Banco de Dados Escolas de Botucatu

TODO List

- Gerar tabelas
  - Número de participantes (Feito)
  - Variáveis de Consumo de Álcool
- Comparar com resultados da Luzia
  - Existem ainda discrepâncias nas médias da variável AUDITESC
- Configurar Células de Inicialização (Feito)
- Corrigir geraglmAIC (usa variáves externas) (Feito)
- Gerar Informações de forma automática
- Gerar um Notebook com os dados (Em andamento)

Pacotes Externos

```
Needs["RLink`"]
```

```
InstallR[]
REvaluate["sample(1:100,10)"]
```

```
{64, 13, 77, 52, 90, 62, 66, 58, 98, 32}
```

Definições Gerais

Funções Hash e Conversões

Definições

```
hashlsd["RELIGI"] = {{0, "Não tem"},
{1, "Católica"},
{2, "Evangélica/protestante"},
{3, "Espírita"},
{4, "Judaica"},
{5, "Afro-brasileira"},
{6, "Orientais/budismo"},
{7, "Outra"},
{9, "Prejudicado/não sabe"}};

hashlsd["RELIGIPR"] = {{0, "Não tenho religião"},
{1, "Não freqüento,porém acredito"},
{2, "Freqüento menos que 1x/mês"},
{3, "Freqüento pelo menos 2x/mês"},
{4, "Freqüento 1x/semana"},
{6, "Freqüento 2x/semana ou mais"}};

hashlsd["RACA"] = {{1, "Branca"},
{2, "Preta"},
{3, "Parda"},
{4, "Amarela"},
{5, "Indígena"},
{6, "Outros"}};

hashlsd["CLASSE"] = {{"E", "E"},
{"D", "D"},
{"C2", "C2"},
{"C1", "C1"},
{"B2", "B2"},
{"B1", "B1"}, {"A2", "A2"},
{"A1", "A1"}};


hashlsd["INSTRCHE"] = {{0, "Até 3ª Série Fundamental"},
{1, "4ª Série Fundamental"},
{2, "Fundamental completo"},
{3, "Médio completo"},
{4, "Superior completo"}};
```

```
hashlsd["AUDIT11"] = {
   {0, "Nenhuma"} ,
   {1, "Uma ou menos de uma vez por mês"},
{2, "2 a 4 vezes por mês"},
{3, "2 a 3 vezes por semana"},
   {4, "4 ou mais vezes por semana"}};

hashaoc[0] = "0 doses";
hashaoc[1] = "1 ou 2 doses";
hashaoc[2] = "3 ou 4 doses";
hashaoc[3] = "5 ou mais doses";


hashGrupos[1] = "BR";
hashGrupos[2] = "C";
hashGrupos[3] = "I";

hashvarname["RELIGI"] = "Preferência Religiosa";
hashvarname["RELIGIPR"] = "Prática da Religião";
hashvarname["RACA"] = "Raça";
hashvarname["INSTRCHE"] = "Instrução do Chefe";
hashvarname["CLASSE"] = "Classe Social";


classeE = Interval[{0, 7}];
classeD = Interval[{8, 13}];
classeC2 = Interval[{14, 17}];
classeC1 = Interval[{18, 22}];
classeB2 = Interval[{23, 28}];
classeB1 = Interval[{29, 33}];
classeA2 = Interval[{34, 41}];
classeA1 = Interval[{42, 46}];


strclasses = "Televisoresemcores 0 1 2 3 4
Videocassete 0 2 2 2 2
Rádios 0 1 2 3 4
Banheiros 0 4 5 6 7
Automóveis 0 4 7 9 9
Empregadasmensalistas 0 3 4 4 4
Máquinaslavar 0 2 2 2 2
Geladeira 0 4 4 4 4
Freezer* 0 2 2 2 2";



lispesos =
  (Partition[StringSplit[strclasses, {" ", "\n"}], 6])[[All, {2, 3, 4, 5, 6}]];
lisbens = {"ABIPEMET", "ABIPEMEV", "ABIPEMER", "ABIPEMEW",
   "ABIPEMEC", "ABIPEMEE", "ABIPEMEM", "ABIPEMEG", "ABIPEMEF"};

listabbens =
  Transpose@Prepend[Transpose[lispesos], {"ABIPEMET", "ABIPEMEV", "ABIPEMER",
     "ABIPEMEW", "ABIPEMEC", "ABIPEMEE", "ABIPEMEM", "ABIPEMEG", "ABIPEMEF"}];
Do[hashbens[listabbens[[i, 1]]] = Rest[listabbens[[i]]], {i, 1, Length[listabbens]}]
```

```
geraglmAIC[lisvarnames_] := Module[{datalm, lisvar, lisnominal, glm},
  datalm = Join[Append[lisvarnames, 1] /. Normal[bbapers],
    Append[lisvarnames, 0] /. Normal[bbanpers]];
  datalm = Cases[datalm, Table[_Integer, Length[lisvarnames] + 1]];
  lisvar = ToExpression /@ (ToLowerCase /@ lisvarnames);
  lisnominal = Intersection[lisvarnames, {sexo, raca, religi, classe}];
  glm = GeneralizedLinearModelFit[datalm, lisvar, lisvar,
    NominalVariables → lisnominal, ExponentialFamily → "Binomial"];
  glm["AIC"]]

stepAIC[{lisvarnames_, num_}] :=
 Module[{}, First[Sort[Append[{#, geraglmAIC[#]} & /@ (Table[Delete[lisvarnames, i],
        {i, 1, Length[lisvarnames]}])], {lisvarnames, num}], #2[[2]] > #1[[2]] &]]
 ]


GeneralizedLinearModelFitDataset[dataset_, lisvarname_, opts : OptionsPattern[]] :=
 Module[{lisvar, datapoints},
  lisvar = ToExpression /@ (ToLowerCase /@ lisvarname);
  datapoints = lisvarname /. Normal[dataset[All, lisvarname]];
  datapoints = Cases[datapoints, Table[_Integer, Length[lisvarname]]];
  GeneralizedLinearModelFit[datapoints, Delete[lisvar, -1], Delete[lisvar, -1]
   , Sequence @@ FilterRules[{opts}, Options[GeneralizedLinearModelFit]]]
 ]
stepSelect[dataset_, lisvarname_, crit_, opts : OptionsPattern[]] :=
 Module[{}, First[Sort[Append[{#, GeneralizedLinearModelFitDataset[dataset, #,
          Sequence @@ FilterRules[{opts}, GeneralizedLinearModelFit]][crit]} & /@
      (Table[Delete[lisvarname, i], {i, 1, Length[lisvarname] - 1}]),
     {lisvarname, GeneralizedLinearModelFitDataset[dataset, lisvarname,
        Sequence @@ FilterRules[{opts}, GeneralizedLinearModelFit]][
       crit]}], #2[[2]] > #1[[2]] &]]
 ]



bestGeneralizedLinearModelFitDataset[dataset_, lisvarname_,
  crit_, opts : OptionsPattern[]] := Module[{best, minaic, subs},
  subs = Subsets[Delete[lisvarname, -1]];
  {best, minaic} =
   First[MinimalBy[{#, GeneralizedLinearModelFitDataset[dataset, Append[#,
            Last[lisvarname]], ExponentialFamily → "Binomial", NominalVariables →
            Intersection[#, {sexo, religi, raca}]]["AIC"]} & /@ subs, Last]];
  GeneralizedLinearModelFitDataset[dataset, Append[best, Last[lisvarname]],
   Sequence @@ FilterRules[{opts}, GeneralizedLinearModelFit]]]

hashVarNames["AUDITC"] = "LB:AUDITC";
```

```
hashVarNames["DROGAS30"] = "LB:DROGAS30";
hashVarNames["DROGAS12"] = "LB:DROGAS12";
hashVarNames["z6AUDITC"] = "6:AUDITC";
hashVarNames["z6DROGAS30"] = "6:DROGAS30";
hashVarNames["z12AUDITC"] = "12:AUDITC";
hashVarNames["z12DROGAS30"] = "12:DROGAS30";
hashVarNames["DROGAS30BIT"] = "LB:DROGAS30";
hashVarNames["DROGAS12BIT"] = "LB:DROGAS12";
hashVarNames["z6DROGAS30BIT"] = "6:DROGAS30";
hashVarNames["z12DROGAS30BIT"] = "12:DROGAS30";


hashGrupos[1] = "BR";
hashGrupos[2] = "C";
hashGrupos[3] = "I";



hashfreq[0] = "Cerca de 1 $\\times$ mês";
hashfreq[1] = "2 a 3 $\\times$ mês";
hashfreq[2] = "1 a 2 $\\times$ semana";
hashfreq[3] = "3 a 4 $\\times$ semana";
hashfreq[4] = "Quase todos os dias";


fsex[x_] := If[x == 2, "F", "M"]
errorBar[orig_, fim_] :=
 {Arrowheads[{{.01, 1, bar}}], Arrow[{{orig, fim}}], Arrow[{fim, orig}]}
bar = Graphics[Line[{{0, -1}, {0, 1}}]];


gerapart[part1_, var_] := Normal[part1[All, var]] /. Times[x_, ""] → x

calcEfeito[lisRTM_, L_, ρ_] := Module[{μ, σ, z},
  μ = Mean[lisRTM];
  σ = StandardDeviation[lisRTM];
  z = (μ - L) / σ;
  σ PDF[NormalDistribution[0, 1], (L - μ) / σ] /
    (CDF[NormalDistribution[0, 1], (-L + μ) / σ]) (1 - ρ)
 ]
geraCorr[dataset_, var1_, var2_] := Module[{liscorr}, liscorr =
    Cases[{var1, var2} /. Normal[dataset[All, {var1, var2}]], {_Integer, _Integer}];
   {N[Correlation[liscorr[[All, 1]], liscorr[[All, 2]]]],
    CorrelationTest[liscorr]}];

geraporcento[data_, crit_] := N[100 * Length[Select[data, crit]] / Length[data], 4];
geraporcento2[data_, crit_] := {Length[Select[data, crit]],
   N[100 * Length[Select[data, crit]] / Length[data], 4]};
gerapar[data_, crit_] := {Length[Select[data, crit]], geraporcento[data, crit]};
geralinha[data_] := Flatten[{gerapar[data, #SEXOS == "F" &],
   gerapar[data, #SEXOS == "M" &], gerapar[data, #SEXOS == "F" || #SEXOS == "M" &]}]
```

Funções de Tabelas

```
geraNumTex[num_Real, prec_] :=
 If[num < 10^-prec, StringTemplate["<\\nprounddigits{`prec`}\\numprint{`num`}"][<|
     "prec" → ToString[prec], "num" → ToString[CForm[10^-prec]]|>],
  StringTemplate["\\nprounddigits{`prec`}\\numprint{`num`}"][<|
     "prec" → ToString[prec], "num" → ToString[num]|>]]
geraNumTex[x_String, prec_] := x;
geraNumTexFull[num_Real, prec_] :=
 StringTemplate["\\nprounddigits{`prec`}\\numprint{`num`}"][<|
    "prec" → ToString[prec], "num" → ToString[num]|>]

geraNumTex[num_Integer, prec_] := ToString[num];

geraNumTex[lis_List, prec_] :=
 "(" <> StringTake[StringJoin[(geraNumTex[#, prec] <> ", ") & /@ lis], {1, -3}] <> ")"
geranum[x_, prec_] := Module[{exp}, exp = Floor[x - Log[10, x]];
  N[10^-exp Floor[(10^(Log[10, x] + exp)) * 10^prec]] / 10^prec ]

geraComment[] :=
 StringTemplate["% Gerado por `filename` em `dia`/`mes`/`ano`\n"][<|
    "filename" → NotebookFileName[EvaluationNotebook[]],
    "dia" → ToString[DateValue["Day"]], "mes" → ToString[DateValue["Month"]],
    "ano" → ToString[DateValue["Year"]]|>]
geraFooter[] := Module[{}, "\\bottomrule\n \\end{tabular}\n"];


corrigeAcentos[string_] :=
 StringReplace[string, {"í" → "\\'{\\i}", "ó" → "\\'o", "ã" → "\\~a", "á" -> "\\'a",
    "â" → "\\^a", "à" → "\\`a", "é" → "\\'e", "ê" → "\\^e", "ô" → "\\^o",
    "õ" → "\\~o", "ç" → "\\c{c}", "ü" -> "\\\"u", "Í" → "\\'I", "Ó" → "\\'O",
    "Ã" → "\\~A", "Â" → "\\^A", "À" → "\\`A", "É" → "\\'E", "Ê" → "\\^E",
    "Ô" → "\\^O", "Õ" → "\\~O", "Ü" -> "\\\"U" "Ç" → "\\c{C}", "ª" -> "$^a$"}]

geraTable[header_, stringtable_] :=
 Module[{comment, footer}, comment = geraComment[];
  footer = geraFooter[];
  comment <> header <> stringtable <> footer]



geraTabCG[tabci_, prec_] :=
 Module[{stringtable, comment, header, footer}, header = "\\begin{tabular}{lrrr}
       \\toprule
        & \\multicolumn{3}{c}{Compara\\c{c}\\~oes entre Grupos} \\\\
```

```
      \\cmidrule(r){2-4}
      & Linha de Base& 6 meses& 12 meses \\\\\n  \\midrule \n";
  stringtable =
   StringTemplate["Mulheres  `liswoman` \\\\\n Homens `lisman` \\\\\n"][<|
     "liswoman" → StringJoin[Table[" &" <> geraNumTex[tabci[[1, i]], prec],
        {i, 1, Length[tabci[[2]]]}]], "lisman" → StringJoin[
       Table[" &" <> geraNumTex[tabci[[2, i]], prec], {i, Length[tabci[[2]]]}]]|>];
  geraTable[header, stringtable]]

geraTabMD[tabci_, var_, prec_] :=
 Module[{stringtableC, stringtableI}, header = "   \\begin{tabular}{llrrrrrr}
       \\toprule
         &  & \\multicolumn{6}{c}{" <> var <> "} \\\\
       \\cmidrule(r){3-8}
       &   & \\multicolumn{2}{c}{Linha
      de Base} & \\multicolumn{2}{c}{6 meses}&
        \\multicolumn{2}{c}{12 meses}  \\\\\n
       \\midrule
       &   & \\multicolumn{2}{c}{Estat\\'\\i
      stica} & \\multicolumn{2}{c}{Estat\\'\\i stica}&
             \\multicolumn{2}{c}{Estat\\'\\i stica}  \\\\\n
       \\cmidrule(r){3-4} \\cmidrule(r){5-6} \\cmidrule(r){7-8}
       Grupo & Sexo & $\\mu$ & $\\sigma$ &
      $\\mu$ & $\\sigma$ & $\\mu$ & $\\sigma$ \\\\\n  \\midrule
       ";
  stringtableC = StringTemplate["\\multirow{2}{*}{Controle} & Mulheres
       `liswoman` \\\\ \n  & Homens `lisman` \\\\ \n
      "][<|
     "liswoman" → StringJoin[Table["& " <> geraNumTex[tabci[[i, 1, 1]], prec] <>
         " & " <> geraNumTex[tabci[[i, 1, 2]], prec], {i, 1, 3}]],
     "lisman" → StringJoin[Table["& " <> geraNumTex[tabci[[i, 2, 1]], prec] <>
         " & " <> geraNumTex[tabci[[i, 2, 2]], prec], {i, 1, 3}]]|>];
  stringtableI = StringTemplate["\\multirow{2}{*}{Controle} & Mulheres
       `liswoman` \\\\ \n  & Homens `lisman` \\\\
      "][<|
     "liswoman" → StringJoin[Table["& " <> geraNumTex[tabci[[i, 3, 1]], prec] <>
         " & " <> geraNumTex[tabci[[i, 3, 2]], prec], {i, 1, 3}]],
     "lisman" → StringJoin[Table["& " <> geraNumTex[tabci[[i, 4, 1]], prec] <>
         " & " <> geraNumTex[tabci[[i, 4, 2]], prec], {i, 1, 3}]]|>];

  geraTable[header, stringtableC <> stringtableI]]
geratablsdTex[tabci_] := Module[{stringtable, len},
  header = "
\\small{
\\begin{tabular}{llrrrr}
\\toprule
 & &  \\multicolumn{4}{c}{ Variáveis Sócio Demográficas} \\\\
\\cmidrule(r){2-6}
& &   \\multicolumn{2}{c}{C}&
 \\multicolumn{2}{c}{I}  \\\\\n
\\midrule
& &   \\multicolumn{2}{c}{Estat\\'\\i stica} &
      \\multicolumn{2}{c}{Estat\\'\\i stica}  \\\\\n
\\cmidrule(r){3-4} \\cmidrule(r){5-6}
 & & $N$ & $\\%$ & $N$ & $\\%$ \\\\\n  \\midrule
```

```
";
  stringtable = StringJoin[Table[len = Length[tabci[[j, 2]]];
     StringJoin[Table[If[i == 1,
           "\\multirow{" <> ToString[len] <> "}{*}{" <> tabci[[j, 1]] <> "} &", "&"] <>
         tabci[[j, 2, i, 1]] <>
         Table["& " <> ToString[CForm[tabci[[j, 2, i, 2, k, 1]]]] <> " & " <>
           geraNumTex[tabci[[j, 2, i, 2, k, 2]], 2], {k, 1, 2}] <> "\\\\\n",
        {i, 1, len}]] <> " &  &  &  &  & \\\\", {j, 1, Length[lisvar]}]];

  stringtable = corrigeAcentos[stringtable];
  geraTable[header, stringtable]
 ]



funclsd[lis_] := Module[{tallylis},
  tallylis = Transpose[Sort[Tally[Normal[lis]]]];
  Transpose[Append[tallylis, (tallylis /. {x_, y_} → N[y / Length[lis] * 100])]]]
geratablsd[partlsd_] :=
 Module[{listemp, listemp2, count}, Table[{hashvarname[lisvar[[j]]],
    listemp = hashlsd[lisvar[[j]]];
    Append[Table[{Last[listemp[[i]]], Table[{count = Count[listemp2 = Normal[
              partlsd[[k]][All, lisvar[[j]]]], First[listemp[[i]]]], 100 * N[count /
            Length[listemp2]]}, {k, 1, Length[partlsd]}]}, {i, 1, Length[listemp]}],
     {"Total", Table[ {Length[Normal[partlsd[[k]][All, lisvar[[j]]]]], 100},
       {k, 1, Length[partlsd]}]} ]}, {j, 1, Length[lisvar]}]]



geratabfisioTex[tabci_] := Module[{stringtable},
  stringtable = "% Gerado por " <> NotebookFileName[EvaluationNotebook[]] <>
    " em " <> ToString[DateValue["Day"]] <> "/" <>
    ToString[DateValue["Month"]] <> "/" <> ToString[DateValue["Year"]] <> "\n
\\begin{tabular}{lrrrrrr}
\\toprule
  &   \\multicolumn{6}{c}{ Variáveis Fisiológicas} \\\\
\\cmidrule(r){2-7}
&   \\multicolumn{2}{c}{BR} & \\multicolumn{2}{c}{C}&
 \\multicolumn{2}{c}{I}  \\\\ \n
\\midrule
&   \\multicolumn{2}{c}{Estat\\'\\i
      stica} & \\multicolumn{2}{c}{Estat\\'\\i stica}&
     \\multicolumn{2}{c}{Estat\\'\\i stica}  \\\\\n
\\cmidrule(r){2-3} \\cmidrule(r){4-5} \\cmidrule(r){6-7}
 &   $\\mu$ & $\\sigma$ & $ \\mu$
      & $ \\sigma$ & $ \\mu$ & $ \\sigma$\\\\\n  \\midrule
";
  stringtable = stringtable <>
    Table[tabci[[j, 1]] <> Table[" &" <> geraNumTex[tabci[[j, 2, k, 1]], 2] <>
        "& " <> geraNumTex[tabci[[j, 2, k, 2]], 2],
       {k, 1, 3}] <> "\\\\\n", {j, 1, Length[tabci]}];
  stringtable = stringtable <> "
 \\bottomrule
```

```
\\end{tabular}
";
  corrigeAcentos[stringtable]
 ]

geratabfisio[partlsd_, lisvarfisio_] :=
 Module[{listemp}, Table[{lisvarfisio[[i, 2]], Table[
     {listemp = N[Select[Normal[partlsd[[k]][All, lisvarfisio[[i, 1]]]], NumberQ]];
      Mean[listemp], StandardDeviation[listemp]}, {k, 1, Length[partlsd]}]},
   {i, 1, Length[lisvarfisio]}]
 ]

geraCorrTabTex[corrTab_, lisvar_] := Module[{headerString, colString}, headerString =
    StringJoin[" & " <> # & /@ hashVarNames /@ lisvar] <> "\\\\\n \\midrule\n ";
  colString = "l|" <> StringJoin[Table["c", {i, 1, Length[corrTab]}]];
  "\n\n\\begin{tabular}{" <> colString <> "}\n\\toprule\n" <> headerString <>
   StringJoin[Table[StringJoin[" " <> hashVarNames[lisvar[[j]]],
       Table[" & \\nprounddigits{2}\\numprint{" <> ToString[
          CForm[corrTab[[i, j]]]] <> "}", {i, 1, Length[corrTab]}]] <> "\\\\\n",
     {j, 1, Length[corrTab]}]] <> " \\bottomrule\n\\end{tabular}"]

classe[x_] :=
 If[NumberQ[x], Which[IntervalMemberQ[classeE, x], "E", IntervalMemberQ[classeD, x],
   "D", IntervalMemberQ[classeC2, x], "C2", IntervalMemberQ[classeC1, x], "C1",
   IntervalMemberQ[classeB2, x], "B2", IntervalMemberQ[classeB1, x], "B1",
   IntervalMemberQ[classeA2, x], "A2", IntervalMemberQ[classeA1, x], "A1"], ""]

geraNumTex[num_Real, prec_] :=
 StringTemplate["\\nprounddigits{`prec`}\\numprint{`num`}"][<|
   "prec" → ToString[prec], "num" → num|>]

geraNumTex[lis_List, prec_] :=
 "(" <> StringTake[StringJoin[(geraNumTex[#, prec] <> ", ") & /@ lis], {1, -3}] <> ")"

geraFitTabTex[tabparam_, lisvar_] :=
 Module[{headerString, colString}, headerString = StringJoin[
     " & " <> # & /@ {"Estimativa", "I. C.", "p-value"}] <> "\\\\\n \\midrule\n ";
  colString = "l" <> StringJoin[Table["c", {i, 1, 3}]];
  "\n\n\\begin{tabular}{" <> colString <> "}\n\\toprule\n" <>
   headerString <> StringJoin[Table[StringJoin[" " <> lisvar[[j]],
       Table[" & " <> geraNumTex[tabparam[[i, j]], 2], {i, 1, Length[tabparam]}]] <>
      "\\\\\n", {j, 1, Length[tabparam[[1]]]}]] <> " \\bottomrule\n\\end{tabular}"]


geraTabAtt[tabci_, prec_] :=
 Module[{stringtable, comment, header, footer}, header = "\\begin{tabular}{lrrr}
       \\toprule
        & \\multicolumn{3}{c}{Compara\\c{c}\\~oes entre Grupos} \\\\
       \\cmidrule(r){2-4}
       & AUDITESC & AUDITC & DROGAS12 \\\\\n  \\midrule \n";
  stringtable =
   StringTemplate["Mulheres  `liswoman` \\\\\n Homens `lisman` \\\\\n"][<|
     "liswoman" → StringJoin[Table[" &" <> geraNumTex[tabci[[1, i]], prec],
        {i, 1, Length[tabci[[2]]]}]], "lisman" → StringJoin[
       Table[" &" <> geraNumTex[tabci[[2, i]], prec], {i, Length[tabci[[2]]]}]]|>];
```

```
  geraTable[header, stringtable]]

geralinha[data_, str_, total_] :=
 Prepend[Flatten[{gerapar[data, #SEXOS == "F" &], gerapar[data, #SEXOS == "M" &],
    Length[Select[data, #SEXOS == "F" || #SEXOS == "M" &]],
    N[100 * Length[Select[data, #SEXOS == "F" || #SEXOS == "M" &]] / total]}], str]

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
 ]


geraTabPart[listab_, tit_, prec_] := Module[
  {stringtable, comment, header, footer, lis1}, header = "\\begin{tabular}{lrrrrrr}
       \\toprule\n
&\\multicolumn{6}{c}{" <> tit <> "}\\\\";
  stringtable = StringJoin[Table[
     geraTabHelper[listab[[i, 1]], listab[[i, 2]], prec], {i, 1, Length[listab]}]];
  stringtable = corrigeAcentos[stringtable];
  geraTable[header, stringtable]]
```

```
compilaTex[texstring_, prefix_] := Module[{headertex, footertex, str},
  headertex = "\\documentclass{standalone} % say
\\usepackage{tikz}
\\usetikzlibrary{calc,shapes.arrows,chains,positioning}
\\usepackage{lastpage}            % Usado pela Ficha catalográfica
\\usepackage{indentfirst}        % Indenta o primeiro parágrafo de cada seção.
\\usepackage{color, colortbl}                % Controle das cores
\\usepackage{graphicx}            % Inclusão de gráficos
\\usepackage{microtype}
     % para melhorias de justificação\\(\\)
\\usepackage{wallpaper}
\\usepackage{courier}
\\usepackage{listings}
\\usepackage{rotating}
\\usepackage{tikz}
\\usetikzlibrary{shapes,chains,positioning}
\\usepackage{tablefootnote}
\\usepackage{titlesec}
\\usepackage{hyperref}
\\usepackage{multirow}
\\usepackage{multicol}
\\usepackage{mathtools}
\\usepackage{array}
\\usepackage{pdfpages}
\\usepackage{booktabs}
\\usepackage{numprint}
\\usepackage{lscape}
\\usepackage{fancybox}
\\usepackage[framemethod=TikZ]{mdframed}
\\usepackage{comment}
\\begin{document}
%
";
  footertex = "\\end{document}";
  Export[prefix <> "temp.tex", headertex <> texstring <> footertex, "String"];
  SetDirectory[prefix];
  RunProcess["gerapng"];
  Import[prefix <> "temp.png"]
 ]
```

Funções de Simulação do Modelo pqq

```
Clear[sumpartial];
Log0[x_] := If[x > 0, Log[x], 0];
sumpartial[lis_] := Module[{sum, sumpart},
  sum = 0;
  sumpart = {};
  Do[sum += lis[[i]];
   sumpart = Append[sumpart, sum];, {i, 1, Length[lis]}];
  sumpart / Last[sumpart]]
compara[lis1_, lis2_] :=
 Module[{lisT, xx, minx, maxx, listal1, listal2, lisplot1, lisplot2},
  lisT = Join[lis1, lis2];
     {minx, maxx} = {Min[lisT], Max[lisT]};
  listal1 = Tally[lis1] /. {x_, y_} → {x, Log[y] + 1};
  listal2 = Tally[lis2] /. {x_, y_} → {x, Log[y] + 1};
  lisplot1 =
   Table[N[Plus @@ Select[listal1, #[[1]] <= xx &][[All, 2]]], {xx, minx, maxx, 1}];
  lisplot2 = Table[N[Plus @@ Select[listal2, #[[1]] <= xx &][[All, 2]]],
    {xx, minx, maxx, 1}];
  Plus @@ Abs[lisplot1 - lisplot2]
 ]
Step[p_, q_][x_] := Module[{ran},
  ran = Random[];
  If[x == 0 , If[ ran ≤ p, 0, 1],
   If[ran > q, x + 1, x - 1]]]
Steps[p_Real, q_Real, init_Integer, steps_Integer] :=
  Nest[If[# == 0, If[RandomReal[] ≤ p, 0, 1], If[RandomReal[] > q, # + 1, # - 1]] &,
   init, steps];
geraParcialSums[lis1_, minx_, maxx_] := Module[{listal1},
  listal1 = Tally[lis1] /. {x_, y_} → {x, Log[y] + 1};
  Table[N[Plus @@ Select[listal1, #[[1]] ≤ xx &][[All, 2]]], {xx, minx, maxx, 1}]]
```

```
(* cf=Compile[{{p,_Real},{q,_Real},{steps,_Integer},{samples,_Integer}},
   Module[{x,ran},
    Table[Do[
      If[x==0 ,If[ Random[]≤p,0,1],
       If[Random[]>q,x+1,x-1]],{steps}];
     0,{samples}
    ]]]; *)
```

Geração do Report

```
prefix = "/Users/neylemke/Luisa/BancodeDadosDoutorado/"
```

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

Análise dos Dados

Importando os dados

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

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

Vamos trabalhar com datasets

```
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];
```

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.

```
(* 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

```
(* 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}];
```

```
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]}];
```

```
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

```
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`]}}}}]
```

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

```
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`]}}}}]
```

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

```
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

```
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"];

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

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

Seis Meses

```
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 = Join[{geralinha[datasetcontrolez6, "Controle"], geralinha[
      datasetintervencaoz6, "Intervenção"], geralinha[datasettotalz6, "Total"]}];
```

Doze Meses

```
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 =
  Join[{geralinha[datasetcontrolez12, "Controle"], geralinha[datasetintervencaoz12,
     "Intervenção"], geralinha[datasettotalz12, "Total"]}];


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

```
compilaTex[geraTabPart[{{tabciz1, "Linha de Base"},
   {tabciz6, "6 Meses"}, {tabciz12, "12 Meses"}}, "Participantes", 2], prefix]
```

Participantes						
Linha de Base						
	Mulheres		Homens		Total	
	N	%	N	%	N	%
Controle	49	62,03	30	37,97	79	100,00
Intervenção	39	59,09	27	40,91	66	100,00
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	100,00
Intervenção	31	62,00	19	38,00	50	100,00
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	100,00
Intervenção	27	65,85	14	34,15	41	100,00
Total	64	66,67	32	33,33	96	100,00

```
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),
     `numrisco`.  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" &]]
   |>]
```

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), 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 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"

```
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`]}}}}];


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

NotebookObject[Untitled-27]

Esquema

```
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]
```

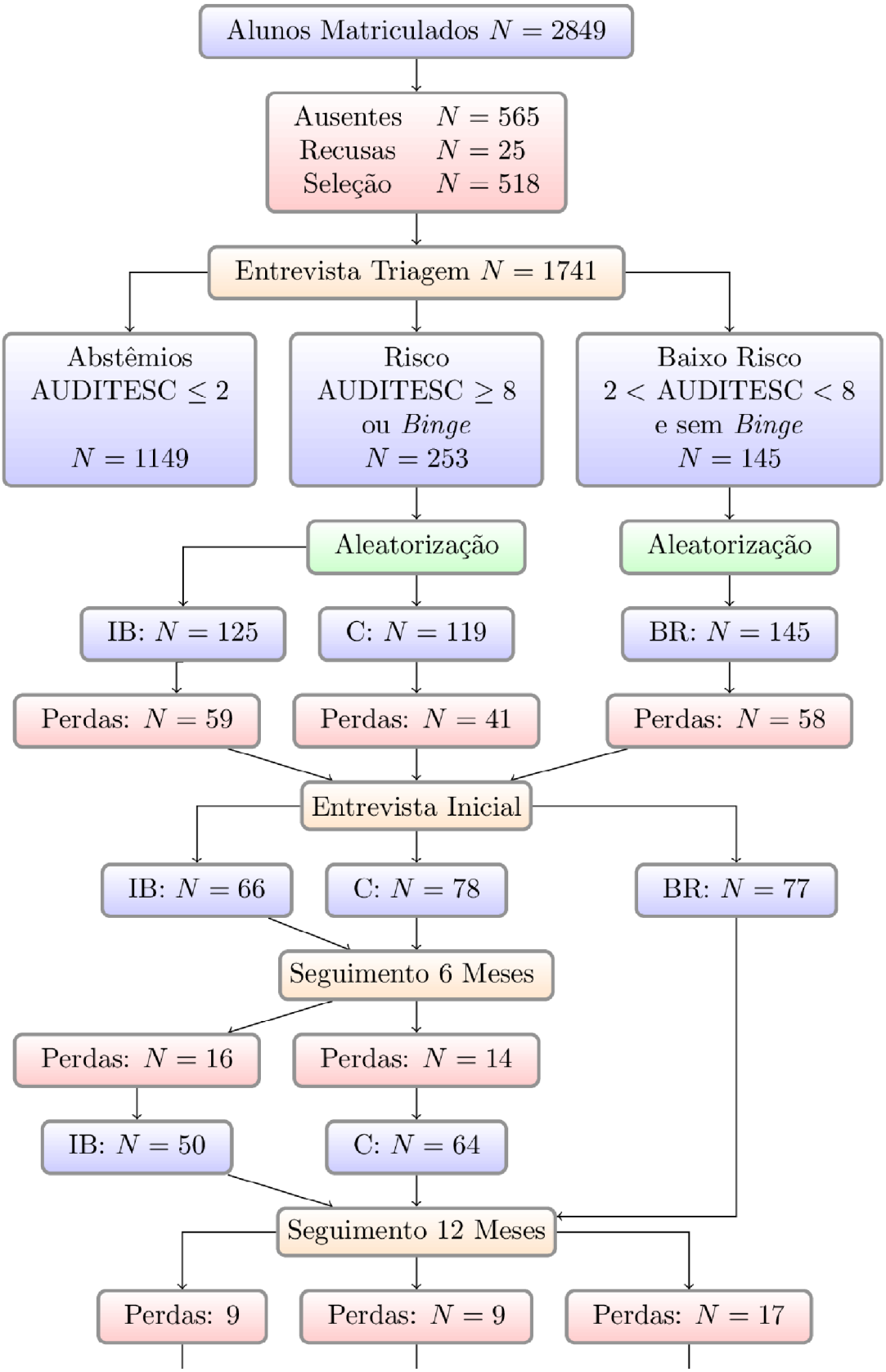
```
     {\\begin{tabular}{c} IB: $N=`numIBz12`$ \\end{tabular}};

     \\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],
```

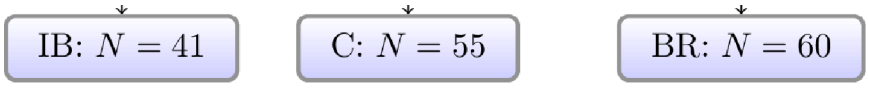
```
    "numbr" → Length[bbabr],
    "numperdasbr" → Length[bbabr] - Length[Select[bbarisco, #RECUSA == 0 &]],
    "numrisco" → Length[bbarisco],
    "numbr" → Length[Select[bbabr, #RECUSA == 0 && #GRUPO == "BR" &]],
    "numbrz1" ->
     Length[Select[bbabr, #RECUSA == 0 && #RECUSAIB == 0 && #GRUPO == "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" &]]

    |>];
```

```
Export[prefix <> "esquema.tex", stresquemanova, "String"]
```

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

```
compilaTex[stresquemanova, prefix]
```





Comparação Casos Anteriores

```
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]

```
headers
```

Levantamento Sócio Demográfico

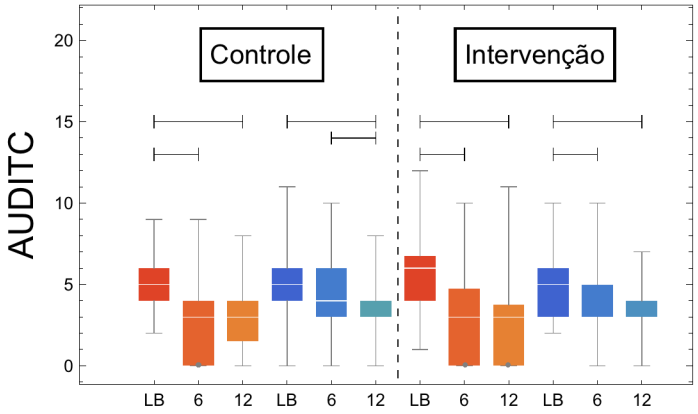
```
lisvarfisio =
  {{"IDADES", "Idade (anos)"}, {"PESO", "Massa (Kg)"}, {"ALTURA", "Altura (cm)"}};
partlsd = Select[#, #RECUSAIB == 0 &] & /@
   (Delete[GroupBy[Select[dataset1, #RECUSA == 0 &], {#GRUPO} &], 1]);
hashGrupos[1] = "BR";
hashGrupos[2] = "C";
hashGrupos[3] = "I";
tabci = geratabfisio[partlsd,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

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

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

Consumo de Álcool

```
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], "String"]
Export[prefix <> "tabci" <> shortname <> caso <> ".tex", geraTabCG[tabci, 3], "String"]
Export[prefix <> "figcomp" <> shortname <> caso <> ".pdf", gr1]
```



/Users/neylemke/Luisa/BancodeDadosDoutorado/tabmdaudccompleto.tex

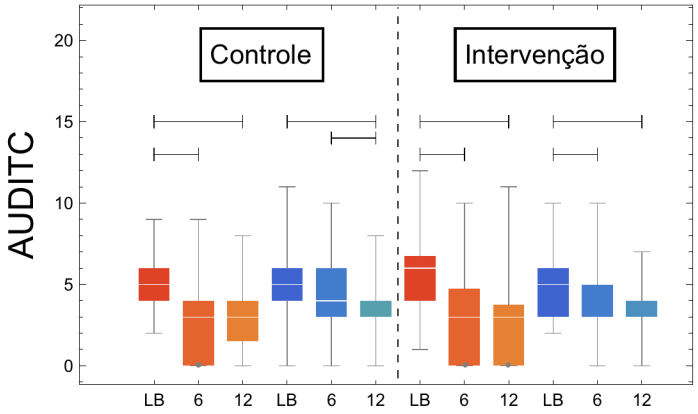
/Users/neylemke/Luisa/BancodeDadosDoutorado/tabtimeaudccompleto.tex

/Users/neylemke/Luisa/BancodeDadosDoutorado/tabciaudccompleto.tex

/Users/neylemke/Luisa/BancodeDadosDoutorado/figcompaudccompleto.pdf

Vamos inicialmente nos limitar a todos que responderam ao questionário

```
bbarisco1 = Select[bbarisco, #RECUSAIB == 0 &];
caso = "completo";
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 = 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[{varwavesnames[[j]] <> " $\\times$ " <> varwavesnames[[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]
```



/Users/neylemke/Luisa/BancodeDadosDoutorado/tabmdaudccompleto.tex

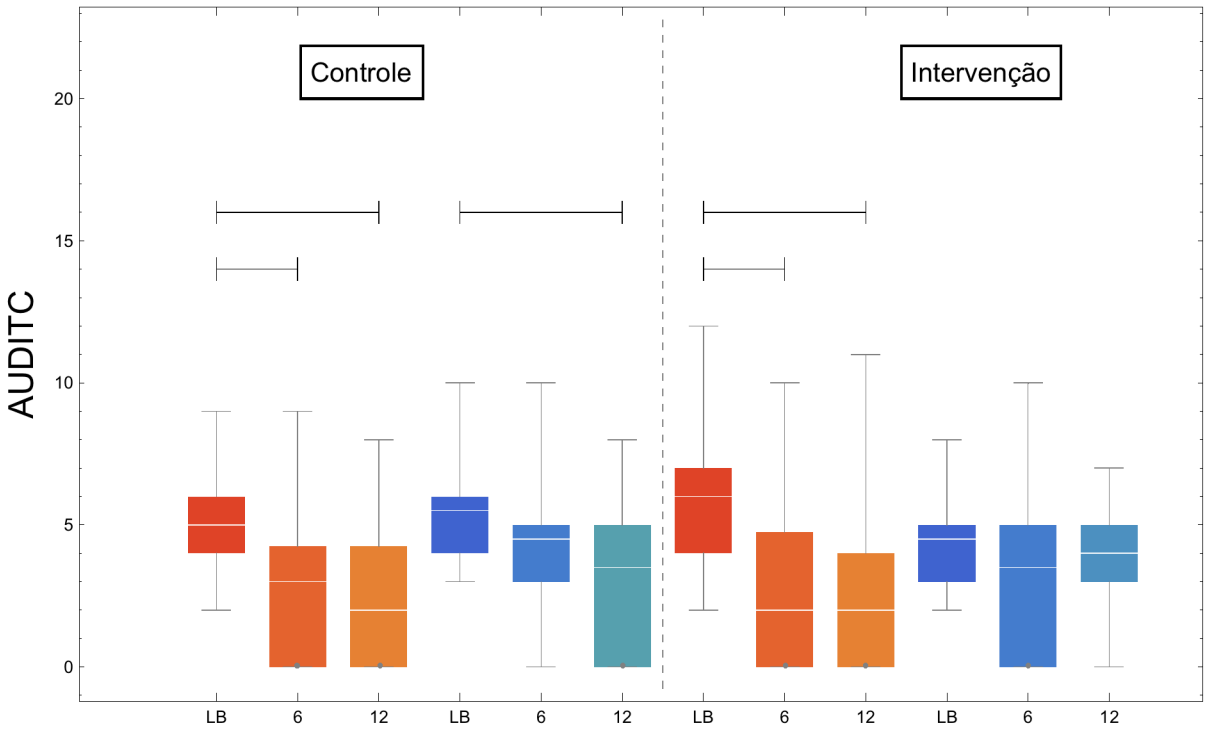
/Users/neylemke/Luisa/BancodeDadosDoutorado/tabtimeaudccompleto.tex

/Users/neylemke/Luisa/BancodeDadosDoutorado/tabciaudccompleto.tex

/Users/neylemke/Luisa/BancodeDadosDoutorado/figcompaudccompleto.pdf

Agora só mantemos os que responderam todos os ítens

```
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, 3], "String"]
Export[prefix <> "tabci" <> shortname <> caso <> ".tex", geraTabCG[tabci, 3], "String"]
Export[prefix <> "figcomp" <> shortname <> caso <> ".pdf", gr1]
```



/Users/neylemke/Luisa/BancodeDadosDoutorado/tabmdaudcparcial.tex

/Users/neylemke/Luisa/BancodeDadosDoutorado/tabtimeaudcparcial.tex

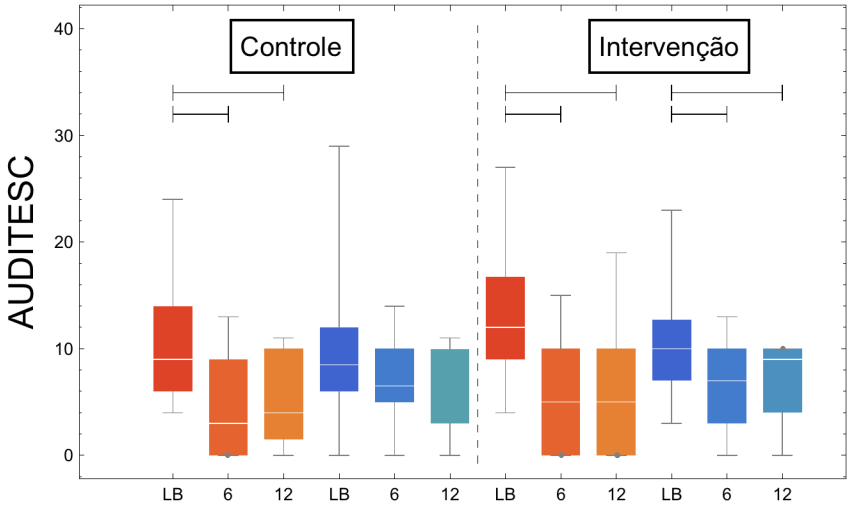
/Users/neylemke/Luisa/BancodeDadosDoutorado/tabciaudcparcial.tex

/Users/neylemke/Luisa/BancodeDadosDoutorado/figcompaudcparcial.pdf

Agora para AUDITESC

Todos os que iniciaram o levantamento

```
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, 3], "String"]
Export[prefix <> "tabci" <> shortname <> caso <> ".tex", geraTabCG[tabci, 3], "String"]
Export[prefix <> "figcomp" <> shortname <> caso <> ".pdf", gr1]
```



/Users/neylemke/Luisa/BancodeDadosDoutorado/tabmdaudesccompleto.tex

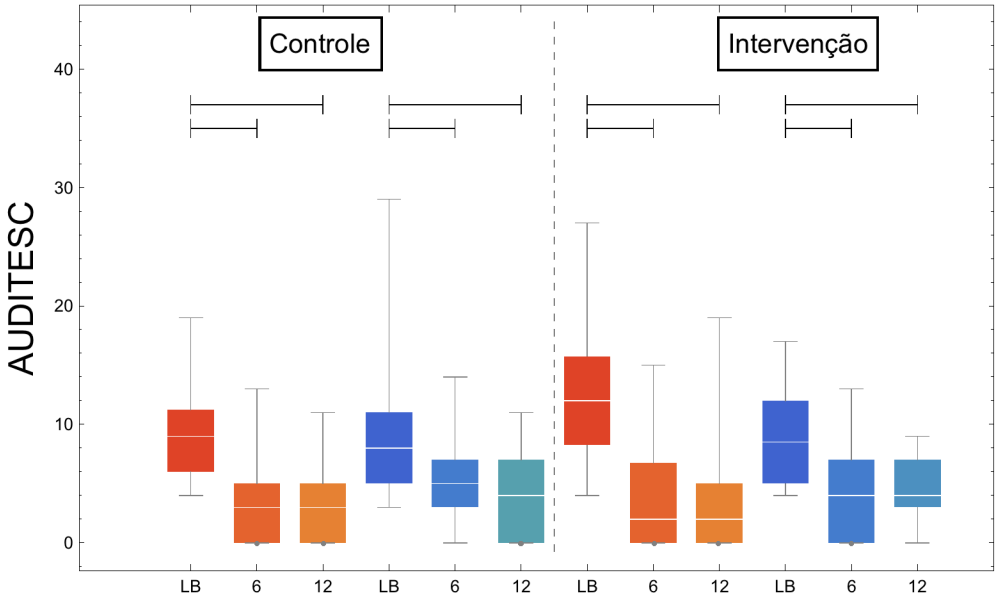
/Users/neylemke/Luisa/BancodeDadosDoutorado/tabtimeaudesccompleto.tex

/Users/neylemke/Luisa/BancodeDadosDoutorado/tabciaudesccompleto.tex

/Users/neylemke/Luisa/BancodeDadosDoutorado/figcompaudesccompleto.pdf

Só os que ficaram até o fim

```
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]
```



/Users/neylemke/Luisa/BancodeDadosDoutorado/tabmdaudescparcial.tex

/Users/neylemke/Luisa/BancodeDadosDoutorado/tabtimeaudescparcial.tex

/Users/neylemke/Luisa/BancodeDadosDoutorado/tabciaudescparcial.tex

/Users/neylemke/Luisa/BancodeDadosDoutorado/figcompaudescparcial.pdf

Frequência

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

Inicial

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

```
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.

```
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
 ]


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

```
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

```
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"];
```

Maior Dose Consumida

```
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

```
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

```
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"];
```

```
headers = Normal@dataset[1, Keys]
```

```
{CODIGO, SALA, ALUNO, PERIODO, INDICADO, INCONSIS, RECUSA, CELULAR, IDADES, SEXOS,
 MORACOM, AUDIT1, AUDIT2, AUDIT3, AUDIT4, AUDIT5, AUDIT6, AUDIT7, AUDIT8, AUDIT9,
 AUDIT10, AUDITESC, ESCOLAS, RECUSAIB, GRUPO, CODIGOCE, DATA, DATADERE, ENREVIST,
 ESCOLA, IDADE, DATANASC, SEXO, RACA, INSTRCHE, ABIPEMET, ABIPEMEV, ABIPEMER,
 ABIPEMEW, ABIPEMEC, ABIPEMEE, ABIPEMEM, ABIPEMEG, ABIPEMEF, RELIGI, RELIGIPR,
 PESO, ALTURA, ABEBEU, IDADEXPE, IDADEBEB, APQNAOBE, ABEBPREF, ADIASEMB, ADIASEM0,
 ADIASEM1, ADIASEM2, ADIASEM3, ADIASEM4, ADIASEM5, APERDIAB, APERDIA6, APERDIA7,
 AFREQBEB, ABEBFIMS, ABEBFIM8, ABEBFIM9, AOCMAISB, AUDIT11, AUDIT21, AUDIT31,
 AUDIT41, AUDIT51, AUDIT61, AUDIT71, AUDIT81, AUDIT91, AUDIT101, ATOLERA, AFQBEBSO,
```

AFQBEB1P, AFQBEBFE, AFQBEBCO, AFQBEBAM, AFQBEB10, AFQBEBNA, AFQBEBDI, AFQBEBCA,
AFQBEBRU, AFQBEBBA, RAPI1MES, RAPI1ANO, RAPI2MES, RAPI2ANO, RAPI3MES, RAPI3ANO,
RAPI4MES, RAPI4ANO, RAPI5MES, RAPI5ANO, RAPI6MES, RAPI6ANO, RAPI7MES, RAPI7ANO,
RAPI8MES, RAPI8ANO, RAPI9MES, RAPI9ANO, RAPI10ME, RAPI10AN, RAPI11ME, RAPI11AN,
RAPI12ME, RAPI12AN, RAPI13ME, RAPI13AN, RAPI14ME, RAPI14AN, RAPI15ME, RAPI15AN,
RAPI16ME, RAPI16AN, RAPI17ME, RAPI17AN, RAPI18ME, RAPI18AN, RAPI19ME, RAPI19AN,
RAPI20ME, RAPI20AN, RAPI21ME, RAPI21AN, RAPI22ME, RAPI22AN, ACIDTRAN, ACIDUALV,
CAIU, FAMILAL, AMIGTAB, AMIGMAC, AMIGLSD, AMIGANF, AMIGTRQ, AMIGCRK, AMIGCOC,
AMIGSOL, AMIGEXT, AMIGEST, AMIGTR, AMIGBEB, AMBINGE, SOLV12, COCA12, CRACK12,
MACON12, ANFETA12, LSD12, ANTICOLI, ANABOLI1, EXT12, TRANQ12, TABC12, TABCDIA1,
OTRDRG12, SOLV30, COC30, CRK30, MAC30, ANF30, ALUC30, ANTICO30, ANABO30, EXTAS30,
TRANQ30, TABC30, TACDIA3, OTRDR30, VFOIAMEC, VFOIHUMI, VFOIAGRE, VJAMEAC,
VJAHUMI, VJAAGRED, VBRIGAES, VBRIGRUP, VBATEPRO, VMACHUMD, VLOJA, VROBO, VROBCAR,
VVIOLCAS, VFOGO, VDANIFES, VARMAS, VPOLICIA, NOTAS, RecusaIB6, ident6, codigo6,
z6SALA, z6ALUNO, z6GRUPO, z6DATA, z6ENTREV, z6ESCOL, z6RELIGI, z6RELIPR, z6PESO,
z6ALTURA, z6APQNAO, z6ABEBPR, z6DIASEB, z6DIASE0, z6DIASE1, z6DIASE2, z6DIASE3,
z6DIASE4, z6DIASE5, z6PERDIB, z6PERDI6, z6PERDI7, z6FREQBE, z6BEBFIM, z6BEBFI8,
z6BEBFI9, z6OCMAIS, z6AUDIT1, z6AUDIT2, z6AUDIT3, z6AUDIT4, z6AUDIT5, z6AUDIT6,
z6AUDIT7, z6AUDIT8, z6AUDIT9, z6AUD101, z6ATOLER, z6FQBEBS, z6FQBEB1, z6FQBEBF,
z6FQBEBC, z6FQBEBA, z6FQBE10, z6FQBEBN, z6FQBEBD, VAR246, z6FQBEBR, z6FQBEBB,
z61RAP1M, z61RAP6M, z62RAP1M, z62RAP6M, z63RAP1M, z63RAP6M, z64RAP1M, z64RAP6M,
z65RAP1M, z65RAP6M, z66RAP1M, z66RAP6M, z67RAP1M, z67RAP6M, z68RAP1M, z68RAP6M,
z69RAP1M, z69RAP6M, z610RAP1M, z610RAP6M, z611RAP1M, z611RAP6M, z612RAP1M,
z612RAP6M, z613RAP1M, z613RAP6M, z614RAP1M, z614RAI6M, z615RAP1M, z615RAP6M,
z616RAP1M, z616RAP6M, z617RAP1M, z617RAP6M, z618RAP1M, z618RAP6M, z619RAP1M,
z619RAP6M, z620RAP1M, z620RAP6M, z621RAP1M, z621RAP6M, z622RAP1M, z622RAP6M,
z6CIDTRA, z6CIDUAL, z6CAIU, z6FAMILA, z6AMIGTA, z6AMIGMA, z6AMIGLS, z6AMIGAN,
z6AMIGTR, z6AMIGCR, z6AMIGCO, z6AMIGSO, z6AMIGEX, z6AMIGES, z6AMIGOT, z6AMIGBE,
z6AMBING, z6SOLV6, z6COCA6, z6CRACK6, z6MACON6, z6ANFET6, z6LSD6, z6ANTIC6,
z6ANABO6, z6EXT6, z6TRANQ6, z6TABC6, z6TABCD6, z6OTRDR6, z6SOLV30, z6COC30,
z6CRK30, z6MAC30, z6ANF30, z6ALUC30, z6ANTI30, z6ANAB30, z6EXTA30, z6TRAN30,
z6TABC30, VAR334, z6OTRD30, z6VFOIAM, z6VFOIHU, z6VFOIAG, z6VJAMEA, z6VJAHUM,
z6VJAGRE, z6VBRIGA, z6VBRIGR, z6VBATEP, z6VMACHU, z6VLOJA, z6VROBO, z6VROBCA,
z6VVIOLC, z6VFOGO, z6VDANIFE, z6VARMAS, z6VPOLIC, z6GOSPA1, z6GOSPA2, z6GOSPA3,
z6GOSPA4, z6GOSPA5, z6PREFC1, z6PREFC2, z6PREFC3, z6PREFC4, z6MONLP1, z6MONLP2,
z6MONLP3, z6MONLP4, z6MONLP5, z6MONLP6, z6MONIC1, z6MONIC2, z6MONIC3, z6MONIC4,
z6MONIC5, z6ACOMP1, z6ACOMP2, z6ACOMP3, z6ACOMP4, z6ACOMAL1, z6ACOMAL2,
z6ACOMAL3, z6ACOMAL4, RecusaIB12, ident12, codigo12, z12SALA, z12ALUNO,
z12GRUPO, z12DATA, z12ENTREV, z12ESCOL, z12RENE1, z12RENES, z12RENEA, z12ESTCI,
Z12RELPR, Z12PESO, Z12ALTUR, Z12SATIP, Z12PIDEA, Z12SATIP1, Z12PESER, Z12PIDE1,
z12SRQ1, z12SRQ2, z12SRQ3, z12SRQ4, z12SRQ5, z12SRQ6, z12SRQ7, z12SRQ8, z12SRQ9,
z12SRQ10, z12SRQ11, z12SRQ12, z12SRQ13, z12SRQ14, z12SRQ15, z12SRQ16, z12SRQ17,
z12SRQ18, z12SRQ19, z12SRQ20, z12APQNA, z12ABEBP, z12DISEB, z12DISE0, z12DISE1,
z12DISE2, z12DISE3, z12DISE4, z12DISE5, z12PEDIB, z12PEDI6, z12PEDI7, z12FREQB,
z12BEBFI, z12BEFI8, z12BEFI9, z12OCMAB, z12AUDI1, z12AUDI2, z12AUDI3, z12AUDI4,
z12AUDI5, z12AUDI6, z12AUDI7, z12AUDI8, z12AUDI9, z12AUD10, z12TOLER, z12FBESO,
z12FBE1P, z12FBEFE, z12FBECO, z12FBEAM, z12FBE10, z12FBENA, z12FBEDI, z12FBECA,
z12FBERU, z12FBEBA, z121RA1M, z121RA1A, z122RA1M, z122RA1A, z123RA1M, z123RA1A,
z124RA1M, z124RA1A, z125RA1M, z125RA1A, z126RA1M, z126RA1A, z127RA1M, z127RA1A,
z128RA1M, z128RA1A, z129RA1M, z129RA1A, z1210RA1M, z1210RA1A, z1211RA1M,
z1211RA1A, z1212RA1M, z1212RA1A, z1213RA1M, z1213RA1A, z1214RA1M, z1214RA1A,
z1215RA1M, z1215RAP6M, z1216RA1M, z1216RA1A, z1217RA1M, z1217RA1A, z1218RA1M,
z1218RA1A, z1219RA1M, z1219RA1A, z1220RA1M, z1220RA1A, z1221RA1M, z1221RA1A,
z1222RA1M, z1222RA1A, z12CIDTR, z12CIDUA, z12CAIU, z12AMIGT, z12AMIGM, z12AMIGL,
z12AMIGA, z12AMITR, z12AMIGC, VAR515, z12AMIGS, z12AMIGE, z12AMIES, z12AMIGO,

```
z12AMIGB, z12AMBIN, z12SOL6, z12COC6, z12CRK6, z12MAC6, z12ANF6, z12LSD6,
z12ANT6, z12ANA6, z12EXT6, z12TRA6, z12TAB6, z12TAD6, z12OTR6, z12SOL12,
z12COC12, z12CRK12, z12MAC12, z12ANF12, z12LSD12, z12ANT12, z12ANA12, z12EXT12,
z12TRA12, z12TAB12, z12TAD12, z12OTR12, z12SOL30, z12COC30, z12CRK30, z12MAC30,
z12ANF30, z12LSD30, z12ANT30, z12ANA30, z12EXT30, z12TRA30, z12TAB30, z12TAD30,
z12OTR30, z12VFOAM, z12VFOHU, z12VFOAG, z12VJAME, z12VJAHU, z12VJAGR, z12VBRIE,
z12VBRIG, z12VBAPR, z12VMACH, z12VLOJA, z12VROBO, z12VROCA, z12VIOLC, z12VFOGO,
z12VDANE, z12VARMA, z12VPOLI, z12FREQBE, z12BEBFIM, z12FQBEBS, z12FQBEB1,
z12FQBEBC, z12FQBEBA, z12FQBE10, z12FQBEBN, z12FQBEBD, z12FQBEBR, z12FQBEBB}
```

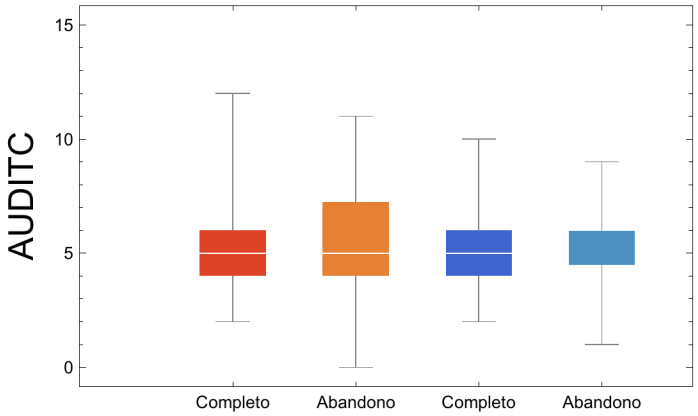
Attrition

```
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
```

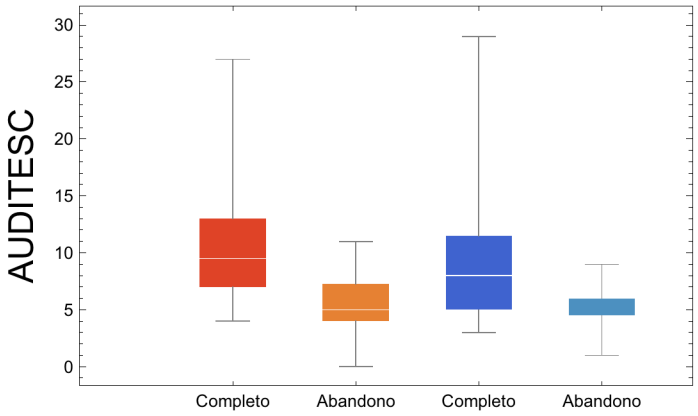
```
0.252366
```

```
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]
```



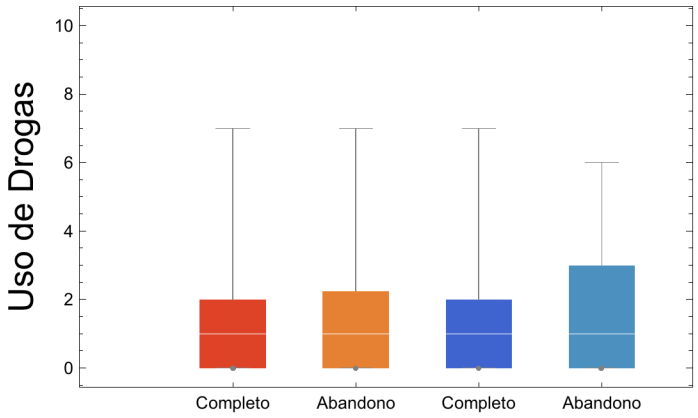
/Users/neylemke/Dropbox/Luisa/tese/attritionauditc.pdf

```
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

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

```
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}]
```

	LB:AUDITC	LB:DROGAS30	LB:DROGAS12	6:AUDITC	6:DROGAS30	1
LB:AUDITC	1.	0.239462	0.367745	0.196494	0.234946	(
LB:DROGAS30	0.239462	1.	0.829808	0.24995	0.546285	(
LB:DROGAS12	0.367745	0.829808	1.	0.230093	0.586439	(
6:AUDITC	0.196494	0.24995	0.230093	1.	0.385617	(
6:DROGAS30	0.234946	0.546285	0.586439	0.385617	1.	(
12:AUDITC	0.202875	0.207872	0.124192	0.537164	0.0856339	1
12:DROGAS30	0.0601116	0.257359	0.159707	0.0263876	0.1461	(

```
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/corrdrogas.tex", corrTabTex, "String"]
```

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

```
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
AUDITC	1.	0.239462	0.367745	0.196494	0.234946	0.202875	0.0601116
DROGAS30	0.239462	1.	0.829808	0.24995	0.546285	0.207872	0.257359
DROGAS12	0.367745	0.829808	1.	0.230093	0.586439	0.124192	0.159707
z6AUDITC	0.196494	0.24995	0.230093	1.	0.385617	0.537164	0.0263876
z6DROGAS30	0.234946	0.546285	0.586439	0.385617	1.	0.0856339	0.1461
z12AUDITC	0.202875	0.207872	0.124192	0.537164	0.0856339	1.	0.343309
z12DROGAS30	0.0601116	0.257359	0.159707	0.0263876	0.1461	0.343309	1.

```
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
```

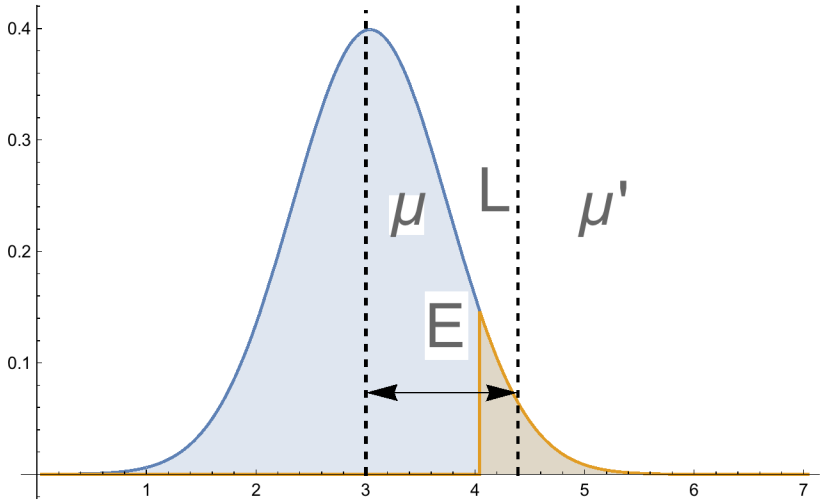
Regressão à Média

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 :

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

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 :

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

onde ϕ é a PDF da Normal Φ é a CDF e

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

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
```

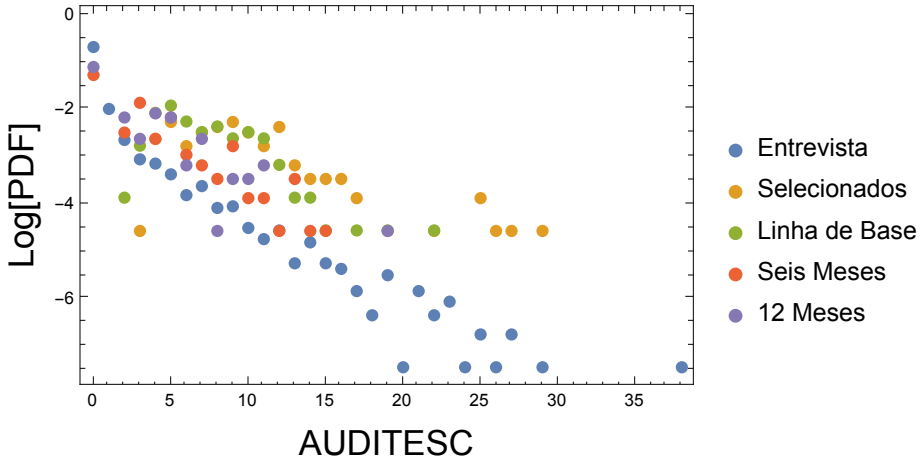
```
lisRTM = Cases[Normal[dataset1[All, "AUDITESC"]], _Integer] // N;
lisRTMC = Cases[Normal[dataset1[All, "AUDITC"]], _Integer] // N;
```

Caso Exponencial

```
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.

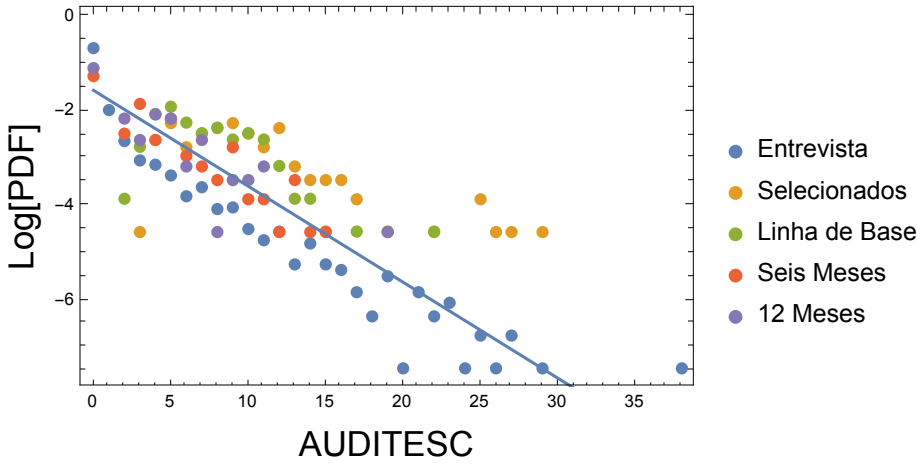
```
gr1 = ListPlot[{Tally[lisRTM] /. {x_, y_} → {x, Log[y / Length[lisRTM]]},
    Tally[Join[liscontrole, lisintervencao]] /.
     {x_, y_} → {x, Log[y / Length[Join[liscontrole, lisintervencao]]]},
    Tally[Join[liscontrole1, lisintervencao1]] /.
     {x_, y_} → {x, Log[y / Length[Join[liscontrole1, 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]}]
```




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

```
FittedModel[ -1.56848 - 0.202856 x ]
```

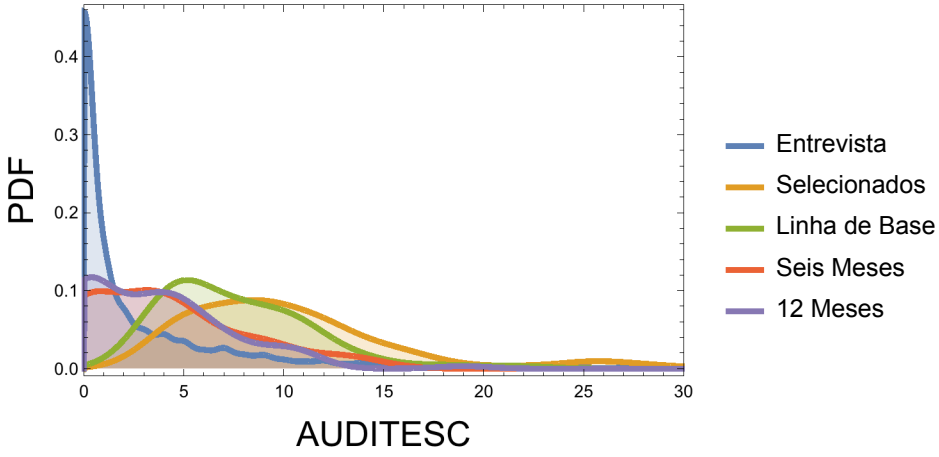
```
gr4 = Plot[Normal[lm], {x, 0, 35}];
gr5 = Show[{gr1, gr4}]
```



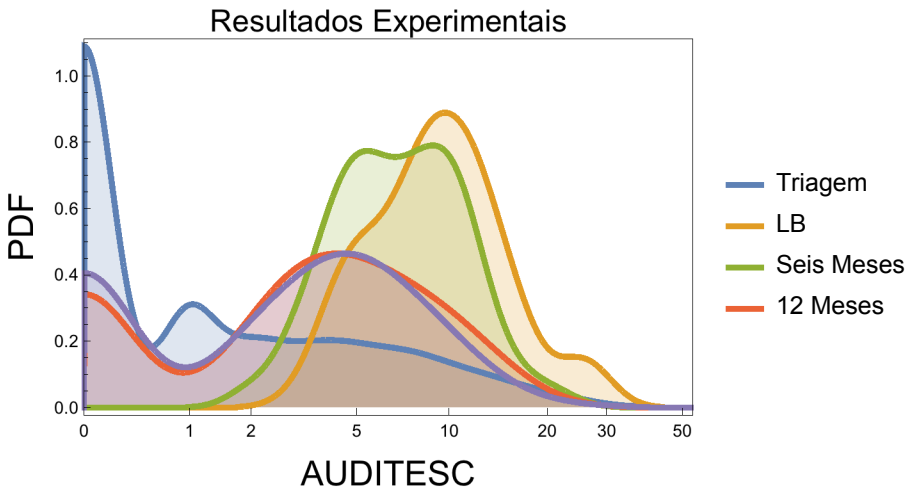
```
Export[prefix <> "expdist.pdf", gr5]
```

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

```
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]}]
```



```
gr1 = SmoothHistogram[Log[# + 1] & /@ {lisRTM, Join[liscontrole, lisintervencao],
     Join[liscontrole1, lisintervencao1], Join[liscontrolez6, lisintervencaoz6],
     Join[liscontrolez12, lisintervencaoz12]},
   PlotLegends → LineLegend[{"Triagem", "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]]
```




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

```
/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
```

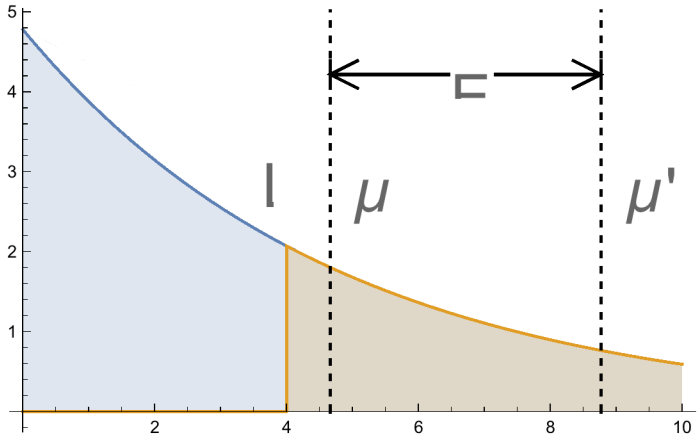
```
28.6532
```

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}]
```

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

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

$$L$$

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
```

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

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

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

Esse resultado mostra que efeito é L e o desvio é igual a 1/β. 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
]
```

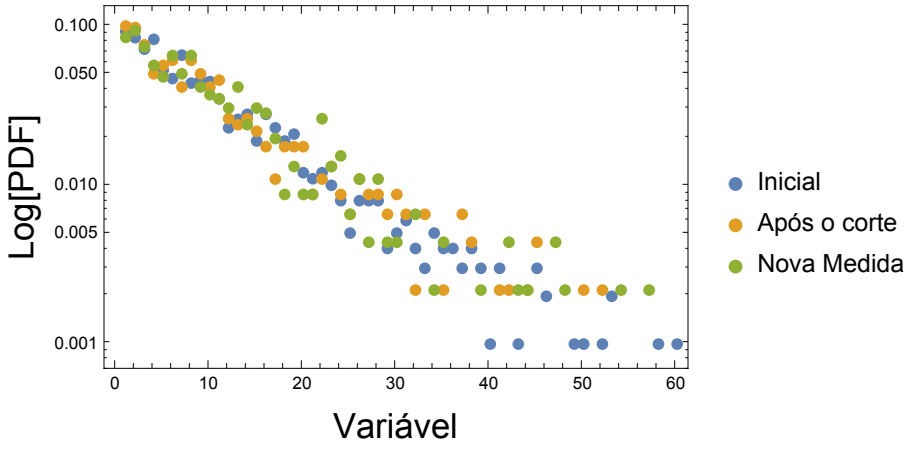
Distribuição	μ	σ
Exponencial	$\frac{1}{\beta}$	$\frac{1}{\beta}$
Exp. com Limiar	$L+\frac{1}{\beta}$	$\frac{1}{\beta}$

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.

```
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;
```

```
fefeito
```

```
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.
```

```
fefeito = calcEfeito[lisRTM, 4, 0] /
  Abs[Mean[Join[liscontrole, lisintervencao]] - Mean[lisRTM] // N]
```

```
0.584771
```

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

```
4.52315
```

```
Abs[Mean[Join[liscontrole, lisintervencao]] -
  Mean[Join[liscontrolez6, lisintervencaoz6]]]
```

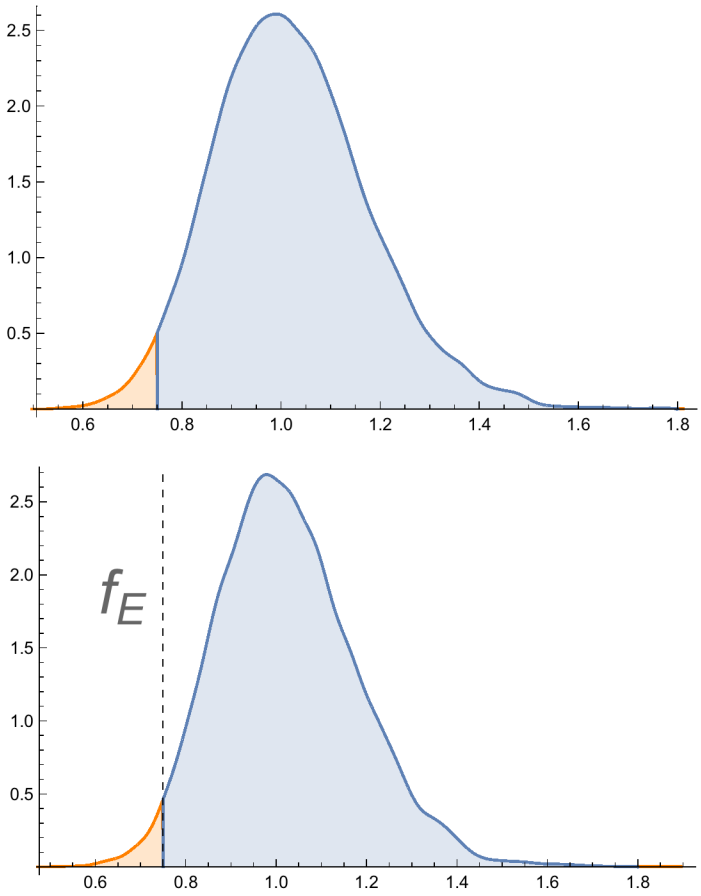
```
6.05208
```

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

```
4.52315
```

```
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]]
```

```
/Users/neylemke/Luisa/BancodeDadosDoutorado/pvalue.pdf
```



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]
```

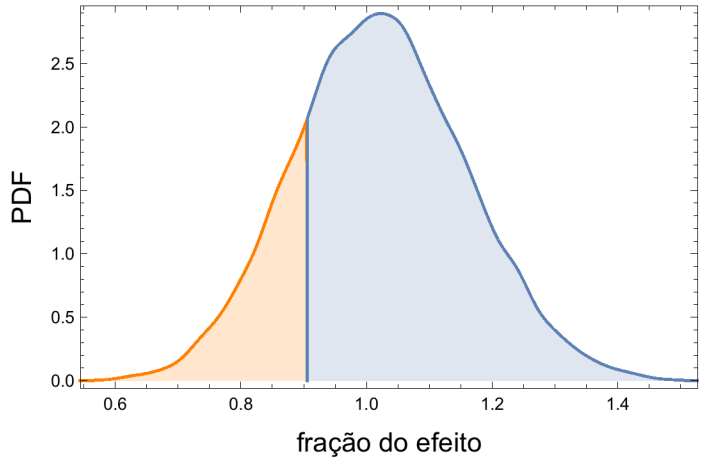
```
7.61034
```

```
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]
```




```
fefeito
```

```
0.905447
```

```
pvalue
```

```
0.1977
```

Simulação do Modelo pqq

Vamos inicialmente definir as variáveis.

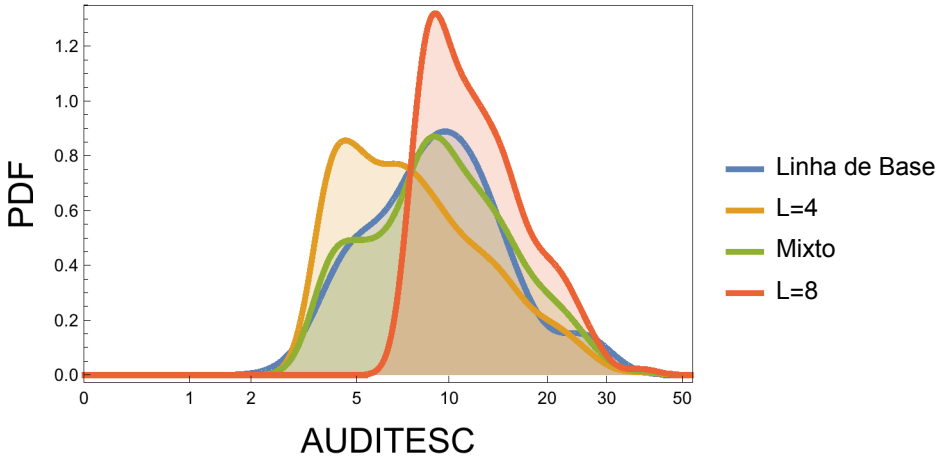
```
lisRTM = Cases[Normal[dataset1[All, "AUDITESC"]], _Integer] // N;
partlsd = Delete[Select[#, #RECUSAIB == 0 && #RecusaIB12 == 0 &] & /@
    (Delete[GroupBy[Select[dataset1, #RECUSA == 0 &], {#GRUPO} &], 1]), 1];
liscontrole = (Cases[Normal[partlsd[[1]][All, "AUDITESC"]], _Integer] // N);
lisintervencao = (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).

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

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.

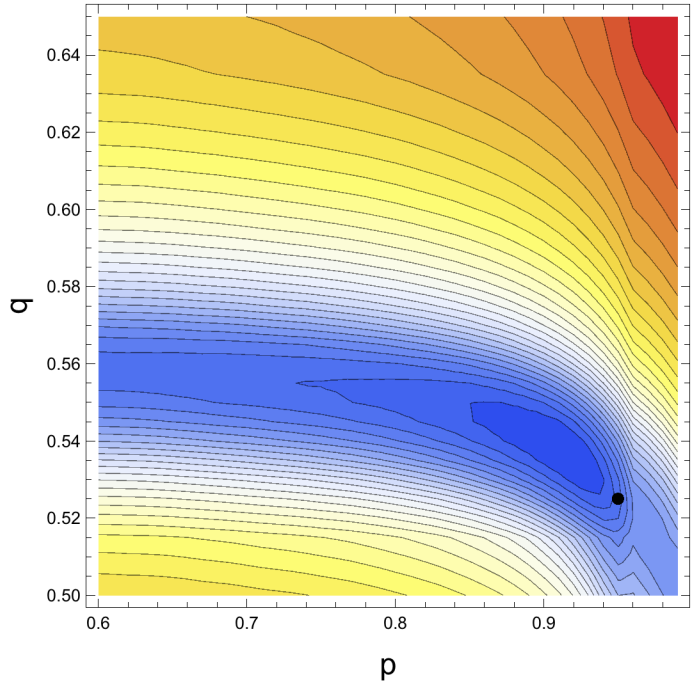
Para determinar o modelo ideal rodamos um programa em python e geramos várias comparações entre as distribuições obtidas por simulação e as distribuições experimentais e determinamos os

parâmetros mais próximos.

```
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];
```

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

```
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]
```

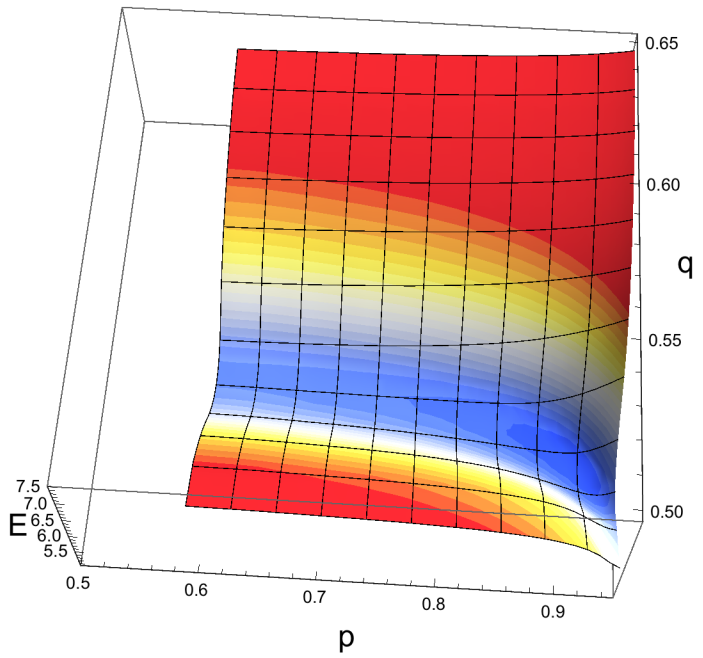



```
Export[prefix <> "erro2d.pdf", gr1]
```

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

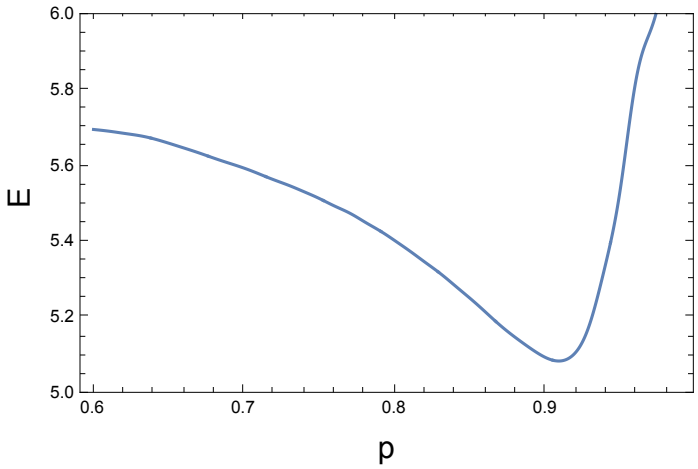
```
frametext = Style[#, "FontSize" → 16] & /@ {"p", "q", " E"};
gr1 =
 ListPlot3D[Table[Append[lispoints[[i]], lisfilt[[i]]], {i, 1, Length[lispoints]}],
  InterpolationOrder → 3, ColorFunction → "Temperature",
  PlotRange → {{0.5, 0.95}, Automatic, Automatic}, MeshFunctions → {#3 &, #1 &, #2 &},
  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]]
```



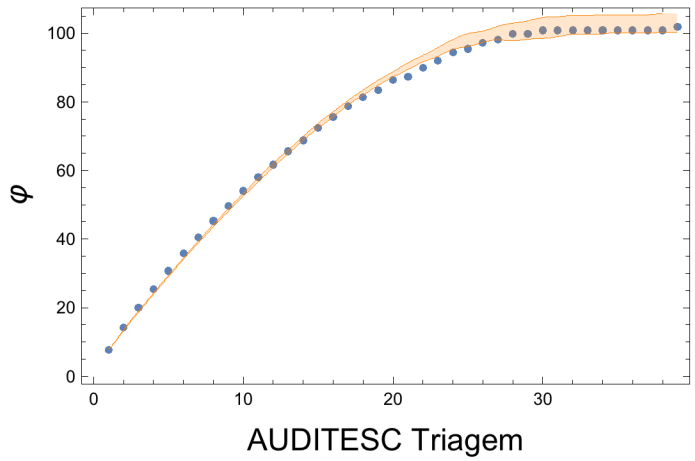
/Users/neylemke/Luisa/BancodeDadosDoutorado/erro3d.pdf

```
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]]
```



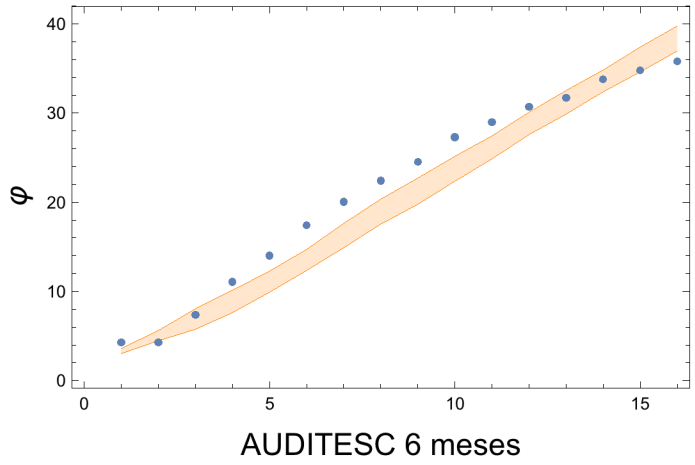
/Users/neylemke/Luisa/BancodeDadosDoutorado/erro1d.pdf

```
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]]
```



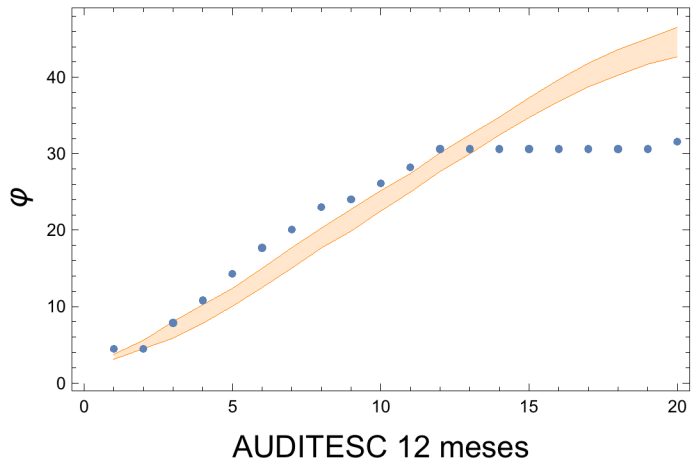
/Users/neylemke/Luisa/BancodeDadosDoutorado/varphipqqtri.pdf

```
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]]
```



/Users/neylemke/Luisa/BancodeDadosDoutorado/varphipqqz6.pdf

```
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]]
```



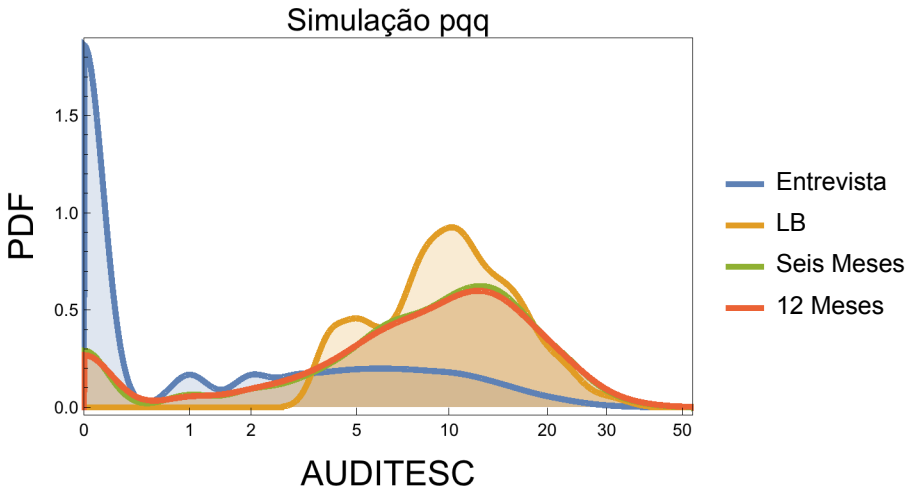
/Users/neylemke/Luisa/BancodeDadosDoutorado/varphipqqz12.pdf

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

5.64688

6.06155

```
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

```
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}];
```

```
{0.95, 0.525, 58.7943}
0.5
0.525
0.55
0.575
0.58
0.53
0.555
0.505
0.585
0.535
0.56
0.51
0.59
0.54
0.565
0.515
0.595
0.545
0.57
0.52
0.6
0.615
0.635
0.655
0.605
0.62
0.64
0.66
0.61
0.625
0.645
0.665
0.65
0.675
0.63
```

0.67

0.68

0.695

0.715

0.735

0.72

0.7

0.685

0.74

0.725

0.705

0.69

0.745

0.73

0.71

0.75

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}
```

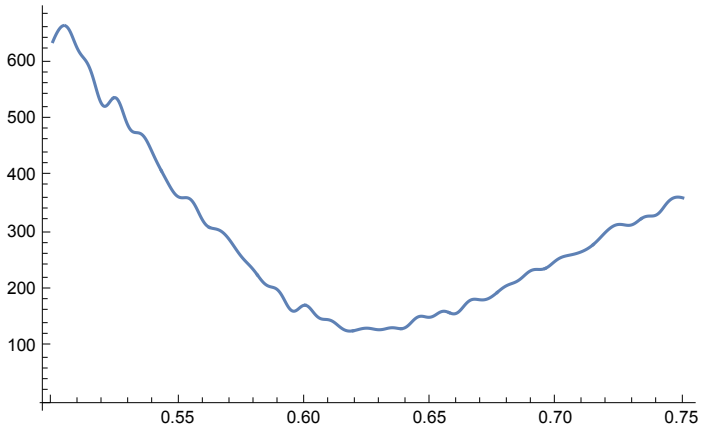
distListPythonRisco = listDistr;

```
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}]
```

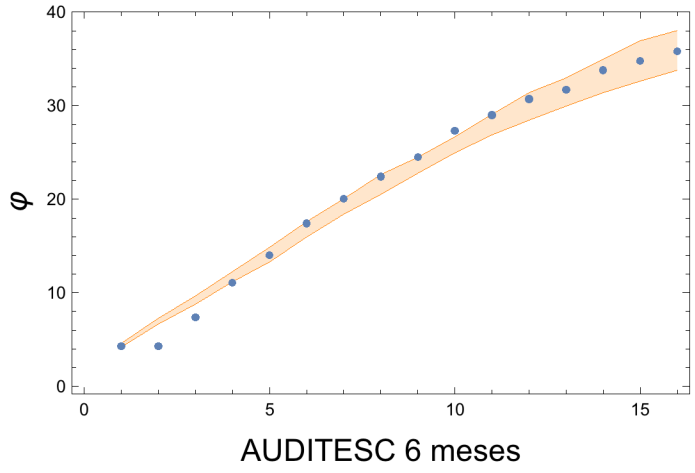
```
First[First[MinimalBy[distListPythonRisco, Last]]]
```

```
0.62
```

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

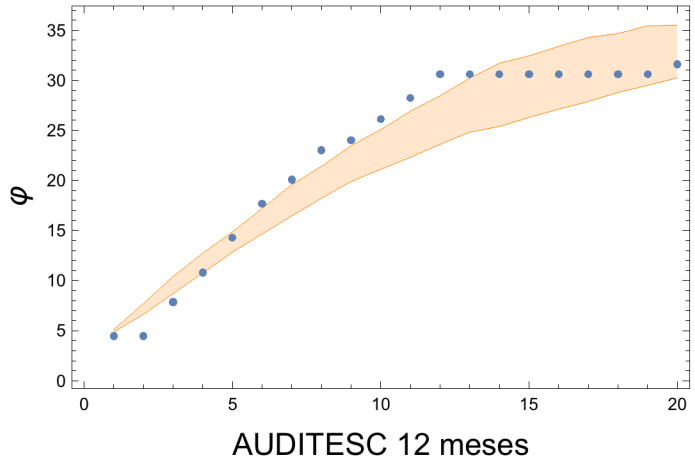


```
frametext = Style[#, "FontSize" → 16] & /@ {"AUDITESC 6 meses", "φ"};
lisdata = Join[liscontrolez6, lisintervencaoz6];
lisdatasimul = lisvariassimul3;
lisSumvarias = geraParcialSums[#, Min[lisdata], Max[lisdata]] & /@ lisdatasimul;
lisExp = geraParcialSums[lisdata, Min[lisdata], Max[lisdata]];
gr1 = 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]
```



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

```
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]
```



/Users/neylemke/Luisa/BancodeDadosDoutorado/varphipqrz12.pdf

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

1.59479

-0.305208

```
r
```

0.625`

0.625

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

4.8

```
r - 0.5
```

0.115

```
q - 0.5
```

```
0.04
```

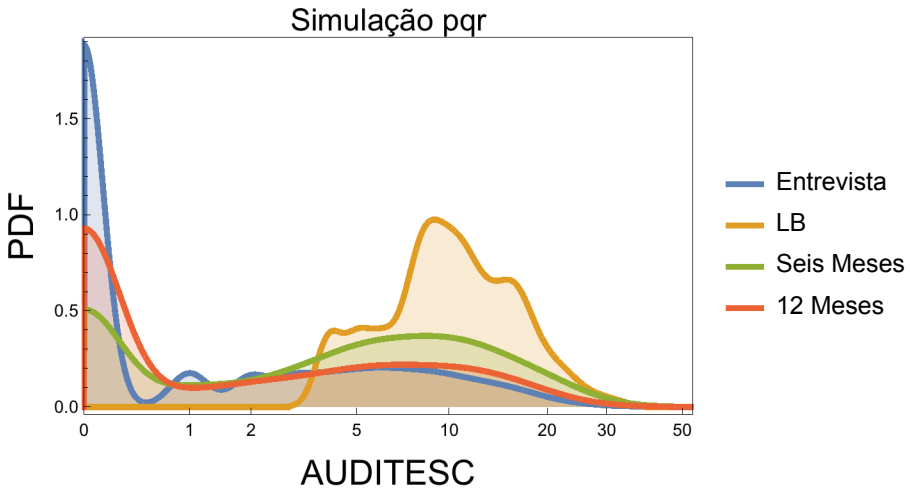
```
Correlation[lisvariassimul4[[1]], lisvariassimul3[[1]]] // N
```

```
0.797665
```

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

```
0.672024
```

```
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]
```




```
/Users/neylemke/Luisa/BancodeDadosDoutorado/expdistpqr.pdf
```

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. ≫

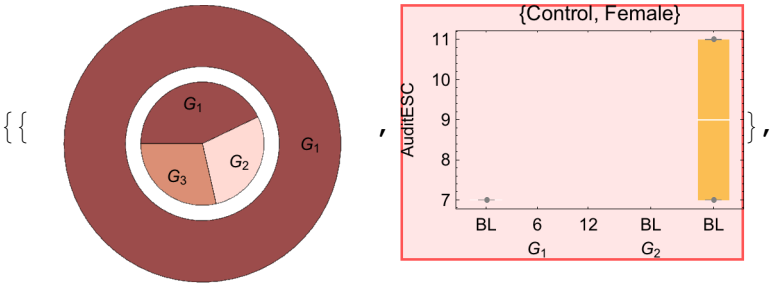
General::stop: Further output of Transpose::nmtx will be suppressed during this calculation. ≫

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. >>

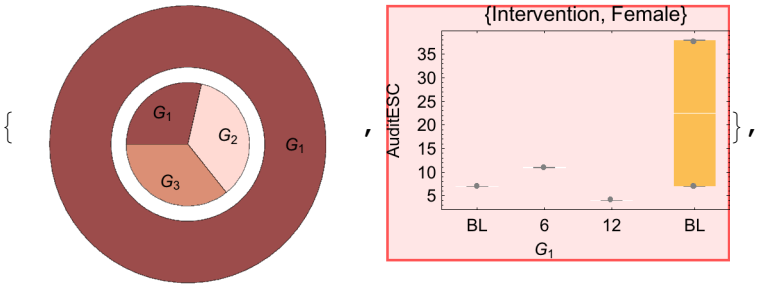
Tally::list: List expected at position 1 in Tally[ClusteringComponents[<<1>>]]. >>

{Control, Female}

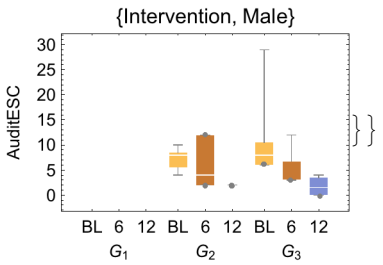



```
{PieChart[Tally[ClusteringComponents[{{0., 10, 10}, {4., 10, 10}, {17., 10, 10},
      {10., 10, 10}, {10., 10, 10}}, 3, 1, Method → KMeans]], ChartStyle → 8,
  ChartLabels → {G1, G2, G3}, PlotLabel → {Control, Male}],
```

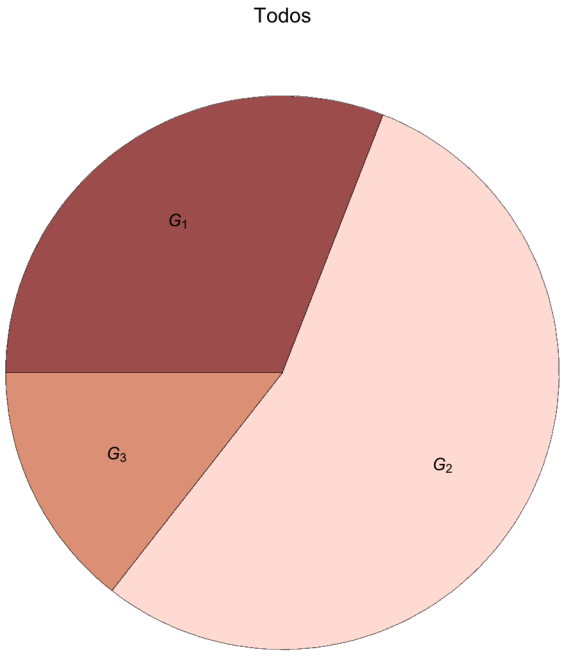
{Intervention, Female}

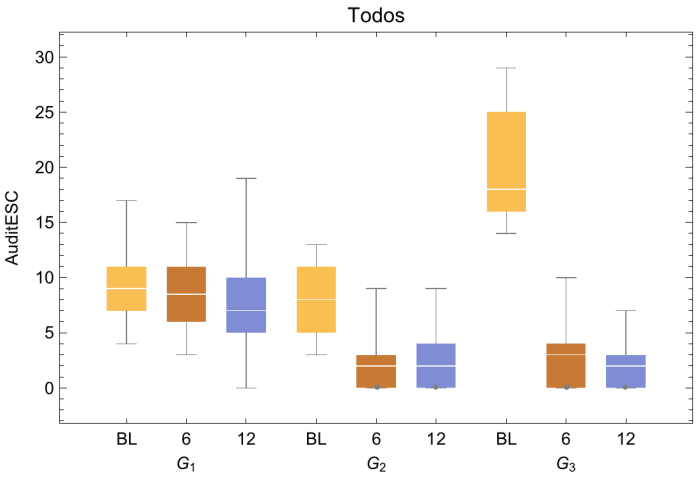



```
{PieChart[Tally[ClusteringComponents[{{8., 10, 10}, {6., 10, 10}, {10., 12, 10},
      {14., 10, 10}, {10., 10, 10}, {23., 10, 10}, {11., 10, 10}, {16., 10, 10},
      {14., 10, 10}, {11., 11, 11}, {5., 5, 10}, {9., 5, 11}, {6., 5, 3}, {4., 7, 7},
      {29., 3, 0}, {9., 9, 5}, {8., 9, 10}, {8., 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}],
```




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

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"]
```






```
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;
```

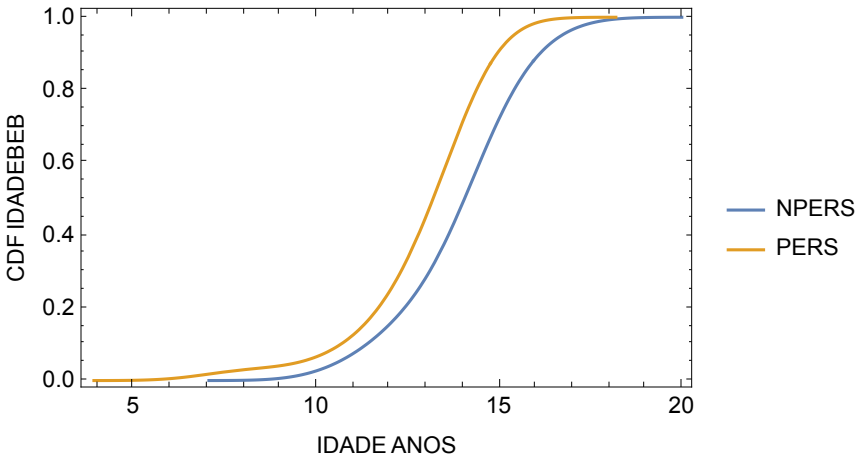
```
lisclus2 // Tally
```

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

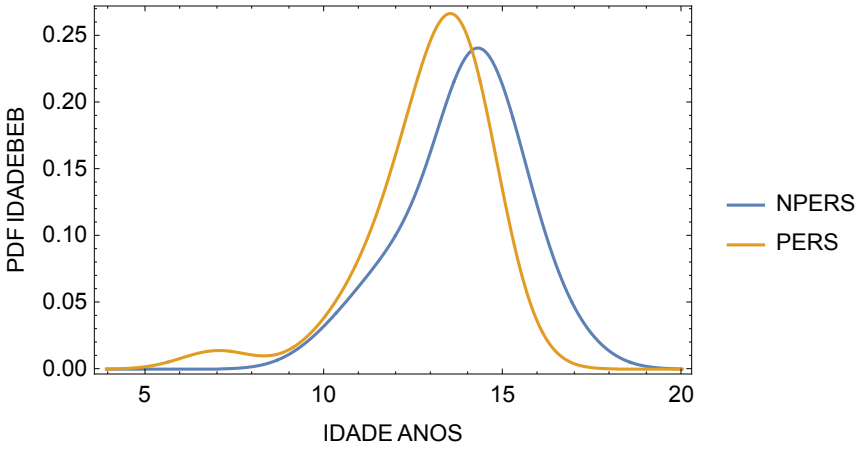
```
bbapers = bbarisco1[Flatten[Position[lisclus, 1]], lisvarname];
bbanpers = Union[bbarisco1[Flatten[Position[lisclus, 2]], lisvarname],
    bbarisco1[Flatten[Position[lisclus, 3]], lisvar]];
```

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

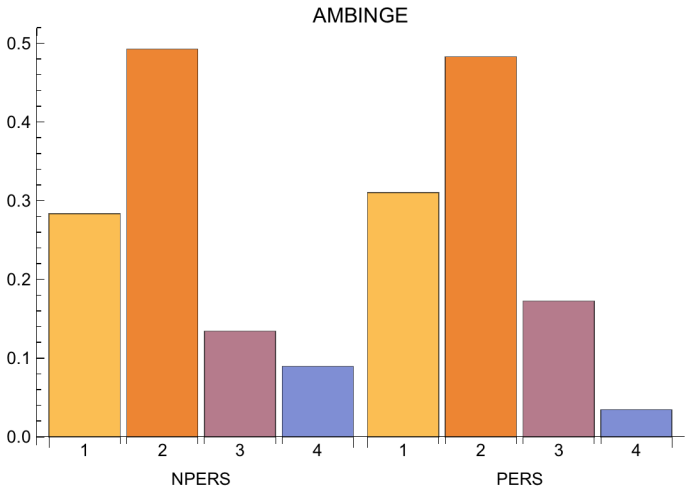
```
SmoothHistogram[
 Table[Cases[First /@ ({0, 1} /. GroupBy[{"IDADEBEB", "PERS"} /. Normal[
          bbapers2[All, {"IDADEBEB", "PERS"}]], Last])[[i]], _Integer], {i, 1, 2}],
 1, "CDF", Frame → True, FrameLabel → {HoldForm[IDADE ANOS], HoldForm[CDF IDADEBEB]},
 PlotLabel → None,
 LabelStyle → {FontFamily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



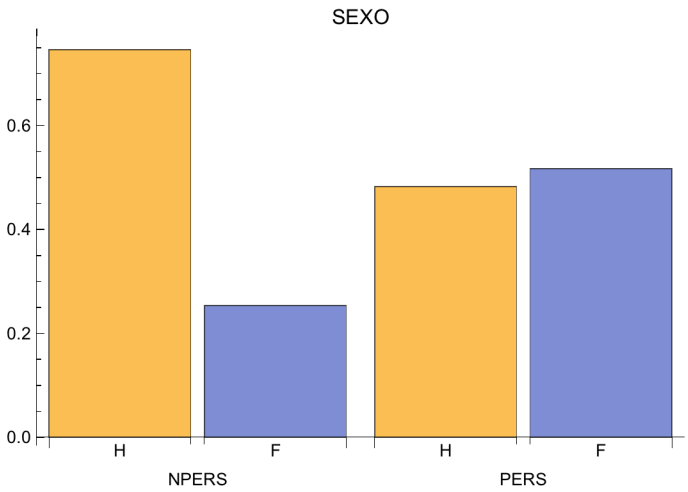

```
SmoothHistogram[
 Table[Cases[First /@ ({0, 1} /. GroupBy[{"IDADEBEB", "PERS"} /. Normal[
          bbapers2[All, {"IDADEBEB", "PERS"}]], Last])[[i]], _Integer], {i, 1, 2}],
 1, "PDF", Frame → True, FrameLabel → {HoldForm[IDADE ANOS], HoldForm[PDF IDADEBEB]},
 PlotLabel → None,
 LabelStyle → {FontFamily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



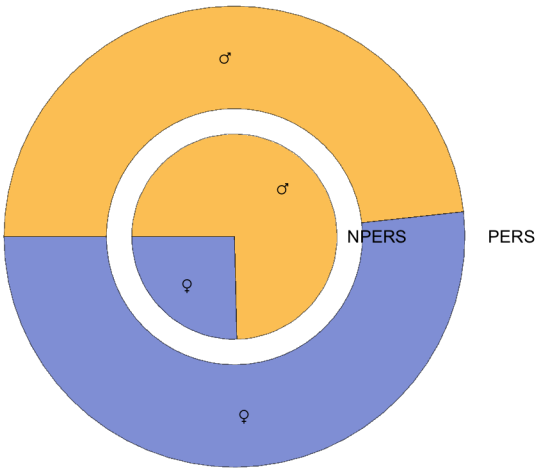
```
BarChart[
 Table[N[Last /@ Tally[First /@ ({0, 1} /. Normal[GroupBy[{"AMBINGE", "PERS"} /.
              Normal[bbapers2[All, {"AMBINGE", "PERS"}]], Last]])[[i]]] /
    Length[({0, 1} /. Normal[GroupBy[{"AMBINGE", "PERS"} /.
            Normal[bbapers2[All, {"AMBINGE", "PERS"}]], Last]])[[i]]]],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



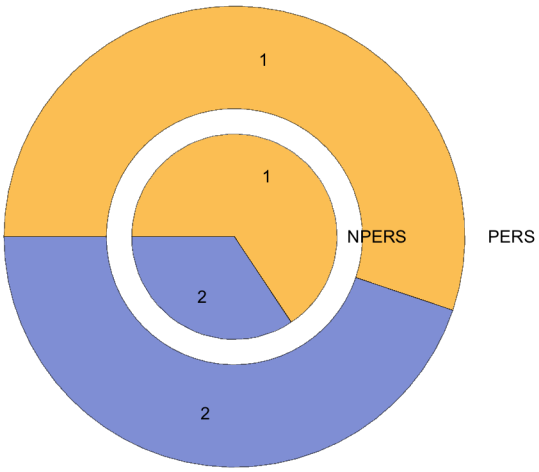

```
BarChart[
 Table[N[Last /@ Tally[First /@ ({0, 1} /. Normal[GroupBy[{"SEXO", "PERS"} /. Normal[
                bbapers2[All, {"SEXO", "PERS"}]], Last]])[[i]]] /
    Length[({0, 1} /. Normal[GroupBy[{"SEXO", "PERS"} /. Normal[
              bbapers2[All, {"SEXO", "PERS"}]], Last]])[[i]]]],
  {i, 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]}]
```



```
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}}
```

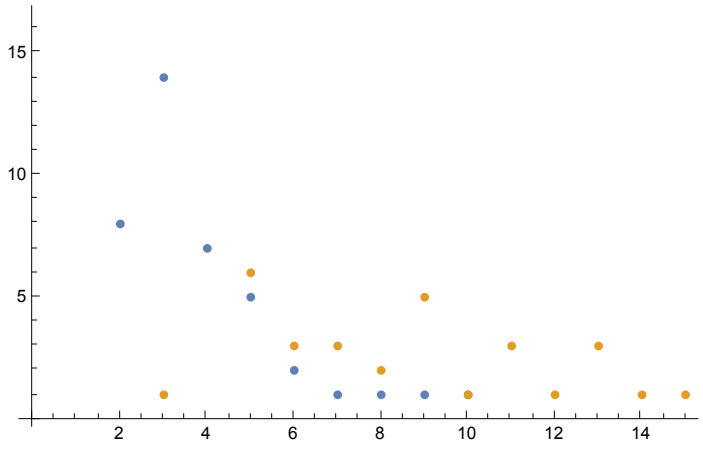
	Estimate	StandardError	z-Statistic	P-Value
1	1.43	0.389327	3.673	0.000239719
sexo	−0.266907	0.0980112	−2.72323	0.00646474
idadebeb	−0.0645976	0.0278655	−2.31819	0.020439
ambinge	0.105452	0.0543107	1.94165	0.0521798
familal	0.127154	0.0922793	1.37792	0.168227

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

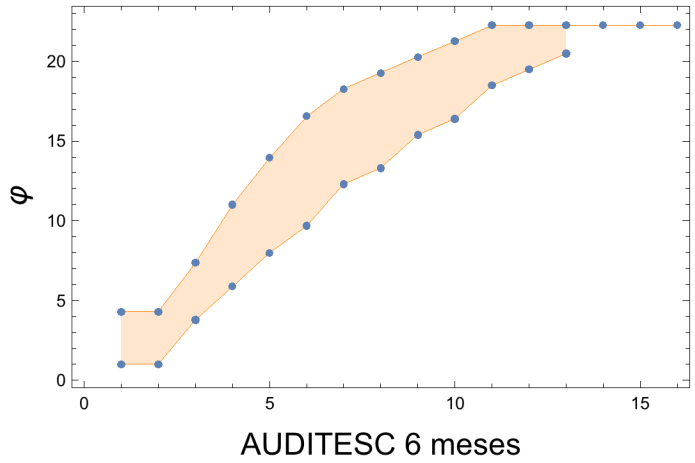
```
/Users/neylemke/Luisa/BancodeDadosDoutorado/tabparam.tex
```

Sandbox

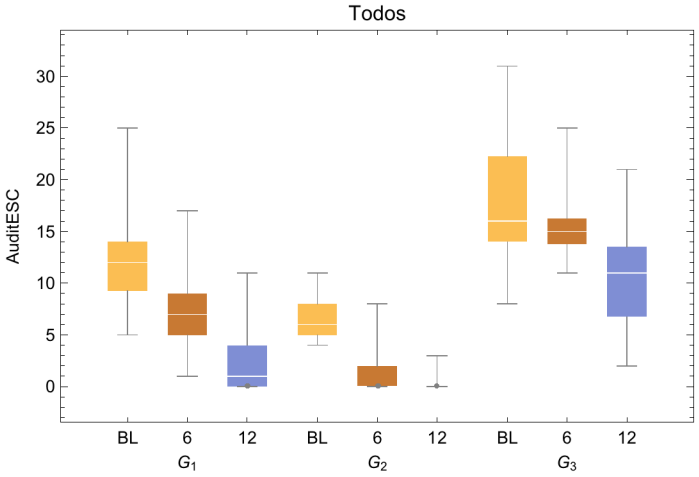
```
ListPlot[{Tally[Normal[Select[bbapers2, #PERS == 0 &][All, "z6AUDITESC"]]],
  Tally[Normal[Select[bbapers2, #PERS == 1 &][All, "z6AUDITESC"]]]
 }]
```




```
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"]
```



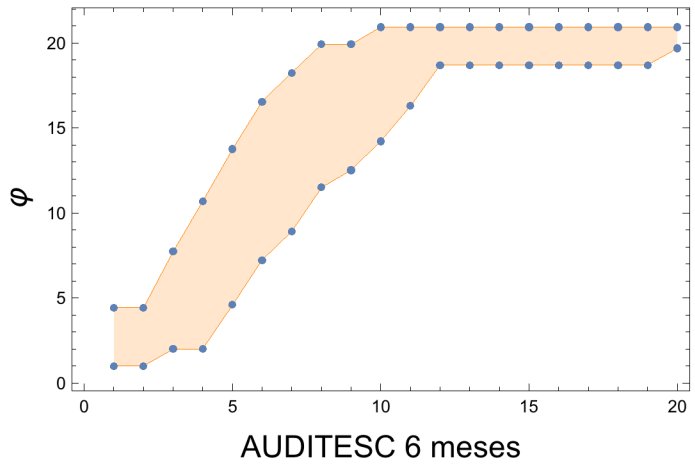

```
Entropy[lisclus] // N
```

```
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

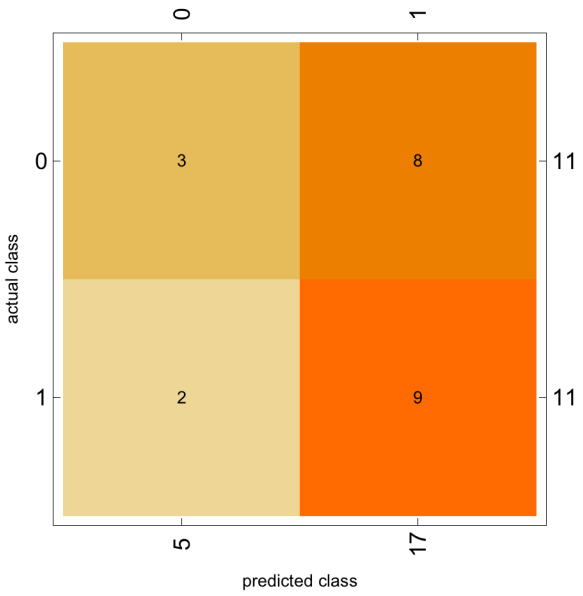
lissimul2

```
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"]
```



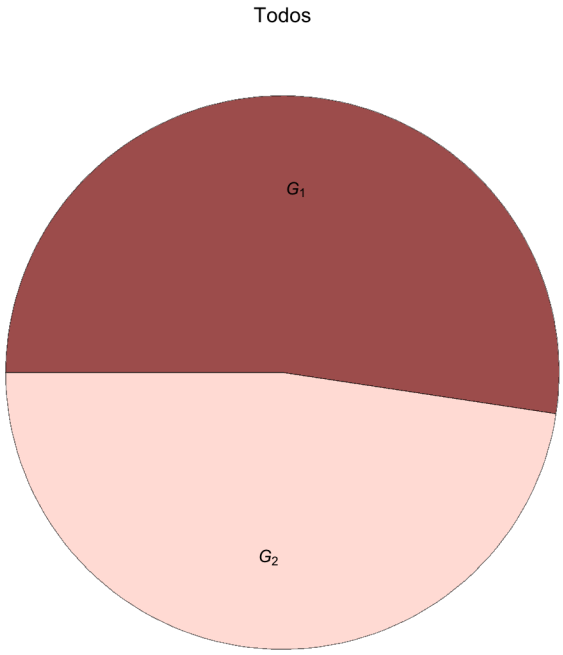
```
? Classify
```

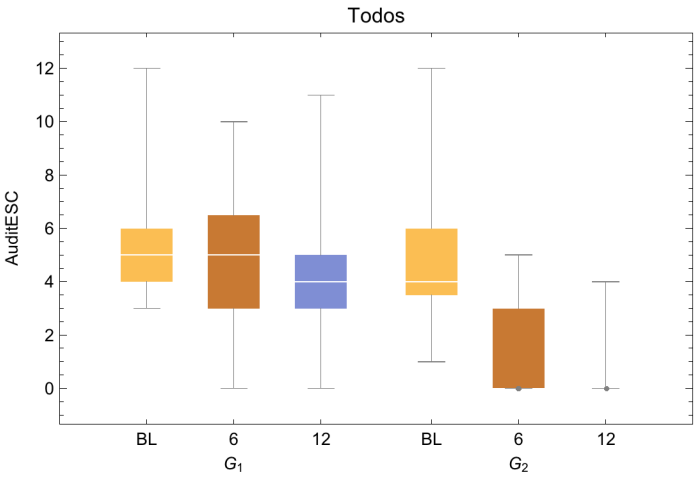
Info-2b6b82cd-6c5c-4a7c-8754-538c451d27d0

Classify[{*example*$_1$ → *class*$_1$, *example*$_2$ → *class*$_2$, …}]
generates a ClassifierFunction[…] based on the examples and classes given.
Classify[{*example*$_1$, *example*$_2$, …} → {*class*$_1$, *class*$_2$, …}] also generates a
ClassifierFunction[…] based on the examples and classes given.
Classify[<| *class*$_1$ → {*example*$_{11}$, *example*$_{12}$, …}, *class*$_2$ → {*example*$_{21}$, …}, … |>] 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"]
```

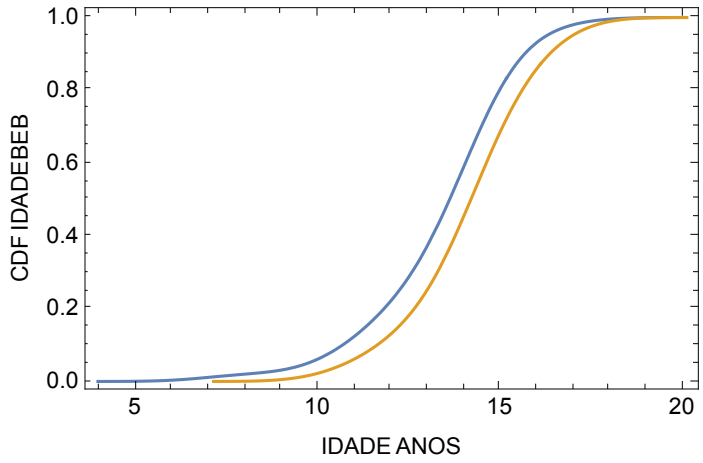
```
{2.8244, -0.0179754, 0.0638082, -0.113983, -0.170603}
```

```
{0.0135702, 0.00399878, 0.0341123, 0.0877089, 0.125203}
```

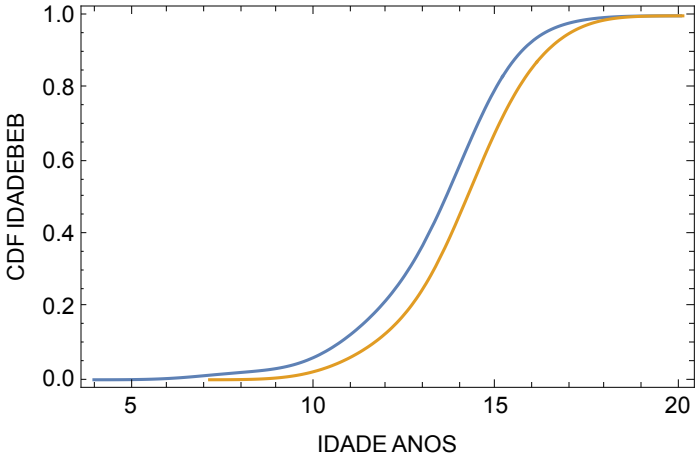
```
{{0.581803, 5.067}, {-0.0302159, -0.00573498},
 {0.00478175, 0.122835}, {-0.244811, 0.0168447}, {-0.38868, 0.0474738}}
```

	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 × 10^-54, 0.289718, 4.30059 × 10^-6, 4.02214 × 10^-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 retrievethe value for variableor 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 followingR errorwas 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"]
```

GeneralizedLinearModelFit::desmat:
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. >>

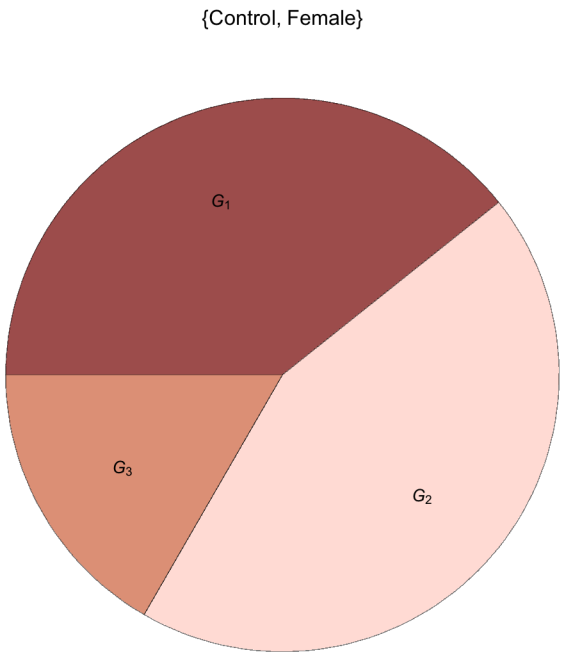
```
GeneralizedLinearModelFit[
  {{2, 2, 13, 1}, {1, 4, 14, 1}, {1, 3, 12, 1}, {2, 4, 13, 1}, {1, 3, 14, 1}, {1, 2, 13, 1},
   {1, 3, 14, 1}, {2, 3, 14, 1}, {2, 2, 14, 1}, {1, 3, 10, 1}, {2, 3, 14, 1}, {1, 2, 14, 1},
   {1, 4, 11, 1}, {2, 2, 12, 1}, {1, 4, 15, 1}, {1, 4, 12, 1}, {1, 4, 13, 1}, {2, 3, 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]
```

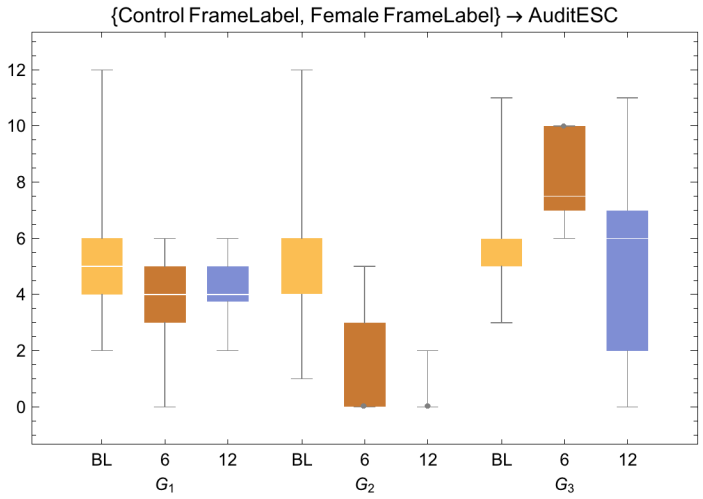
```
GeneralizedLinearModelFit[
  {{2, 2, 13, 1}, {1, 4, 14, 1}, {1, 3, 12, 1}, {2, 4, 13, 1}, {1, 3, 14, 1}, {1, 2, 13, 1},
   {1, 3, 14, 1}, {2, 3, 14, 1}, {2, 2, 14, 1}, {1, 3, 10, 1}, {2, 3, 14, 1}, {1, 2, 14, 1},
   {1, 4, 11, 1}, {2, 2, 12, 1}, {1, 4, 15, 1}, {1, 4, 12, 1}, {1, 4, 13, 1}, {2, 3, 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}
```

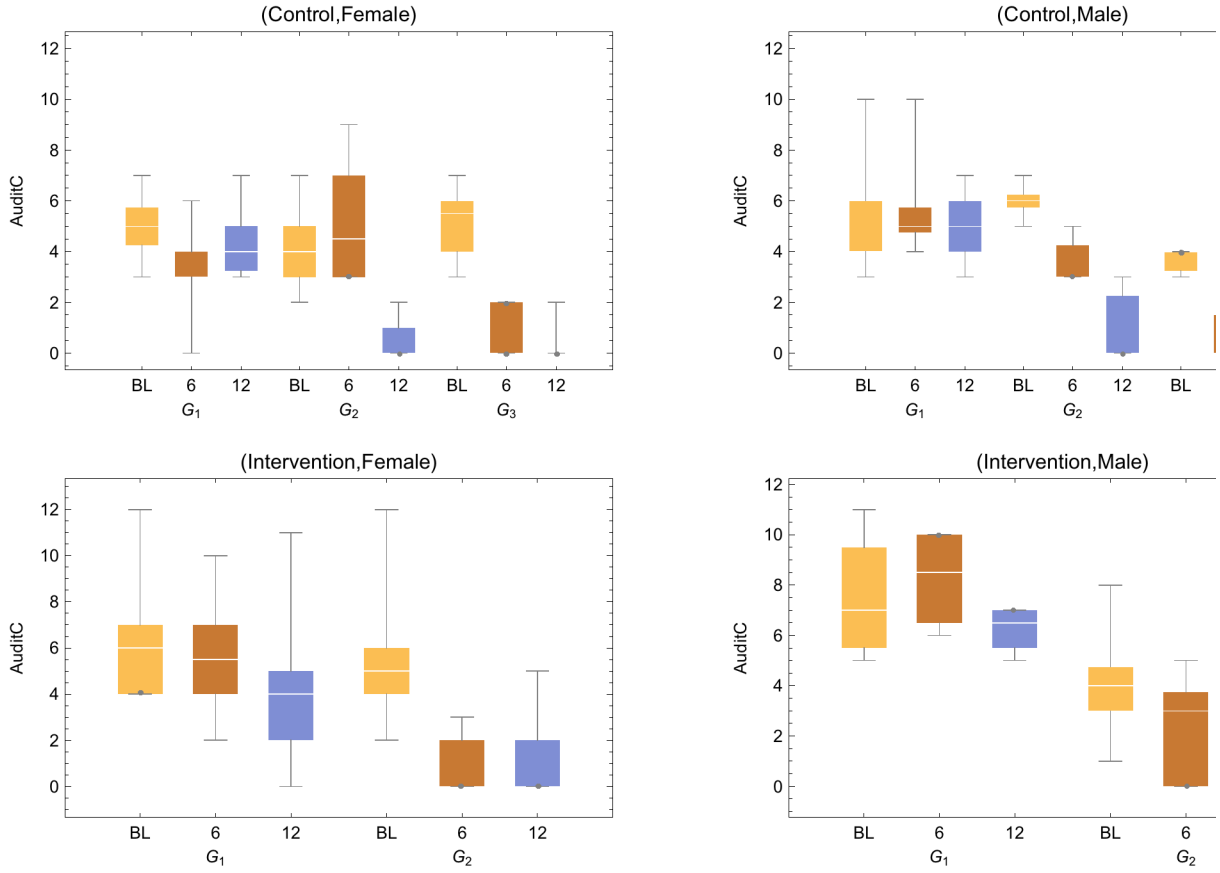
```
{0.951656, 0.849595, 0.714254, 0.331771}
```

```
{{-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]]
```

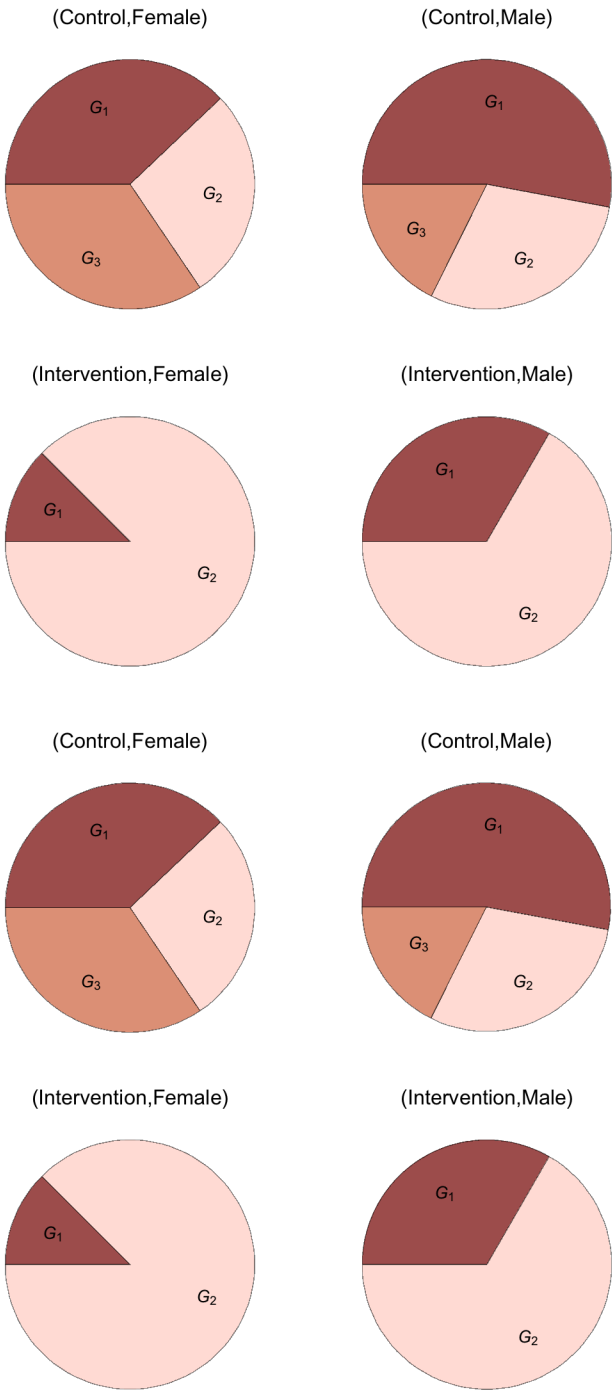
```
lisevol = Transpose[{partauditc1[[4]], partauditc1z6[[4]], partauditc1z12[[4]]}];
lisclus = ClusteringComponents[lisevol, 2, 1, Method → "KMeans"];
lisevol2 =
  Table[N[Mean /@ Transpose[lisevol[[Flatten[Position[lisclus, k]]]]]], {k, 1, 2}];

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]
```

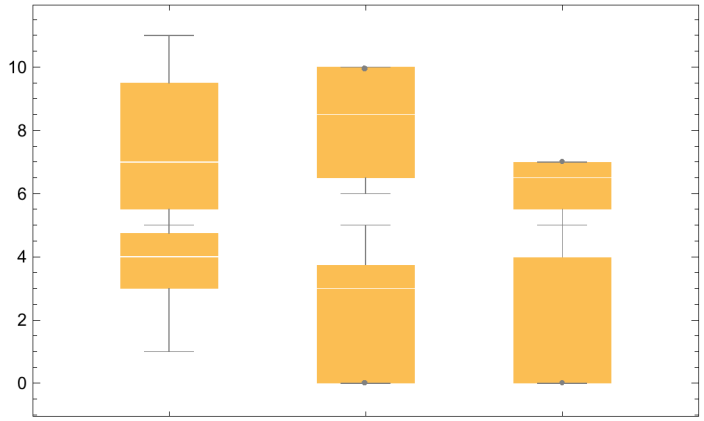
```
/Users/neylemke/Luisa/BancodeDadosDoutorado/piechartsgrupos.pdf
```

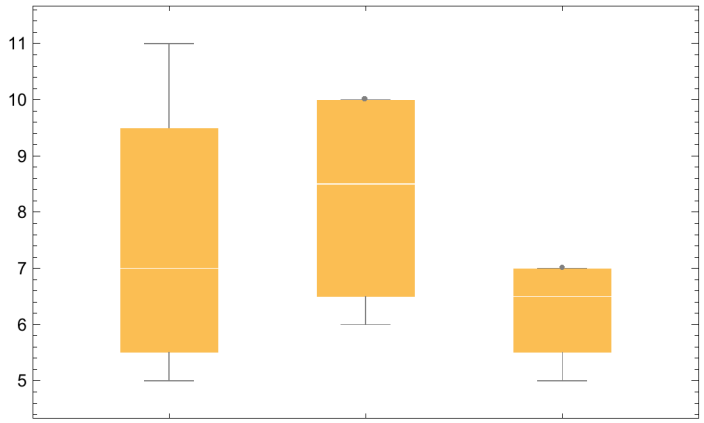
```
{4.90909, 3.27273, 4.27273}
```

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

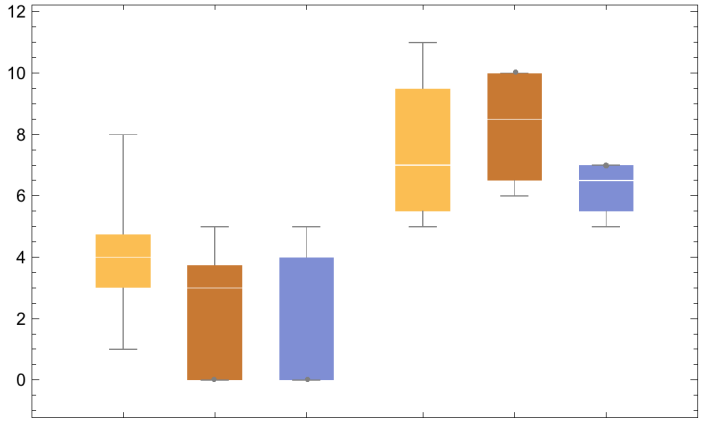
```
{{{3, 0, 5}, {4, 4, 5}, {4, 5, 4}, {5, 5, 4}, {3, 3, 3}, {3, 0, 0}, {5, 3, 4}, {8, 3, 4},
  {2, 0, 0}, {1, 3, 0}, {4, 0, 0}}, {{5, 7, 7}, {11, 6, 7}, {6, 10, 6}, {8, 10, 5}}}
```

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

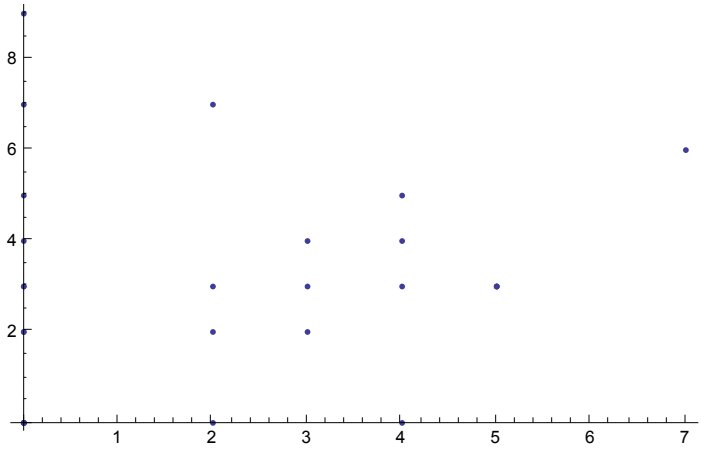




```
BoxWhiskerChart[{liskkk[[1]] // Transpose, liskkk[[2]] // Transpose}]
```




```
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"
```