Big Brother Big Sister Project: Does age impact the length of a relationship?

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Research Question 1

- Does the child’s age when matched have an effect on the length of the BBBS relationship?

- $H_0 = 0$ (Null Hypothesis)
  - The child’s age when matched does not effect the length of the BBBS relationship.

- $H_1 \neq 0$ (Alternate Hypothesis)
  - The child’s age when matched does effect the length of the BBBS relationship.
Variables

- Independent Variable
  - Child’s age (younger or older child)
- Dependent Variable
  - Length of the relationship

I chose to examine child’s age because I hypothesized that relationships would last longer if the child was younger at the start of the relationship.
- Easy to bond with someone from a young age.
Distribution of Child Ages

- Age Range: 7-21
- Age Majority: 10-17.
- 13 and 14 is the most common age.
Younger v. Older Age Distribution

- Younger children: ≤13
- Almost equal numbers of younger and older children.
- More children 13 years or younger.
To analyze the data, I performed an Independent-Samples T Test. This test was used to determine whether there is a statistically significant difference between the means of two unrelated groups.

- **Child Age and Length of the Relationships**
Older
-Median: 23.55 months
-Spread: 2-96 months

Younger
-Median: 20.40 months
-Spread: 4-118 months
Results

<table>
<thead>
<tr>
<th>Age of Child</th>
<th>Number</th>
<th>Mean</th>
<th>Std. Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Younger (≤13)</td>
<td>172</td>
<td>26.39</td>
<td>19.666</td>
</tr>
<tr>
<td>Older (&gt;13)</td>
<td>138</td>
<td>28.75</td>
<td>21.289</td>
</tr>
</tbody>
</table>

- Degrees of Freedom: 308
- Test Statistic: \( t = -1.012 \)
- P-value: \( p = 0.312 \)
- Conclusion: We fail to reject the null hypothesis that the length of the relationships are equal. Therefore, whether the child is younger or older at the match date does not have an effect on the length of the relationship.
Research Question 2

- Does the volunteer’s age at the start of the relationship have an effect on the length of the BBBS relationship?

- $H_0 = 0$ (Null Hypothesis)
  - The volunteer’s age does not have an effect on the length of the BBBS relationship

- $H_1 \neq 0$ (Alternate Hypothesis)
  - The volunteer’s age has an effect on the length of the BBBS relationship.
Variables

- Independent Variable
  - Volunteer’s age (younger or older volunteer)
- Dependent Variable
  - Length of the relationship

I also chose to look at volunteer age because I hypothesized that relationships with older adults would last longer than those with younger adults.
Distribution of Volunteer Ages

- Large majority of volunteers are between the ages of 20 and 40.
- Skewed right meaning very few older adult volunteers
Younger vs. Older Age Distribution

- Younger Volunteer: ≤40
- Older Volunteer: >40
- Much smaller proportion of older adults.
- Almost a 9:1 ratio.
To analyze the data, I performed an Independent-Samples T Test. This test was used to determine whether there is a statistically significant difference between the means of two unrelated groups.

- Volunteer Age and Length of the Relationship
Side-By-Side Box Plot

Older
Median: 29.70 months
Spread: 2-93 months

Younger
Median: 20.70 months
Spread: 3-118 months
Results

<table>
<thead>
<tr>
<th>Volunteer Age</th>
<th>Number</th>
<th>Mean</th>
<th>Std. Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Younger (≤40)</td>
<td>274</td>
<td>26.25</td>
<td>19.026</td>
</tr>
<tr>
<td>Older (&gt;40)</td>
<td>36</td>
<td>36.55</td>
<td>27.496</td>
</tr>
</tbody>
</table>

- Degrees of Freedom: 308
- Test Statistic: t= -2.881
- P-value: p= 0.004
- Conclusion: We reject the null hypothesis that the lengths of relationships are equal whether the adult is older or younger. The data shows that relationships with an older volunteer last about 10 months longer than relationships with younger volunteers.