Article

Dynamically insert the forest plot into a web page: The full Javascript codes

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Abstract

In present study a method that enables users to dynamically insert the forest plot into a web page was presented. In this method, I created a Javascript module for generating and inserting a HTML table, including an entry function and two sub-functions. When the user applies it, copy these functions together with the table mark into the web page location where the forest plot is to be inserted. The web page will generate the forest plot by passing in parameters and calling the entry function in the user's own Javascript module. The full Javascript codes were given for free uses of web developers.

Keywords Javascript; JQuery; table; web page; HTML; ASP.

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1 Introduction

Forest plots are widely used in ecological and biological studies, e.g., meta-analyses (DerSimonian R, Laird N. 1986; Elsevier. 2023; Harrer et al., 2021; Hedges LV, Olkin I. 1985; Huang HN. 2023; Zhang, 2024a), Mendelian randomization (Deng et al., 2023; Rasooly et al., 2023; XM, 2024). Most forest plots are plotted in standardalone software environments. Online calculations are particularly useful and most available to users, especially those based on web pages, developed by Javascript, etc (Zhang, 2023, 2024a-c; Zhang and Qi, 2024). However, forest plots are hard to be dynamically plotted in the web pages. Therefore, in present study I developed a method that enables users to dynamically insert a forest plot into a web page. The full Javascript codes were given for free uses of web developers.

2 Method Outline

The method is aimed to enable users to dynamically insert a forest plot into a web page. I create a Javascript module for generating and inserting a HTML table, including an entry function and two sub-functions. When

the user applies it, copy these functions together with the table mark into the web page location where the forest plot is to be inserted. Pass in parameters and call the entry function in the user's own Javascript module to generate the forest plot.

3 Javascript Codes

The full Javascript codes (including table mark and JQuery source) are as follows:

```
<table style="border:0;border-collapse:collapse;background-color:white;font-family:Times New Roman;
font-size:2pt">
<tbody id="forestplot">
</tbody>
</table>

<script src="http://www.iaees.org/publications/journals/nb/articles/2024-14(2)/jquerymin.js">
</script>

<script type="text/javascript">

function zalpha(p) {
var z;
var za1=[0.00001,0.00005,0.0001,0.0005,0.001,0.005,0.01,0.05];
var za2=[4.4172,4.0556,3.8906,3.4808,3.2905,2.8070,2.5758,1.9600];
for(var i=0;i<=7;i++)
if (Math.abs(p-za1[i])<1e-05) {
z=za2[i];
break; }
return z; }

function ci(ID,effect,stderr,z,min,a,b,style) {
var tableData="<tr style="+style+">";
tableData+="<td contenteditable='true'>  "+ID+"</td>";
tableData+="<td contenteditable='true'>  "+effect+"</td>";
tableData+="<td contenteditable='true'>  "+stderr+"  </td>";
tableData+="<td contenteditable='true'>";
effect=effect*b;
stderr=stderr*b;
var mean=Math.round(effect/a)-Math.round(min/a)+2;
var half=Math.round(z*stderr/a);
var lower=mean-half;
var upper=mean+half;
for(var i=1;i<=upper;i++)
if (i<lower) tableData+="    ";
else if (i==lower) tableData+=" ├";
else if ((i>lower) & (i<mean)) tableData+="—";
```

```
else if (i==mean) tableData+="●";
else if ((i>mean) & (i<upper)) tableData+="—";
else if (i==upper) tableData+="┤";
tableData+="</td>";
tableData+="</tr>";
return tableData; }

function forestplot(data,m,p,scale) {
var r,q,v,g;
for(var i=1;i<=m-1;i++) {
r=i;
for(var j=i;j<=m-1;j++)
if (data[j+1][1]<data[r][1]) r=j+1;
v=data[i][0];
data[i][0]=data[r][0];
data[r][0]=v;
q=data[i][1];
data[i][1]=data[r][1];
data[r][1]=q;
g=data[i][2];
data[i][2]=data[r][2];
data[r][2]=g; }
var z=zalpha(p);
var ma=-1e+08;
for(var i=1;i<=m;i++)
if (data[i][1]>ma) ma=data[i][1];
var b=1;
if (ma<=0.001) b=50000;
else if (ma<=0.01) b=5000;
else if (ma<=0.05) b=1000;
else if (ma<=0.1) b=500;
else if (ma<=0.5) b=100;
else if (ma<=1) b=50;
else if (ma<=5) b=10;
else if (ma<=10) b=5;
else if (ma<=20) b=2.5;
else if (ma<=30) b=1.5;
var id,effect,stderr;
var max=-1e+08,min=1e+08;
for(var i=1;i<=m;i++) {
ID=data[i][0];
effect=data[i][1];
stderr=data[i][2];
r=(effect+z*stderr)*b;
```

```
v=(effect-z*stderr)*b;
if (r>max) max=r;
if (v<min) min=v; }
var a=(max-min)/scale;
var style="background-color:#CCFFFF";
var tableData="<tr style="+style+">";
tableData+="<td contenteditable='true'> &nbspID</td>";
tableData+="<td contenteditable='true'> &nbspEffect</td>";
tableData+="<td contenteditable='true'> &nbspStd Err  </td>";
tableData+="<td contenteditable='true'>Confidence Interval</td>";
tableData+="</tr>";
style="background-color:#E0FFFF";
for(var i=1;i<=m;i++) {
ID=data[i][0];
effect=data[i][1];
stderr=data[i][2];
tableData+=ci(ID,effect,stderr,z,min,a,b,style); }
var p=Math.floor(z);
if (p==2) p=0.01;
else if (p==3) p=0.001;
else if (p==1) p=0.05;
style="background-color:#CCE5FF";
tableData+="<tr style="+style+">";
tableData+="<tr style="+style+">";
tableData+="<td colspan=3 align=center contenteditable='true'>Forest Plot</td>";
tableData+="<td contenteditable='true'>● - mean; ├┤ - confidence interval; <i>p</i>="+p+".</td>";
tableData+="</tr>";
$("#forestplot").html(tableData);
}
</script>
```

The parameters in the function forestplot(data,m,p,scale) are as follows:

data: a numerical matrix of m*3. The 1st column is for IDs, the 2nd is for effects (Zhang, 2023, 2024a), and the 3rd column is for standard errors of effects.

p: 0.00001,0.00005,0.0001,0.0005,0.001,0.005,0.01, or 0.05.

m: the number of data, i.e., the number of rows in the forest plot to be generated.

scale: the scale of the forest plot to be displayed, e.g., 50, 70, 30, etc.

A confidence interval is defined by [effect-z*standard error, effect+z*standard error], where z is the standard normal value for the specified p value.

A generated cell in the forest plot is allowed to be editable by setting <td contenteditable='true'> in the codes. If the editing by users is not allowable, just deleting *contenteditable='true'* from the code above.

The web designer may change the layout style of forest plot by making changes to

<table style="border:0;border-collapse:collapse;background-color:white;font-family:Times New Roman; font-size:2pt">

or

style="background-color:#E0FFFF"

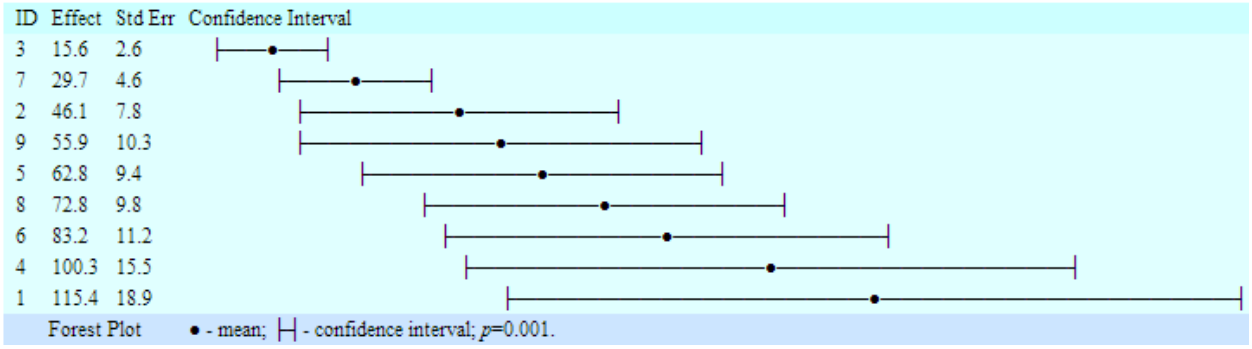
etc.

4 An Example

Here I present a demostration data as follows (p=0.001, m=9, scale=50)

1	115.4	18.9
2	46.1	7.8
3	15.6	2.6
4	100.3	15.5
5	62.8	9.4
6	83.2	11.2
7	29.7	4.6
8	72.8	9.8
9	55.9	10.3

The resultant forest plot in the web page is thus generated as



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