Section 3

Outcome (\( Y \)):

- Dichotomous

1 if "c. r. relief"
0 else

Here no control group

Another way:

Ex. new drug to help insomnia
to get paired data

C.B.T. = current best thing design

Treatment defeats all possible person-level P.C.F.S., by holding the entire person constant.

This is an example of longitudinal data-gathering: repeated-measures design.
Study the same individuals at multiple (2 or more) points in time (movie). Opposite: cross-sectional data: gather of many different people at one moment in time (snapshot).

<table>
<thead>
<tr>
<th>baseline</th>
<th>clear out period</th>
</tr>
</thead>
<tbody>
<tr>
<td># hrs sleep</td>
<td># hrs dry</td>
</tr>
<tr>
<td># hrs sleep</td>
<td># hrs nap</td>
</tr>
<tr>
<td>CPT</td>
<td>Sleep</td>
</tr>
</tbody>
</table>

Outcome order:

<table>
<thead>
<tr>
<th>person</th>
<th>cup</th>
<th>conv.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>:</td>
</tr>
<tr>
<td>31</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

Lack of generalizability: she didn’t try to choose her patients in a representative manner from \( p = \{ \text{all people with spinal punctures} \} \).
(b) has pts. at different from other pts. in P in that conventional treatment didn't help placebo effect.

\[ \frac{20}{31} \text{ as an estimate of success rate in all of P is biased on high side} \]

(b) outcome (Y): \[ \{1 \text{ if alive 3yr later} \} \]

treatment (X): \[ \{0 \text{ else} \}

\[
\begin{bmatrix}
15 \\
25
\end{bmatrix}
\quad n = 100
\]

\[
\begin{bmatrix}
15 \\
25
\end{bmatrix}
\quad n = 300
\]

\[ \text{mean 98% } \leftarrow \text{ biased on high side\quad mean 68% } \leftarrow \text{ un-biased} \]

\[ 98\% - 68\% = 30\% \quad \text{estimate of improvement in P} \]
\( P = \{ \text{all adults with coronary art. dist}. \} \) 

\( +80\% \text{ is likely to be biased on the high side, because Dr. W. got almost certainly oversampled relatively healthy patients from P} \)

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Outcome: being fat or not

Treatment: eating cheese or not

Claim: \( X \) causes \( Y \)

\( X \xrightarrow{\text{plausible}} \)

\( X \xrightarrow{\text{ok}} Y \)

\( X \xrightarrow{\text{I doubt it}} Y \)

\( X \xrightarrow{\text{I doubt it}} Y \)

\( X \xrightarrow{\text{I doubt it}} Y \)