 0}, {9, 0, 5}, {8, 11, 10 }, {5, 2, 0}, {9, 10 , 10 },
  {23, 10 , 10 }, {17, 0, 3}, {22, 4, 7}, {9, 10 , 10 }, {10, 0, 0}, {8, 0, 9}, {15, 0, 2},
  {16, 4, 4}, {14, 10 , 10 }, {4, 0, 0}, {10, 6, 8}, {11, 0, 0}, {7, 0, 0}, {6, 8, 10 },
  {7, 12, 9}, {12, 13, 6}, {9, 10 , 10 }, {18, 10 , 10 }, {11, 0, 10 }, {12, 2, 4},
  {19, 10 , 10 }, {27, 10 , 10 }, {10, 10 , 10 }, {12, 0, 0}, {8, 0, 10 }, {23, 10 , 10 },
  {13, 10 , 10 }, {21, 0, 10 }, {12, 5, 10 }, {3, 10 , 10 }}, 3, 1, Method → Optimize]
```

In[2228]:=

```
lisevol = {"AUDITESC", "z6AUDITESC", "z12AUDITESC"} /.
   Normal[bbarisco1[All, {"AUDITESC", "z6AUDITESC", "z12AUDITESC"}]];
lisclus = ClusteringComponents[lisevol, 3, 1, Method → "Optimize"];
P3 =
 PieChart[Last /@ Tally[lisclus], ChartStyle → 8, ChartLabels -> {"G1", "G2", "G3"} ]

gr3 = BoxWhiskerChart[
  Table[Transpose[lisevol[[Flatten[Position[lisclus, k]]]]], {k, 1, 3}],
  ChartLabels → {{"\!\(\*SubscriptBox[\(G\), \(1\)]\)",
     "\!\(\*SubscriptBox[\(G\), \(2\)]\)", "\!\(\*SubscriptBox[\(G\), \(3\)]\)"},
    {"BL", "6", "12"}}, PlotLabel → "Todos", FrameLabel → "AuditESC"]
```

ClusteringComponents::internal : An internal error occurred. Please contact technical support. >>

ClusteringComponents::internal : An internal error occurred. Please contact technical support. >>

Tally::list : List expected at position 1 in Tally[ClusteringComponents[<<1>>]]. >>

Tally::list : List expected at position 1 in Tally[Method → Optimize]. >>

PieChart::ldata : Tally[Method → Optimize] is not a valid dataset or list of datasets. >>

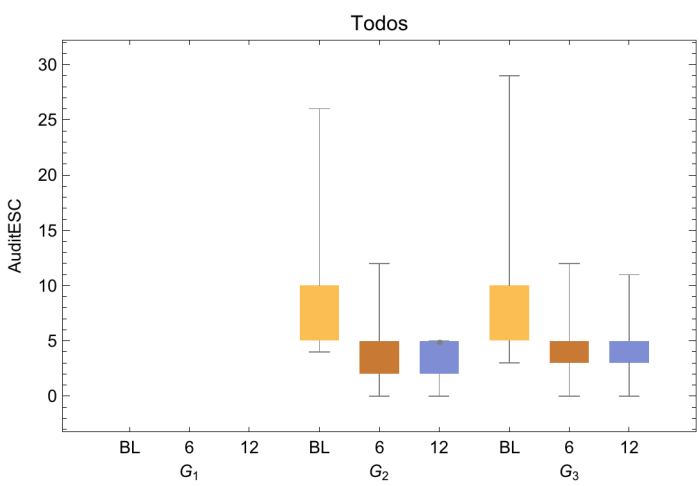
PieChart::ldata : Tally[Method → Optimize] is not a valid dataset or list of datasets. >>

PieChart::ldata : Tally[Method → Optimize] is not a valid dataset or list of datasets. >>

General::stop : Further output of PieChart::ldata will be suppressed during this calculation. >>

Out[2230]= PieChart[Tally[Method → Optimize], ChartStyle → 8, ChartLabels → {G1, G2, G3}]

Out[2231]=




```
lisclus // Entropy // N
```

0.972565

```
Tally[lisclus]
```

```
{{1, 30}, {2, 53}, {3, 14}}
```

```
Export["/Users/neylemke/Dropbox/Luisa/tese/perspie.pdf", P3 ]
Export["/Users/neylemke/Dropbox/Luisa/tese/perscomp.pdf", gr3 ]
```

```
/Users/neylemke/Dropbox/Luisa/tese/perspie.pdf
```

```
/Users/neylemke/Dropbox/Luisa/tese/perscomp.pdf
```

```
lisevol = {"AUDITESC", "z6AUDITESC", "z12AUDITESC"} /.
   Normal[bbarisco1[All, {"AUDITESC", "z6AUDITESC", "z12AUDITESC"}]];
lisclus = ClusteringComponents[lisevol, 3, 1, Method -> "Optimize"];
lisclus2 = If[# == 1, 1, 0] & /@ lisclus;
```

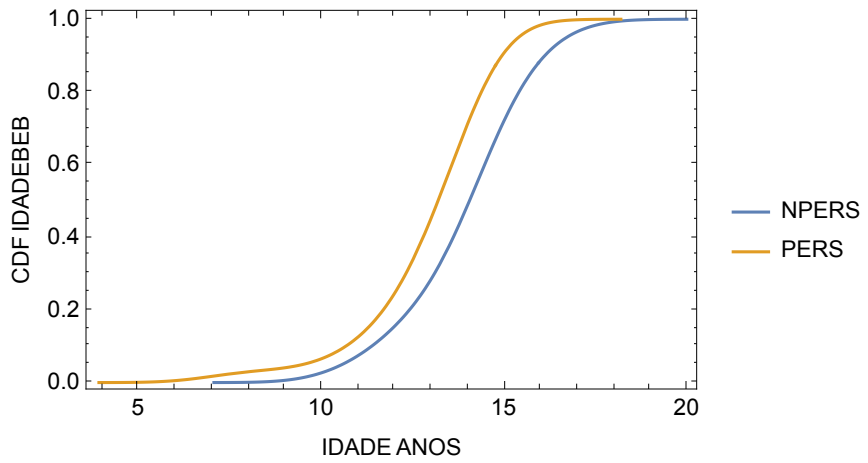
```
lisclus2 // Tally
```

```
{{1, 30}, {0, 67}}
```

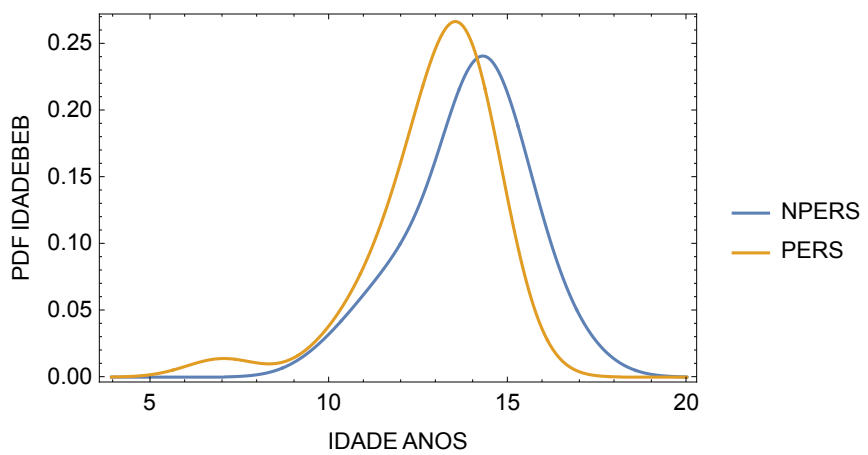
```
bbapers = bbarisco1[Flatten[Position[lisclus, 1]], lisvarname];
bbanpers = Union[bbarisco1[Flatten[Position[lisclus, 2]], lisvarname],
   bbarisco1[Flatten[Position[lisclus, 3]], lisvar]];
```

```
bbapers2 =
  Dataset@MapThread[Append, {Normal[bbarisco1], Thread["PERS" → lisclus2]}];
```

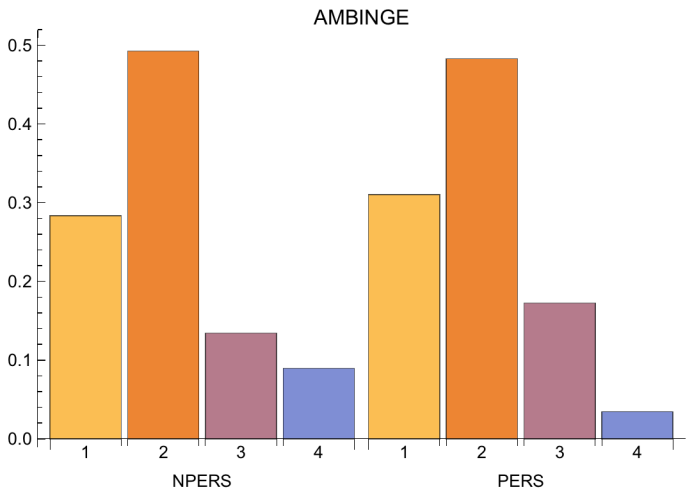
```
SmoothHistogram[
 Table[Cases[First /@ ({0, 1} /. GroupBy[{"IDADEBEB", "PERS"} /. Normal[
          bbapers2[All, {"IDADEBEB", "PERS"}]], Last])[[i]], _Integer], {i, 1, 2}],
 1, "CDF", Frame → True, FrameLabel → {HoldForm[IDADE ANOS], HoldForm[CDF IDADEBEB]},
 PlotLabel → None,
 LabelStyle → {FontFamily → "Arial", 12, GrayLevel[0]},
 PlotLegends → LineLegend[{"NPERS", "PERS"}]]
```



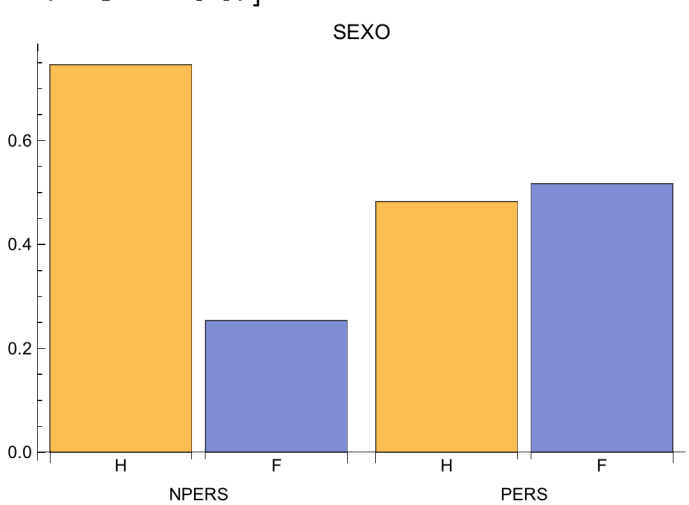

```
SmoothHistogram[
 Table[Cases[First /@ ({0, 1} /. GroupBy[{"IDADEBEB", "PERS"} /. Normal[
          bbapers2[All, {"IDADEBEB", "PERS"}]], Last])[[i]], _Integer], {i, 1, 2}],
 1, "PDF", Frame → True, FrameLabel → {HoldForm[IDADE ANOS], HoldForm[PDF IDADEBEB]},
 PlotLabel → None,
 LabelStyle → {FontFamily → "Arial", 12, GrayLevel[0]},
 PlotLegends → LineLegend[{"NPERS", "PERS"}]]
```



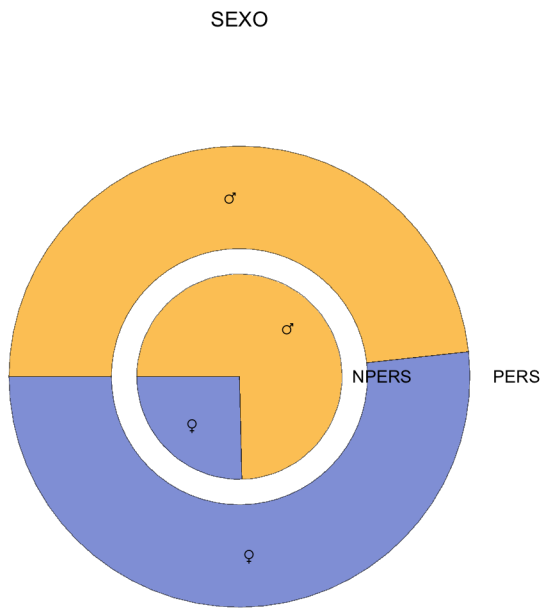
```
BarChart[
 Table[N[Last /@ Tally[First /@ ({0, 1} /. Normal[GroupBy[{"AMBINGE", "PERS"} /.
              Normal[bbapers2[All, {"AMBINGE", "PERS"}]], Last]])[[i]]] /
    Length[({0, 1} /. Normal[GroupBy[{"AMBINGE", "PERS"} /.
             Normal[bbapers2[All, {"AMBINGE", "PERS"}]], Last]])[[i]]]],
  {i, 1, 2}], ChartLabels → {{"NPERS", "PERS"}, {"1", "2", "3", "4"}},
 PlotLabel → HoldForm["AMBINGE"],
 LabelStyle →
  {GrayLevel[0]}]
```




```
BarChart[
 Table[N[Last /@ Tally[First /@ ({0, 1} /. Normal[GroupBy[{"SEXO", "PERS"} /. Normal[
                bbapers2[All, {"SEXO", "PERS"}]], Last]])[[i]]] /
    Length[({0, 1} /. Normal[GroupBy[{"SEXO", "PERS"} /. Normal[
              bbapers2[All, {"SEXO", "PERS"}]], Last]])[[i]]]],
  {i, 1, 2}], ChartLabels → {{"NPERS", "PERS"}, {"H", "F", "3", "4"}},
 PlotLabel → HoldForm["SEXO"],
 LabelStyle →
  {GrayLevel[0]}]
```

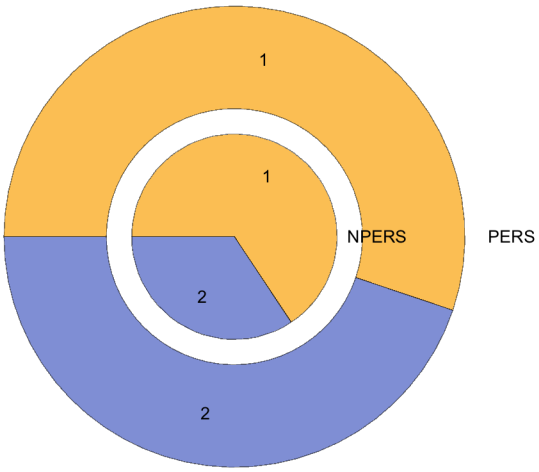


```
PieChart[
 Table[N[Last /@ Tally[First /@ ({0, 1} /. Normal[GroupBy[{"SEXO", "PERS"} /. Normal[
                bbapers2[All, {"SEXO", "PERS"}]], Last]])[[i]]] /
    Length[({0, 1} /. Normal[GroupBy[{"SEXO", "PERS"} /. Normal[
              bbapers2[All, {"SEXO", "PERS"}]], Last]])[[i]]]],
  {i, 1, 2}], ChartLabels → {{"NPERS", "PERS"}, {♂, ♀, "3", "4"}},
 PlotLabel → HoldForm["SEXO"],
 LabelStyle →
  {GrayLevel[0]}]
```



```
PieChart[
 Table[N[Last /@ Tally[First /@ ({0, 1} /. Normal[GroupBy[{"FAMILAL", "PERS"} /.
              Normal[bbapers2[All, {"FAMILAL", "PERS"}]], Last]])[[i]]] /
    Length[({0, 1} /. Normal[GroupBy[{"FAMILAL", "PERS"} /.
             Normal[bbapers2[All, {"FAMILAL", "PERS"}]], Last]])[[i]]]],
  {i, 1, 2}], ChartLabels → {{"NPERS", "PERS"}, {"1", "2", "3", "4"}},
 PlotLabel → HoldForm["FAMILAL"],
 LabelStyle →
  {GrayLevel[0]}]
```

FAMILAL



```
lisvarname = {"SEXO", "RELIGI", "INSTRCHE", "RELIGIPR", "PESO",
   "ALTURA", "RACA", "IDADEBEB", "AMBINGE", "IDADE", "FAMILAL", "PERS"};
bglm = bestGeneralizedLinearModelFitDataset[bbapers2, lisvarname, "AIC",
   ExponentialFamily → "Binomial", NominalVariables → {sexo, religi, raca}];
bglm["BestFitParameters"]
bglm["ParameterPValues"]
bglm["ParameterConfidenceIntervals"]
bglm["ParameterTable"]
```

```
{1.43, -0.266907, -0.0645976, 0.105452, 0.127154}
```

```
{0.000239719, 0.00646474, 0.020439, 0.0521798, 0.168227}
```

```
{{0.666932, 2.19307}, {-0.459005, -0.0748084},
 {-0.119213, -0.00998216}, {-0.000994764, 0.211899}, {-0.0537104, 0.308018}}
```

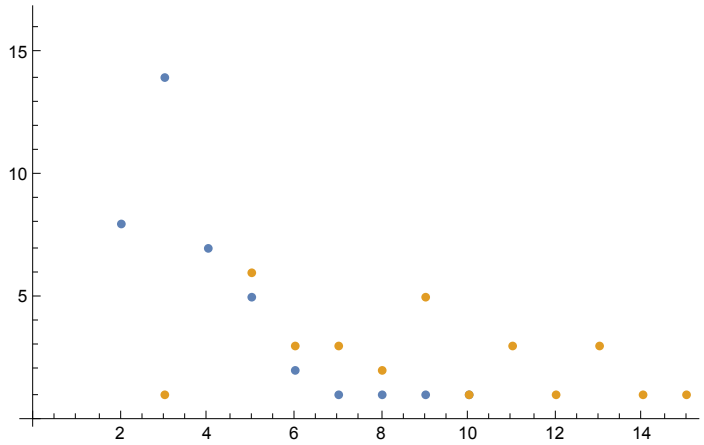
	Estimate	StandardError	z-Statistic	P-Value
1	1.43	0.389327	3.673	0.000239719
sexo	−0.266907	0.0980112	−2.72323	0.00646474
idadebeb	−0.0645976	0.0278655	−2.31819	0.020439
ambinge	0.105452	0.0543107	1.94165	0.0521798
familal	0.127154	0.0922793	1.37792	0.168227

```
tabparam = {
   bglm["BestFitParameters"],
   bglm["ParameterConfidenceIntervals"], bglm["ParameterPValues"]};
tabparamTex =
  geraFitTabTex[tabparam, ToString /@ bglm["ParameterTable"][[1, 1, 2 ;; -1, 1]]];
Export[prefix <> "tabparam.tex", tabparamTex, "String"]
```

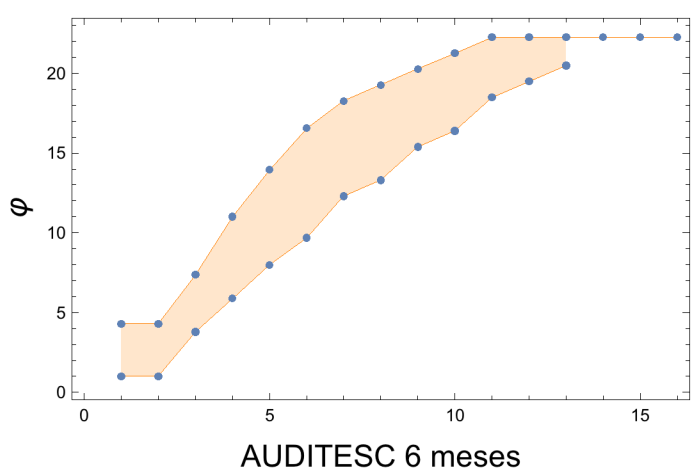
```
/Users/neylemke/Luisa/BancodeDadosDoutorado/tabparam.tex
```

Sandbox

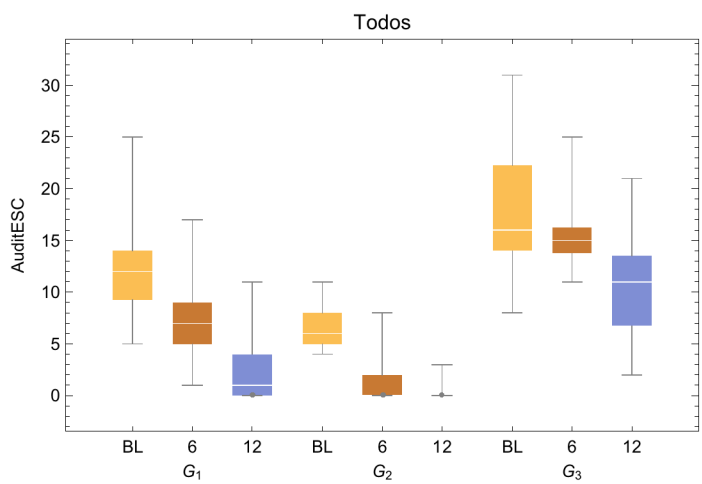
```
ListPlot[{Tally[Normal[Select[bbapers2, #PERS == 0 &][All, "z6AUDITESC"]]],
  Tally[Normal[Select[bbapers2, #PERS == 1 &][All, "z6AUDITESC"]]]
 }]
```




```
frametext = Style[#, "FontSize" → 16] & /@ {"AUDITESC 6 meses", "φ"};
lisdata = Normal[Select[bbapers2, #PERS == 0 &][All, "z6AUDITESC"]];
lisdata2 = Normal[Select[bbapers2, #PERS == 1 &][All, "z6AUDITESC"]];
lisSumvarias = geraParcialSums[lisdata, Min[lisdata], Max[lisdata2]];
lisSumvarias2 = geraParcialSums[lisdata2, Min[lisdata2], Max[lisdata2]];

gr1 =
 Show[{ListPlot[{lisSumvarias, lisSumvarias2}, Joined → True, Filling → {1 → {2}},
    PlotStyle → {{Thin, Orange}}, Frame → True, FrameLabel → frametext],
   ListPlot[lisSumvarias], ListPlot[lisSumvarias2]
  }]
Export[prefix <> "varphipqrz6.pdf", gr1]
```



```
{p, q, error} = First[MinimalBy[distListPythonTri, Last] // N];
r = First[First[MinimalBy[distListPythonRisco, Last]]];

simul = Table[Steps[p, q, 0, 150], {size0}];
temp1 = Select[simul, # >= 8 &];
temp2 = Select[simul, # < 8 && # >= 4 &];
temp3 = RandomSample[temp2, Floor[Length[temp2] / 2.5]];
temp4 = Join[temp1, temp3];
sizelocal = Length[temp4];
simul2 = RandomSample[temp4, Min[Length[temp4], size]];
simul3 = Steps[p, r, #, 25] & /@ simul2;
   simul4 = Steps[p, r, #, 25] & /@ simul3;
lisevol = Transpose[{simul2, simul3, simul4}];
lisclus = ClusteringComponents[lisevol, 3, 1, Method -> "Optimize"];

gr3 = BoxWhiskerChart[
  Table[Transpose[lisevol[[Flatten[Position[lisclus, k]]]]], {k, 1, 3}],
  ChartLabels → {{"\!\(\*SubscriptBox[\(G\), \(1\)]\)",
     "\!\(\*SubscriptBox[\(G\), \(2\)]\)", "\!\(\*SubscriptBox[\(G\), \(3\)]\)"},
    {"BL", "6", "12"}}, PlotLabel → "Todos", FrameLabel → "AuditESC"]
```



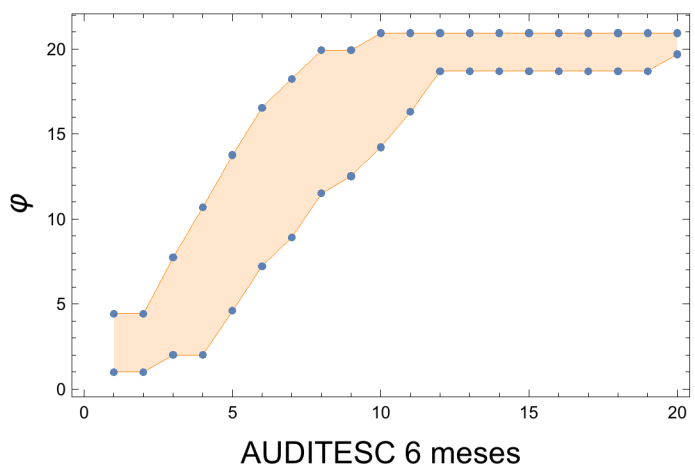

```
Entropy[lisclus] // N
```

0.963789

```
lisSumvarias
```

```
{{3.94444, 6.7362, 8.83481, 10.528, 13.6074, 16.6868, 19.9894,
  22.5989, 24.292, 27.0838, 29.8755}, {4.3673, 7.31321, 9.6995, 12.3089,
  12.3089, 15.3884, 18.1801, 20.7896, 23.399, 25.7853, 27.4785},
 {4.21888, 6.60517, 9.21461, 12.1605, 14.9523, 18.0317, 19.0317, 21.6412,
  23.7398, 26.6857, 29.072}, {4.68888, 7.07517, 9.46147, 11.5601,
  13.9464, 16.045, 18.9909, 21.6003, 23.6989, 26.6449, 27.6449},
 {4.66356, 6.76217, 9.14847, 11.7579, 14.3673, 17.1591, 18.8523, 21.4617,
  24.0711, 25.0711, 27.1697}, {4.61092, 6.99721, 8.69036, 11.4821,
  14.0916, 16.701, 17.701, 19.3941, 21.7804, 24.5722, 26.2653},
 {4.3673, 7.44674, 10.0562, 11.7493, 15.0519, 17.8437, 20.23, 23.4272,
  24.4272, 25.4272, 27.1203}, {4.29584, 7.24175, 8.93489, 11.5443,
  14.1538, 17.351, 19.9604, 21.6536, 22.6536, 24.7522, 27.3616},
 {4.43399, 6.5326, 9.32436, 12.4038, 14.5024, 16.601, 19.7982, 21.8969,
  24.6886, 26.3818, 28.7681}, {4.3673, 6.75359, 8.8522, 11.644,
  13.7426, 16.352, 19.2979, 20.9911, 23.3774, 25.7637, 28.8431}}
```

```
frametext = Style[#, "FontSize" → 16] & /@ {"AUDITESC 6 meses", "φ"};
lisdata = Normal[Select[bbapers2, #PERS == 0 &][All, "z12AUDITESC"]];
lisdata2 = Normal[Select[bbapers2, #PERS == 1 &][All, "z12AUDITESC"]];
lisSumvarias = geraParcialSums[lisdata, Min[lisdata], Max[lisdata2]];
lisSumvarias2 = geraParcialSums[lisdata2, Min[lisdata2], Max[lisdata2]];

gr1 =
 Show[{ListPlot[{lisSumvarias, lisSumvarias2}, Joined → True, Filling → {1 → {2}},
    PlotStyle → {{Thin, Orange}}, Frame → True, FrameLabel → frametext],
   ListPlot[lisSumvarias], ListPlot[lisSumvarias2]
  }]
Export[prefix <> "varphipqrz6.pdf", gr1]
```



/Users/neylemke/Luisa/BancodeDadosDoutorado/varphipqrz6.pdf

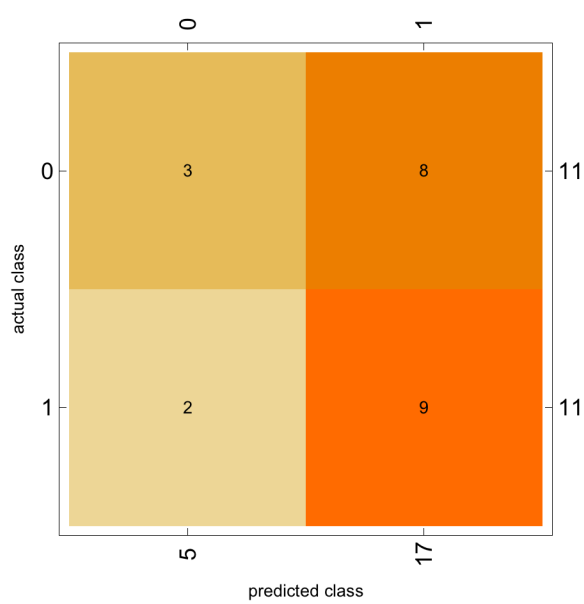
```
lissimul2
```

```
lisvarname =
  {"SEXO", "INSTRCHE", "IDADEBEB", "AMBINGE", "IDADE", "FAMILAL", "PERS"};
lisvar = ToExpression /@ (ToLowerCase /@ lisvarname);
datapoints = lisvarname /. Normal[bbapers2[All, lisvarname]];
datapoints = Cases[datapoints, Table[_Integer, Length[lisvarname]]];

datapointsml =
  Table[datapoints[[i, 1 ;; -2]] -> datapoints[[i, -1]], {i, 1, Length[datapoints]}];
```

```
ClassifierFunction[ Method RandomForest
                    Number of classes: 2 ]
```

```
listeste = RandomChoice[liscases, Floor[Length[datapointsml] / 2]];
listrain = Complement[liscases, listeste];
```

```
liscases = Table[i, {i, 1, Length[datapointsml]}];
lispos = Select[datapointsml, #[[2]] == 0 &];
lisneg = Select[datapointsml, #[[2]] == 1 &];
listestepos = RandomChoice[lispos, 11];
listesteneg = RandomChoice[lisneg, 11];
listrainpos = Complement[lispos, listestepos][[1 ;; 11]];
listrainneg = Complement[lisneg, listesteneg][[1 ;; 11]];
listeste = Join[listestepos, listesteneg];
listrain = Join[listrainpos, listrainneg];
c = Classify[listeste, Method -> "LogisticRegression"];
ClassifierMeasurements[c, listrain, "ConfusionMatrixPlot"]
```



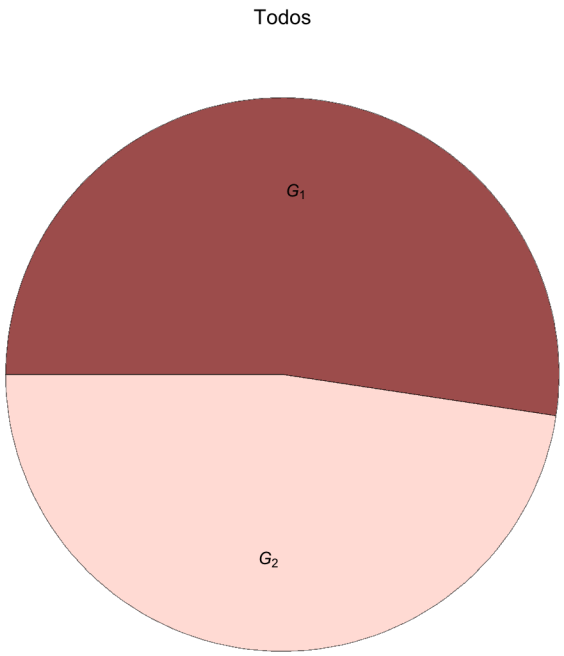
```
? Classify
```

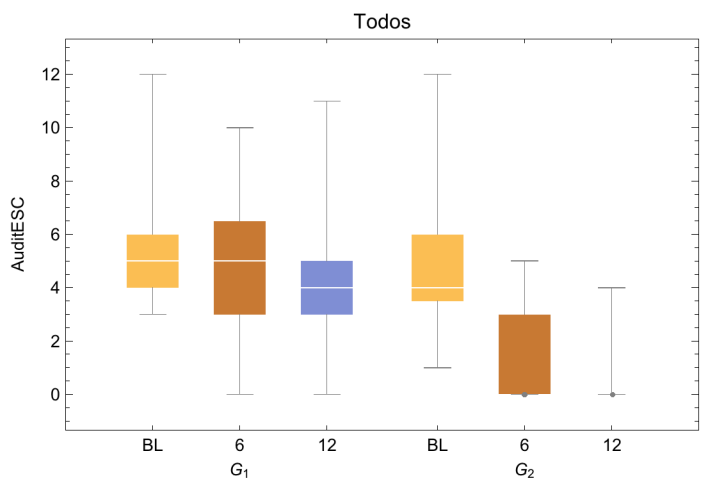
Info-2b6b82cd-6c5c-4a7c-8754-538c451d27d0

Classify[{example1 → class1, example2 → class2, …}]
generates a ClassifierFunction[…] based on the examples and classes given.
Classify[{example1, example2, …} → {class1, class2, …}] also generates a
ClassifierFunction[…] based on the examples and classes given.
Classify[<|class1 → {example11, example12, …}, class2 → {example21, …}, … |>] generates a
ClassifierFunction[…] based on an association of classes with their examples.
Classify[training, data] attempts to classify data using a classifier function deduced from the training set given.
Classify["name", data] attempts to classify data using the built-in classifier function represented by "name".
Classify[…, data, prop] gives the specified property of the classification associated with data. >>

AUDITC

```
lisevol = {"AUDITC", "z6AUDITC", "z12AUDITC"} /.
   Normal[bbariscol[All, {"AUDITC", "z6AUDITC", "z12AUDITC"}]];
lisclus = ClusteringComponents[lisevol, 2, 1, Method → "Optimize"];
lisclus2 = If[# == 2, 1, 0] & /@ lisclus;
P3 =
 PieChart[Last /@ Tally[lisclus], ChartStyle → 8,
  ChartLabels -> {"G1", "G2", "G3"}, PlotLabel → "Todos" ]

gr3 = BoxWhiskerChart[
  Table[Transpose[lisevol[[Flatten[Position[lisclus, k]]]]], {k, 1, 2}],
  ChartLabels → {{"\!\(\*SubscriptBox[\(G\), \(1\)]\)",
     "\!\(\*SubscriptBox[\(G\), \(2\)]\)", "\!\(\*SubscriptBox[\(G\), \(3\)]\)"},
    {"BL", "6", "12"}}, PlotLabel → "Todos", FrameLabel → "AuditESC"]
```


Todos
G_1
G_2

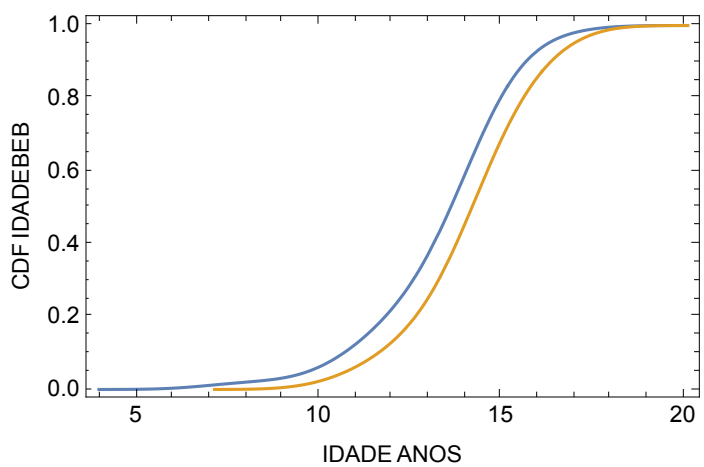

Todos
AuditESC
12
10
8
6
4
2
0
BL
6
12
BL
6
12
G_1
G_2

```
bbapers2 =
  Dataset@MapThread[Append, {Normal[bbarisco1], Thread["PERS" → lisclus2]}];
lisvarname = {"SEXO", "RELIGI", "INSTRCHE", "RELIGIPR", "PESO", "RACA",
   "IDADEBEB", "AMBINGE", "AMBEB", "IDADE", "FAMILAL", "PERS"};
bglm = bestGeneralizedLinearModelFitDataset[bbapers2, lisvarname, "AIC",
   ExponentialFamily → "Binomial", NominalVariables → {sexo, religi, raca}];
bglm["BestFitParameters"]
bglm["ParameterPValues"]
bglm["ParameterConfidenceIntervals"]
bglm["ParameterTable"]
```

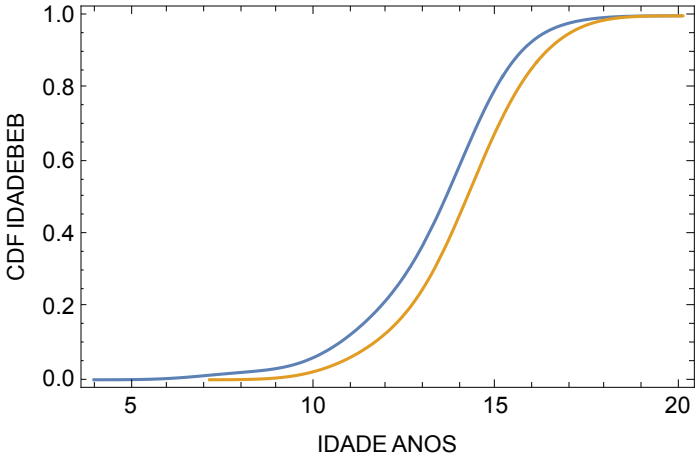
```
{2.8244, -0.0179754, 0.0638082, -0.113983, -0.170603}

{0.0135702, 0.00399878, 0.0341123, 0.0877089, 0.125203}

{{0.581803, 5.067}, {-0.0302159, -0.00573498},
 {0.00478175, 0.122835}, {-0.244811, 0.0168447}, {-0.38868, 0.0474738}}
```

	Estimate	StandardError	z-Statistic	P-Value
1	2.8244	1.1442	2.46844	0.0135702
altura	−0.0179754	0.00624525	−2.87826	0.00399878
idadebeb	0.0638082	0.0301161	2.11874	0.0341123
ambinge	−0.113983	0.0667501	−1.70761	0.0877089
familal	−0.170603	0.111266	−1.53329	0.125203

```
SmoothHistogram[Table[Cases[First /@
    GroupBy[{"IDADEBEB", "PERS"} /. Normal[bbapers2[All, {"IDADEBEB", "PERS"}]],
      Last][[i]], _Integer], {i, 1, 2}], 1, "CDF", Frame → True,
 FrameLabel → {HoldForm[IDADE ANOS], HoldForm[CDF IDADEBEB]},
 PlotLabel → None,
 LabelStyle → {FontFamily → "Arial", 12, GrayLevel[0]}]
```



```
Show[%1885, Frame → True, FrameLabel → {HoldForm[IDADE ANOS], HoldForm[CDF IDADEBEB]},
 PlotLabel → None, LabelStyle → {FontFamily → "Arial", 12, GrayLevel[0]}]
```




```
Clear[stepSelect]
```

```
data = Join[{"SEXO", "RELIGI", "INSTRCHE", "RELIGIPR", "PESO", "ALTURA", 1} /.
    Normal[bbapers], {"SEXO", "RELIGI", "INSTRCHE",
     "RELIGIPR", "PESO", "ALTURA", 0} /. Normal[bbanpers]];
glm = GeneralizedLinearModelFit[data, {sexo, religi, instrche, religipr,
    peso, altura}, {sexo, religi, instrche, religipr, peso, altura},
   NominalVariables → {sexo, religi}, ExponentialFamily → "Binomial"];
glm["BestFitParameters"]
glm["ParameterPValues"]
glm["ParameterConfidenceIntervals"]
glm["ParameterTable"]
```

```
{-20.38, 1.02053, 15.7042, 15.2401, 15.537,
 0.177824, 0.0366504, -0.0733484, 0.00275701, 0.0208192}
```

```
{0.993223, 0.173446, 0.994778, 0.994932,
 0.994834, 0.999958, 0.916253, 0.688233, 0.890823, 0.635999}
```

```
{{-4723.42, 4682.66}, {-0.448896, 2.48996}, {-4687.32, 4718.73},
 {-4687.78, 4718.26}, {-4687.48, 4718.56}, {-6650.9, 6651.25}, {-0.646469, 0.71977},
 {-0.431626, 0.284929}, {-0.0366101, 0.0421242}, {-0.0653943, 0.107033}}
```

	Estimate	StandardError	z-Statistic	P-Value
1	−20.38	2399.56	−0.00849325	0.993223
sexo[1]	1.02053	0.749723	1.36121	0.173446
relig[0]	15.7042	2399.54	0.00654467	0.994778
relig[1]	15.2401	2399.54	0.00635126	0.994932
relig[2]	15.537	2399.54	0.00647499	0.994834
relig[3]	0.177824	3393.47	0.000052402	0.999958
instrche	0.0366504	0.348537	0.105155	0.916253
religipr	−0.0733484	0.182798	−0.401254	0.688233
peso	0.00275701	0.0200857	0.137263	0.890823
altura	0.0208192	0.0439873	0.473301	0.635999

```
{sexo, idadebeb, instrche, religipr}
```

Conclusão o modelo abaixo é o melhor!

```
lisvarnames = {"SEXO", "IDADEBEB"};
datalm = Join[Append[lisvarnames, 1] /. Normal[bbapers],
   Append[lisvarnames, 0] /. Normal[bbanpers]];
datalm = Cases[datalm, Table[_Integer, Length[lisvarnames] + 1]];
lisvar = ToExpression /@ (ToLowerCase /@ lisvarnames);
glm = GeneralizedLinearModelFit[datalm, lisvar, lisvar,
   NominalVariables → {sexo}, ExponentialFamily → "Binomial"];
glm["BestFitParameters"]
glm["ParameterPValues"]
glm["ParameterConfidenceIntervals"]
glm["ParameterTable"]
glm["AIC"]
```

```
{2.7717, 1.33131, -0.320163}

{0.176458, 0.0122657, 0.0343827}

{{-1.24714, 6.79055}, {0.289419, 2.37321}, {-0.616779, -0.0235467}}
```

	Estimate	StandardError	z-Statistic	P-Value
1	2.7717	2.05047	1.35174	0.176458
sexo[1]	1.33131	0.531589	2.50441	0.0122657
idadebeb	−0.320163	0.151338	−2.11555	0.0343827

```
91.8781
```

```
data = Join[{"SEXO", "IDADEBEB", 0, "AUDITESC"} /. Normal[bbarisco1],
   {"SEXO", "IDADEBEB", 6, "z6AUDITESC"} /. Normal[bbarisco1],
   {"SEXO", "IDADEBEB", 12, "z12AUDITESC"} /. Normal[bbarisco1]];
data = Cases[data, {_Integer, _Integer, _Integer, _Integer}];
```

```
glm = GeneralizedLinearModelFit[data, {sexo, idadebeb, time}, {sexo, idadebeb, time},
   NominalVariables → {sexo}, ExponentialFamily → "Poisson"];
glm["BestFitParameters"]
glm["ParameterPValues"]
glm["ParameterConfidenceIntervals"]
glm["ParameterTable"]
```

{3.13473, 0.0574325, -0.0669389, -0.102871}

$\{3.67329\times10^{-54}, 0.289718, 4.30059\times10^{-6}, 4.02214\times10^{-68}\}$

{{2.73825, 3.53121}, {-0.0488878, 0.163753},
 {-0.0954831, -0.0383947}, {-0.114431, -0.0913108}}

	Estimate	StandardError	z-Statistic	P-Value
1	3.13473	0.202289	15.4963	3.67329×10^{-54}
sexo[1]	0.0574325	0.054246	1.05874	0.289718
idadebeb	−0.0669389	0.0145636	−4.5963	4.30059×10^{-6}
time	−0.102871	0.0058982	−17.4411	4.02214×10^{-68}

```
lisevol = {"AUDITESC", "z6AUDITESC", "z12AUDITESC"} /.
   Normal[bbariscol[All, {"AUDITESC", "z6AUDITESC", "z12AUDITESC"}]];
liscoeff = Table[lm = LinearModelFit[Log[lisevol[[i]] + 1], x, x];
   lm["BestFitParameters"][[2]], {i, 1, Length[lisevol]}];
lisdata = {"SEXO", "INSTRCHE", "IDADEBEB"} /.
   Normal[bbariscol[All, {"SEXO", "INSTRCHE", "IDADEBEB"}]];
lisdatacomp = Flatten /@ (Transpose@{lisdata, liscoeff});
lisdatacomp = Cases[lisdatacomp, {_Integer, _Integer, _Integer, _}];
lm = LinearModelFit[lisdatacomp,
   {sexo, instrche, idadebeb}, {sexo, instrche, idadebeb},
   NominalVariables → {sexo}, IncludeConstantBasis → True];
lm["ParameterTable"]
```

	Estimate	StandardError	t-Statistic	P-Value
1	0.511438	0.518359	0.986648	0.326827
sexo[1]	0.351475	0.118068	2.9769	0.00386398
instrche	−0.107338	0.0681412	−1.57523	0.1192
idadebeb	−0.0713668	0.0326715	−2.18437	0.0319002

```
lisevol = {"AUDITESC", "z6AUDITESC", "z12AUDITESC"} /.
   Normal[bbariscol[All, {"AUDITESC", "z6AUDITESC", "z12AUDITESC"}]];
liscoeff = Table[lm = LinearModelFit[Log[lisevol[[i]] + 1], x, x];
   lm["BestFitParameters"][[1]], {i, 1, Length[lisevol]}];
lisdata = {"SEXO", "INSTRCHE", "IDADEBEB", "GRUPO"} /.
   Normal[bbariscol[All, {"SEXO", "INSTRCHE", "IDADEBEB", "GRUPO"}]];
lisdatacomp = Flatten /@ (Transpose@{lisdata, liscoeff});
lisdatacomp = Cases[lisdatacomp, {_Integer, _Integer, _Integer, _, _}];
lm = LinearModelFit[lisdatacomp, {sexo, instrche, idadebeb, grupo},
   {sexo, instrche, idadebeb, grupo}, NominalVariables → {sexo}];
lm["ParameterTable"]
```

	Estimate	StandardError	t-Statistic	P-Value
1	2.17798	0.882597	2.46769	0.0157887
sexo[1]	−0.421047	0.198772	−2.11824	0.0373387
instrche	0.0822157	0.11472	0.716665	0.475721
idadebeb	0.0455838	0.0550317	0.82832	0.410017
grupo[C]	−0.150003	0.184591	−0.812622	0.418908

	Estimate	StandardError	t-Statistic	P-Value
1	0.461316	0.526347	0.876449	0.383478
sexo[1]	0.352891	0.11854	2.97698	0.0038762
instrche	−0.106497	0.0684145	−1.55665	0.123603
idadebeb	−0.0706014	0.0328188	−2.15125	0.0345516
grupo[C]	0.0695843	0.110083	0.632107	0.529166

```
REvaluate["
  {
library(nlme)

ctrl <- lmeControl(opt='optim')

bba.lme.1<-lme(value ~variable*GRUPO*SEXOS, random =
   ~ variable |ID,data=gdf.m,control=ctrl,na.action=na.exclude)
summary(bba.lme.1)}"]
```

REvaluate::rerr: Failed to retrieve the value for variable or piece of code
{
library(nlme)

ctrl<- lmeControl(opt='optim')

bba.lme.1<-lme(value ~variable*GRUPO*SEXOS, random= ~ variable|ID,data=gdf.m,control=ctrl,na.action=na.exclude)
summary(bba.lme.1)}. The following R error was encountered: Error in is.data.frame(data) : object 'gdf.m' not found >>

```
$Failed
```

```
fsex /@ data[[All, 1]] // Tally
```

```
{{F, 51}, {M, 31}}
```

```
data = Join[{"SEXO", "INSTRCHE", "IDADEBEB", 1} /. Normal[bbapers],
   {"SEXO", "INSTRCHE", "IDADEBEB", 0} /. Normal[bbanpers]];
data = Delete[data, -14];

data = data /. {a_, b_, c_, d_, x_} :> {a, b, c, fclasse[d], x};
glm = GeneralizedLinearModelFit[data,
   {sexo, instrche, idadebeb}, {sexo, instrche, idadebeb},
   NominalVariables → {sexo}, ExponentialFamily → "Binomial"];
glm["BestFitParameters"]
glm["ParameterPValues"]
glm["ParameterConfidenceIntervals"]
glm["ParameterTable"]
```

GeneralizedLinearModelFitdesmat:
Unable to construct a numeric design matrix. Nominal variables may need to be specified, or non-numeric entries for numeric variables may need to be replaced. >>

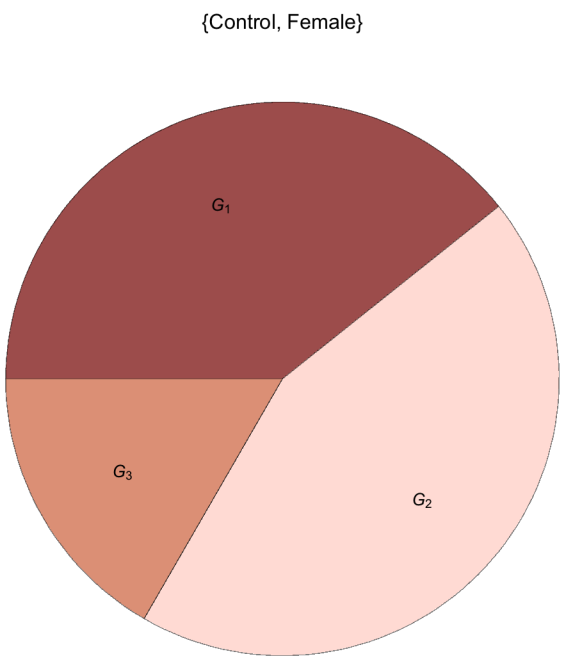
```
GeneralizedLinearModelFit[
  {{2, 2, 13, 1}, {1, 4, 14, 1}, {1, 3, 12, 1}, {2, 4, 13, 1}, {1, 3, 14, 1}, {1, 2, 13, 1},
   {1, 3, 14, 1}, {2, 3, 14, 1}, {2, 2, 14, 1}, {1, 3, 10, 1}, {2, 3, 14, 1}, {1, 2, 14, 1},
   {1, 4, 11, 1}, {2, 2, 12, 1}, {1, 4, 15, 1}, {1, 4, 12, 1}, {1, 4, 13, 1}, {2, 3, 14, 1},
   {2, 2, 7, 1}, {1, 1, 17, 1}, {2, 1, 11, 1}, {1, 3, 13, 1}, {1, 2, 14, 1}, {1, 3, 12, 0},
   {1, 4, 13, 0}, {1, 2, 15, 0}, {1, 3, 15, 0}, {1, 3, 14, 0}, {1, 3, 11, 0}, {1, 3, 14, 0},
   {1, 3, 14, 0}, {1, 3, 15, 0}, {1, 3, 12, 0}, {1, 4, 10, 0}, {1, 4, 14, 0}, {1, 1, 16, 0},
   {1, 2, 15, 0}, {1, 3, 15, 0}, {1, 3, 15, 0}, {1, 3, 11, 0}, {2, 1, 14, 0}, {2, 2, 14, 0},
   {2, 2, 12, 0}, {2, 2, 15, 0}, {2, 2, 14, 0}, {2, 3, 11, 0}, {2, 1, 15, 0},
   {2, 1, 15, 0}, {2, 1, 14, 0}, {2, 2, 14, 0}, {2, 2, 14, 0}, {2, 2, 15, 0},
   {2, 2, 13, 0}, {2, 2, 17, 0}, {2, 2, 14, 0}, {2, 2, 14, 0}, {2, 2, 14, 0},
   {2, 2, 13, 0}, {2, 3, 14, 0}, {2, 3, 16, 0}, {2, 3, , 0}, {2, 3, 15, 0}, {2, 3, 15, 0},
   {2, 3, 13, 0}, {2, 3, 14, 0}, {2, 3, 14, 0}, {2, 3, 15, 0}, {2, 3, 11, 0},
   {2, 3, 14, 0}, {2, 3, 17, 0}, {2, 3, 14, 0}, {2, 3, 14, 0}, {2, 4, 15, 0},
   {2, 4, 13, 0}, {2, 4, 14, 0}, {2, 4, 10, 0}, {2, 2, 15, 0}, {2, 2, 12, 0},
   {2, 2, 15, 0}, {2, 3, 16, 0}, {2, 3, 16, 0}, {2, 1, 16, 0}, {2, 2, 14, 0}},
  {sexo, instrche, idadebeb}, {sexo, instrche, idadebeb},
  NominalVariables → {sexo}, ExponentialFamily → Binomial][BestFitParameters]
```

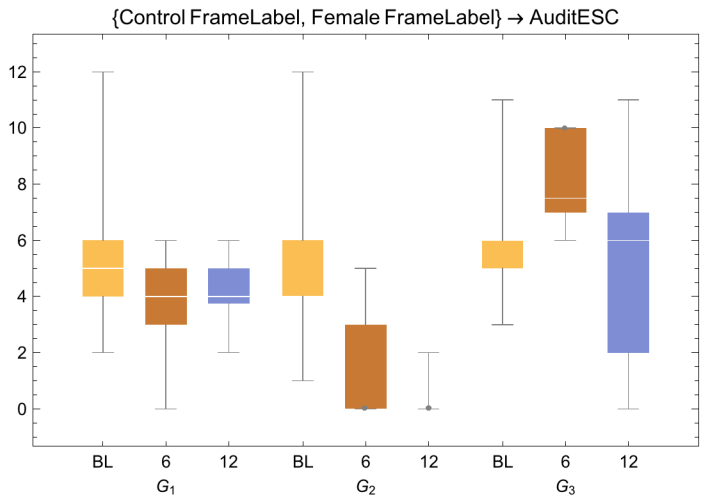
```
GeneralizedLinearModelFit[
  {{2, 2, 13, 1}, {1, 4, 14, 1}, {1, 3, 12, 1}, {2, 4, 13, 1}, {1, 3, 14, 1}, {1, 2, 13, 1},
   {1, 3, 14, 1}, {2, 3, 14, 1}, {2, 2, 14, 1}, {1, 3, 10, 1}, {2, 3, 14, 1}, {1, 2, 14, 1},
   {1, 4, 11, 1}, {2, 2, 12, 1}, {1, 4, 15, 1}, {1, 4, 12, 1}, {1, 4, 13, 1}, {2, 3, 14, 1},
   {2, 2, 7, 1}, {1, 1, 17, 1}, {2, 1, 11, 1}, {1, 3, 13, 1}, {1, 2, 14, 1}, {1, 3, 12, 0},
   {1, 4, 13, 0}, {1, 2, 15, 0}, {1, 3, 15, 0}, {1, 3, 14, 0}, {1, 3, 11, 0}, {1, 3, 14, 0},
   {1, 3, 14, 0}, {1, 3, 15, 0}, {1, 3, 12, 0}, {1, 4, 10, 0}, {1, 4, 14, 0}, {1, 1, 16, 0},
   {1, 2, 15, 0}, {1, 3, 15, 0}, {1, 3, 15, 0}, {1, 3, 11, 0}, {2, 1, 14, 0}, {2, 2, 14, 0},
   {2, 2, 12, 0}, {2, 2, 15, 0}, {2, 2, 14, 0}, {2, 3, 11, 0}, {2, 1, 15, 0},
   {2, 1, 15, 0}, {2, 1, 14, 0}, {2, 2, 14, 0}, {2, 2, 14, 0}, {2, 2, 15, 0},
   {2, 2, 13, 0}, {2, 2, 17, 0}, {2, 2, 14, 0}, {2, 2, 14, 0}, {2, 2, 14, 0},
   {2, 2, 13, 0}, {2, 3, 14, 0}, {2, 3, 16, 0}, {2, 3, , 0}, {2, 3, 15, 0}, {2, 3, 15, 0},
   {2, 3, 13, 0}, {2, 3, 14, 0}, {2, 3, 14, 0}, {2, 3, 15, 0}, {2, 3, 11, 0},
   {2, 3, 14, 0}, {2, 3, 17, 0}, {2, 3, 14, 0}, {2, 3, 14, 0}, {2, 4, 15, 0},
   {2, 4, 13, 0}, {2, 4, 14, 0}, {2, 4, 10, 0}, {2, 2, 15, 0}, {2, 2, 12, 0},
   {2, 2, 15, 0}, {2, 3, 16, 0}, {2, 3, 16, 0}, {2, 1, 16, 0}, {2, 2, 14, 0}},
  {sexo, instrche, idadebeb}, {sexo, instrche, idadebeb},
  NominalVariables → {sexo}, ExponentialFamily → Binomial][ParameterPValues]
```

```
GeneralizedLinearModelFit[
  {{2, 2, 13, 1}, {1, 4, 14, 1}, {1, 3, 12, 1}, {2, 4, 13, 1}, {1, 3, 14, 1}, {1, 2, 13, 1},
   {1, 3, 14, 1}, {2, 3, 14, 1}, {2, 2, 14, 1}, {1, 3, 10, 1}, {2, 3, 14, 1}, {1, 2, 14, 1},
   {1, 4, 11, 1}, {2, 2, 12, 1}, {1, 4, 15, 1}, {1, 4, 12, 1}, {1, 4, 13, 1}, {2, 3, 14, 1},
   {2, 2, 7, 1}, {1, 1, 17, 1}, {2, 1, 11, 1}, {1, 3, 13, 1}, {1, 2, 14, 1}, {1, 3, 12, 0},
   {1, 4, 13, 0}, {1, 2, 15, 0}, {1, 3, 15, 0}, {1, 3, 14, 0}, {1, 3, 11, 0}, {1, 3, 14, 0},
   {1, 3, 14, 0}, {1, 3, 15, 0}, {1, 3, 12, 0}, {1, 4, 10, 0}, {1, 4, 14, 0}, {1, 1, 16, 0},
   {1, 2, 15, 0}, {1, 3, 15, 0}, {1, 3, 15, 0}, {1, 3, 11, 0}, {2, 1, 14, 0}, {2, 2, 14, 0},
   {2, 2, 12, 0}, {2, 2, 15, 0}, {2, 2, 14, 0}, {2, 3, 11, 0}, {2, 1, 15, 0},
   {2, 1, 15, 0}, {2, 1, 14, 0}, {2, 2, 14, 0}, {2, 2, 14, 0}, {2, 2, 15, 0},
   {2, 2, 13, 0}, {2, 2, 17, 0}, {2, 2, 14, 0}, {2, 2, 14, 0}, {2, 2, 14, 0},
   {2, 2, 13, 0}, {2, 3, 14, 0}, {2, 3, 16, 0}, {2, 3, , 0}, {2, 3, 15, 0}, {2, 3, 15, 0},
   {2, 3, 13, 0}, {2, 3, 14, 0}, {2, 3, 14, 0}, {2, 3, 15, 0}, {2, 3, 11, 0},
   {2, 3, 14, 0}, {2, 3, 17, 0}, {2, 3, 14, 0}, {2, 3, 14, 0}, {2, 4, 15, 0},
   {2, 4, 13, 0}, {2, 4, 14, 0}, {2, 4, 10, 0}, {2, 2, 15, 0}, {2, 2, 12, 0},
   {2, 2, 15, 0}, {2, 3, 16, 0}, {2, 3, 16, 0}, {2, 1, 16, 0}, {2, 2, 14, 0}},
  {sexo, instrche, idadebeb}, {sexo, instrche, idadebeb},
  NominalVariables → {sexo}, ExponentialFamily → Binomial][
 ParameterConfidenceIntervals]
```

```
GeneralizedLinearModelFit[
  {{2, 2, 13, 1}, {1, 4, 14, 1}, {1, 3, 12, 1}, {2, 4, 13, 1}, {1, 3, 14, 1}, {1, 2, 13, 1},
   {1, 3, 14, 1}, {2, 3, 14, 1}, {2, 2, 14, 1}, {1, 3, 10, 1}, {2, 3, 14, 1}, {1, 2, 14, 1},
   {1, 4, 11, 1}, {2, 2, 12, 1}, {1, 4, 15, 1}, {1, 4, 12, 1}, {1, 4, 13, 1}, {2, 3, 14, 1},
   {2, 2, 7, 1}, {1, 1, 17, 1}, {2, 1, 11, 1}, {1, 3, 13, 1}, {1, 2, 14, 1}, {1, 3, 12, 0},
   {1, 4, 13, 0}, {1, 2, 15, 0}, {1, 3, 15, 0}, {1, 3, 14, 0}, {1, 3, 11, 0}, {1, 3, 14, 0},
   {1, 3, 14, 0}, {1, 3, 15, 0}, {1, 3, 12, 0}, {1, 4, 10, 0}, {1, 4, 14, 0}, {1, 1, 16, 0},
   {1, 2, 15, 0}, {1, 3, 15, 0}, {1, 3, 15, 0}, {1, 3, 11, 0}, {2, 1, 14, 0}, {2, 2, 14, 0},
   {2, 2, 12, 0}, {2, 2, 15, 0}, {2, 2, 14, 0}, {2, 3, 11, 0}, {2, 1, 15, 0},
   {2, 1, 15, 0}, {2, 1, 14, 0}, {2, 2, 14, 0}, {2, 2, 14, 0}, {2, 2, 15, 0},
   {2, 2, 13, 0}, {2, 2, 17, 0}, {2, 2, 14, 0}, {2, 2, 14, 0}, {2, 2, 14, 0},
   {2, 2, 13, 0}, {2, 3, 14, 0}, {2, 3, 16, 0}, {2, 3, , 0}, {2, 3, 15, 0}, {2, 3, 15, 0},
   {2, 3, 13, 0}, {2, 3, 14, 0}, {2, 3, 14, 0}, {2, 3, 15, 0}, {2, 3, 11, 0},
   {2, 3, 14, 0}, {2, 3, 17, 0}, {2, 3, 14, 0}, {2, 3, 14, 0}, {2, 4, 15, 0},
   {2, 4, 13, 0}, {2, 4, 14, 0}, {2, 4, 10, 0}, {2, 2, 15, 0}, {2, 2, 12, 0},
   {2, 2, 15, 0}, {2, 3, 16, 0}, {2, 3, 16, 0}, {2, 1, 16, 0}, {2, 2, 14, 0}},
  {sexo, instrche, idadebeb}, {sexo, instrche, idadebeb},
  NominalVariables → {sexo}, ExponentialFamily → Binomial][ParameterTable]
```

```
l = 1;
lisevol = {"AUDITC" * 1., "z6AUDITC", "z12AUDITC"} /.
   Normal[bbarisco1[All, {"AUDITC", "z6AUDITC", "z12AUDITC"}]];
lisclus = ClusteringComponents[lisevol, 3, 1, Method → "KMeans"];
P3 =
 PieChart[Tally[lisclus] /. {x_, y_} → y, ChartStyle → 8,
  ChartLabels -> {"G1", "G2", "G3"}, PlotLabel → StringReplace[labels[[l]],
    {"C" → "Control", "I" → "Intervention", "M" → "Male", "F" → "Female"}] ]

gr3 = BoxWhiskerChart[Table[Transpose[lisevol[[Flatten[Position[lisclus, k]]]]],
   {k, 1, ngrupos[[l]]}], ChartLabels →
   {{"\!\(\*SubscriptBox[\(G\), \(1\)]\)", "\!\(\*SubscriptBox[\(G\), \(2\)]\)",
     "\!\(\*SubscriptBox[\(G\), \(3\)]\)"}, {"BL", "6", "12"}},
  PlotLabel → StringReplace[labels[[l]], {"C" → "Control", "I" → "Intervention",
       "M" → "Male", "F" → "Female"}] FrameLabel → "AuditESC"]

lisvar = {"SEXO", "RELIGI", "CLASSE", "INSTRCHE", "RELIGIPR", "PESO", "ALTURA",
   "RACA", "IDADEBEB", "AMIGBEB", "AMBINGE", "IDADE", "FAMILAL", "CLASSE"};
bbapers = bbarisco1[Flatten[Position[lisclus, 3]], lisvar];
bbanpers = Union[bbarisco1[Flatten[Position[lisclus, 2]], lisvar],
   bbarisco1[Flatten[Position[lisclus, 1]], lisvar]];
```





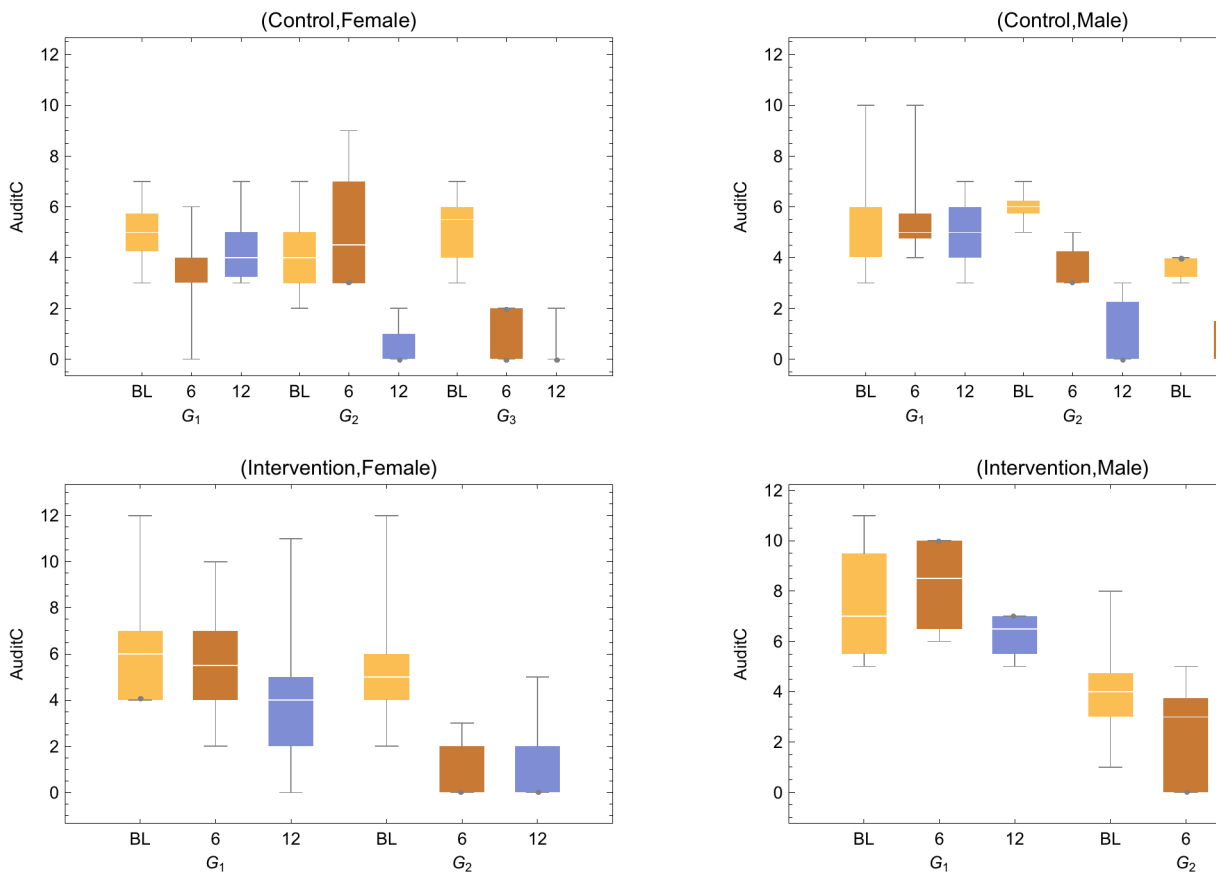

```
data = Join[{"SEXO", "INSTRCHE", "IDADEBEB", 1} /. Normal[bbapers],
   {"SEXO", "INSTRCHE", "IDADEBEB", 0} /. Normal[bbanpers]];
data = Delete[data, -14];
data = Delete[data, -24];
data = data /. {a_, b_, c_, d_, x_} :> {a, b, c, fclasse[d], x};
glm = GeneralizedLinearModelFit[data,
   {sexo, instrche, idadebeb}, {sexo, instrche, idadebeb},
   NominalVariables → {sexo}, ExponentialFamily → "Binomial"];
glm["BestFitParameters"]
glm["ParameterPValues"]
glm["ParameterConfidenceIntervals"]
glm["ParameterTable"]
```

```
{0.157063, 0.120711, 0.137544, -0.159708}

{0.951656, 0.849595, 0.714254, 0.331771}

{{-4.92053, 5.23466}, {-1.12688, 1.3683},
 {-0.598718, 0.873807}, {-0.482226, 0.16281}}
```

	Estimate	StandardError	z-Statistic	P-Value
1	0.157063	2.59066	0.0606268	0.951656
sexo[1]	0.120711	0.636539	0.189636	0.849595
instrche	0.137544	0.375651	0.366149	0.714254
idadebeb	−0.159708	0.164553	−0.970554	0.331771

```
data[[-24, -2]]
```

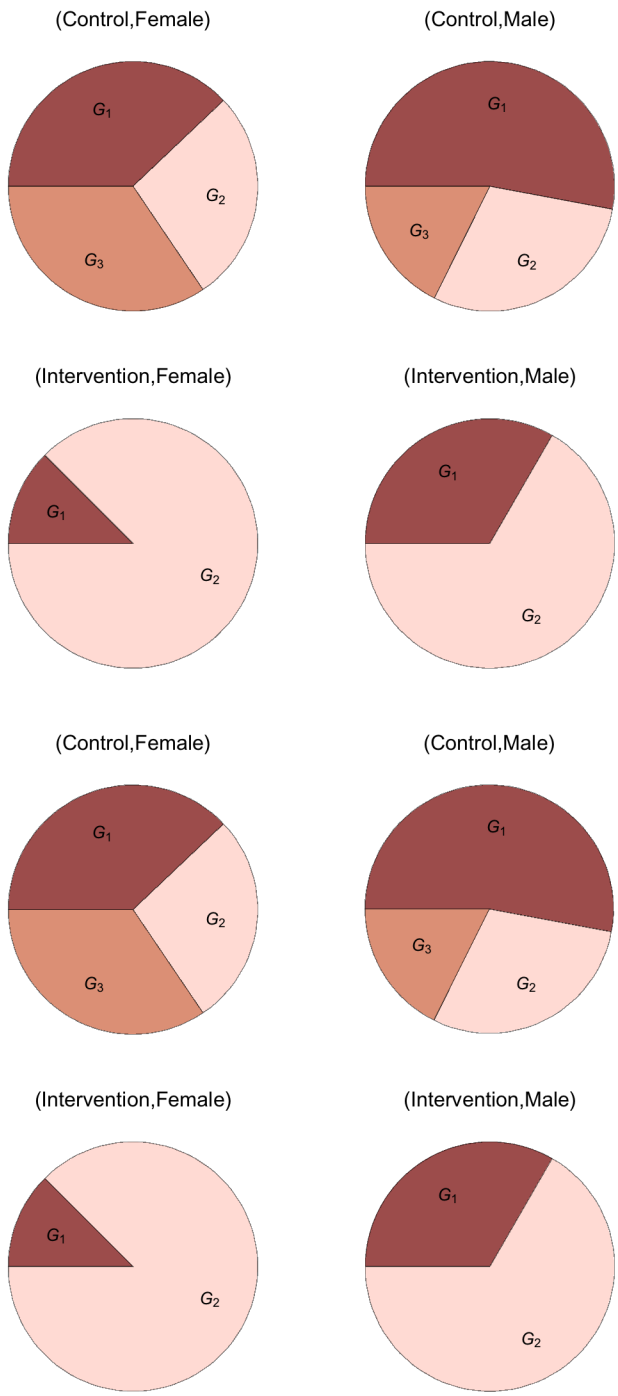
```
lisevol = Transpose[{partauditc1[[4]], partauditc1z6[[4]], partauditc1z12[[4]]}];
lisclus = ClusteringComponents[lisevol, 2, 1, Method → "KMeans"];
lisevol2 =
  Table[N[Mean /@ Transpose[lisevol[[Flatten[Position[lisclus, k]]]]]], {k, 1, 2}];

P4 = PieChart[Tally[lisclus] /. {x_, y_} → y, ChartStyle → 8,
   ChartLabels → Reverse[{"\!\(\*SubscriptBox[\(G\), \(2\)]\)",
      "\!\(\*SubscriptBox[\(G\), \(1\)]\)"}],
   PlotLabel → StringReplace[labels[[4]], {"C" → "Control",
      "I" → "Intervention", "M" → "Male", "F" → "Female"}]];

gr4 = BoxWhiskerChart[
   Reverse[Table[Transpose[lisevol[[Flatten[Position[lisclus, k]]]]], {k, 1, 2}]],
   ChartLabels → {{"G1", "G2"}, {"BL", "6", "12"}},
   FrameLabel → "AuditC", PlotLabel → StringReplace[labels[[4]],
     {"C" → "Control", "I" → "Intervention", "M" → "Male", "F" → "Female"}]];

gg1 = GraphicsGrid[{{gr1, gr2}, {gr3, gr4}}]
```




```
Export["/Users/neylemke/Luisa/BancodeDadosDoutorado/chartsgrupos.pdf", gg1]
```

/Users/neylemke/Luisa/BancodeDadosDoutorado/chartsgrupos.pdf

```
gg2 = GraphicsGrid[{{P1, P2}, {P3, P4}}]
```




```
Export["/Users/neylemke/Luisa/BancodeDadosDoutorado/piechartsgrupos.pdf", gg2]
```

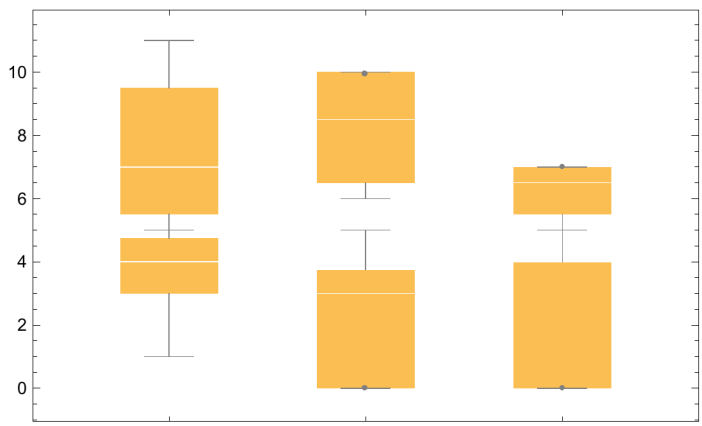
/Users/neylemke/Luisa/BancodeDadosDoutorado/piechartsgrupos.pdf

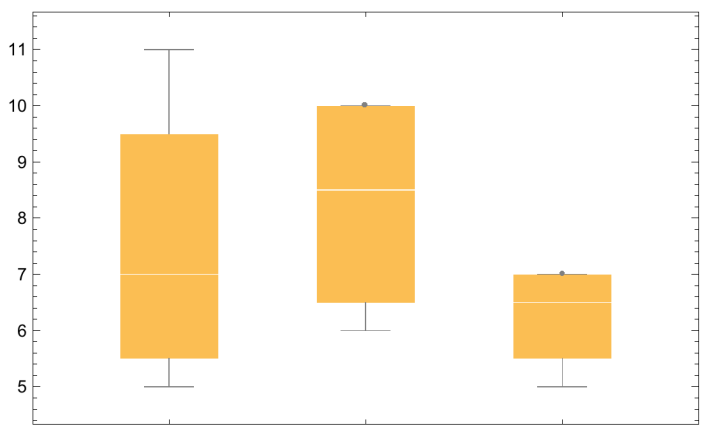
```
{4.90909, 3.27273, 4.27273}
```

```
liskkk = Table[
  lisevol[[Flatten[Position[lisclus, k]]] ], {k, 1, 2}]
```

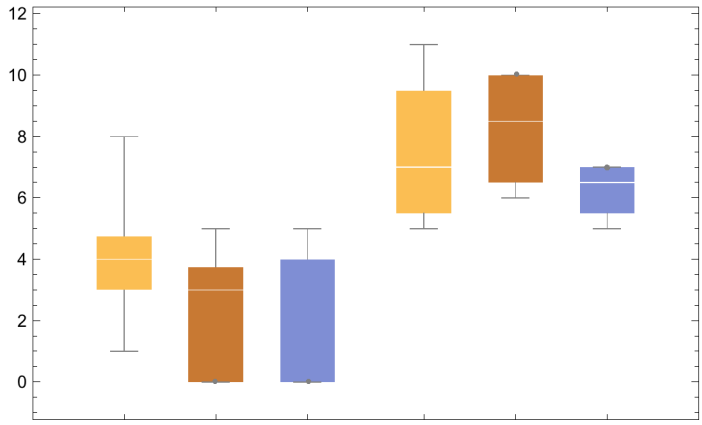
```
{{{3, 0, 5}, {4, 4, 5}, {4, 5, 4}, {5, 5, 4}, {3, 3, 3}, {3, 0, 0}, {5, 3, 4}, {8, 3, 4},
  {2, 0, 0}, {1, 3, 0}, {4, 0, 0}}, {{5, 7, 7}, {11, 6, 7}, {6, 10, 6}, {8, 10, 5}}}
```

```
gr1 = BoxWhiskerChart[liskkk[[1]] // Transpose];
gr2 = BoxWhiskerChart[liskkk[[2]] // Transpose];
Show[gr1, gr2]
```

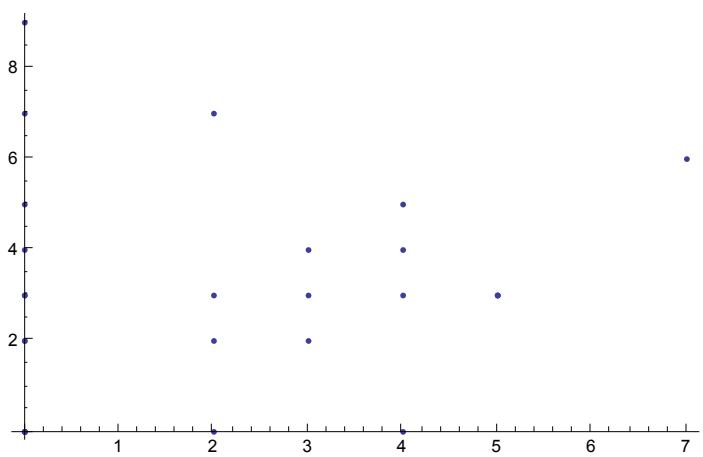




```
BoxWhiskerChart[{liskkk[[1]] // Transpose, liskkk[[2]] // Transpose}]
```




```
ListPlot[Transpose[{partauditc1z12[[1]], partauditc1z6[[1]]}]]
```




```
partauditc1[[2, -4]] = 3;
Table[
 lm = LinearModelFit[Transpose[{partauditc1[[j]], partauditc1z6[[j]]}], x, x];
 (lm["BestFitParameters"])[[2]], {j, 1, 4}]
```

{0.141533, 0.525485, 0.01, 0.739407}

```
partauditc1[[2, -4]] = 3;
Table[
 lm = LinearModelFit[Transpose[{partauditc1z12[[j]], partauditc1z6[[j]]}], x, x];
 (lm["BestFitParameters"])[[2]], {j, 1, 4}]
```

{0.22564, 0.782609, 0.572822, 0.931507}

```
partauditc1[[2, -4]] = 3;
Table[
 lm = LinearModelFit[Transpose[{partauditc1z12[[j]], partauditc1[[j]]}], x, x];
 (lm["BestFitParameters"])[[2]], {j, 1, 4}]
```

```
{0.080294, 0.0652174, 0.0833518, 0.694064}
```

```
labels
```

```
{(C,F), (C,M), (I,M), (I,F)}
```

```
Prepend[
  Table[{labels[[i]], {SignedRankTest[{partauditc1[[i]], partauditc1z6[[i]]}],
     SignedRankTest[{partauditc1[[i]], partauditc1z12[[i]]}],
     SignedRankTest[{partauditc1z6[[i]], partauditc1z12[[i]]}]}}, {i, 1, 4}],
  {"Grupo", {"LB    -6", "LB-12", "6-12"}}] // Grid
```

Grupo	{LB -6, LB-12, 6-12}
(C,F)	{0.00220239, 0.0000266405, 0.128089}
(C,M)	{0.105978, 0.011412, 0.0136217}
(I,M)	{0.00168005, 0.000378463, 0.49192}
(I,F)	{0.205371, 0.0578773, 0.714815}

```
labels
```

```
{(C,F), (C,M), (I,M), (I,F)}
```

```
μ = Mean[Select[data1[[All, col["AUDIT1"]]], NumberQ]] +
   Mean[Select[data1[[All, col["AUDIT2"]]], NumberQ]] +
   Mean[Select[data1[[All, col["AUDIT3"]]], NumberQ]] // N;
partauditc1[[2, -4]] = 3;
Table[lm =
  LinearModelFit[Transpose[{partauditc1[[j]] - μ, partauditc1z6[[j]] - μ}], x, x];
 {lm["BestFitParameters"][[1]], lm["ParameterConfidenceIntervals"][[1]],
  lm["ParameterPValues"][[1]]}, {j, 1, 4}]
```

```
{{0.996031, {-1.43325, 3.42531}, 0.407585},
 {0.794442, {-2.18965, 3.77853}, 0.578805}, {1.22912, {-1.44785, 3.90608}, 0.351337},
 {0.0206969, {-2.63058, 2.67197}, 0.986801}}
```

```
partauditc1[[2, -4]] = 3;
Table[
 lm = LinearModelFit[Transpose[{partauditc1[[j]], partauditc1z6[[j]]}], x, x];
 (lm["BestFitParameters"]), {j, 1, 4}]
```

```
{{2.19345, 0.141533}, {1.45631, 0.525485}, {2.61, 0.01}, {0.384181, 0.739407}}
```

```
"SOLV12", "COCA12", "CRACK12", "MACON12", "ANFETA12", "LSD12", "ANTICOLI",
"ANABOLI1", "EXT12", "TRANQ12", "TABC12", "TABCDIA1", "OTRDRG12"
```