

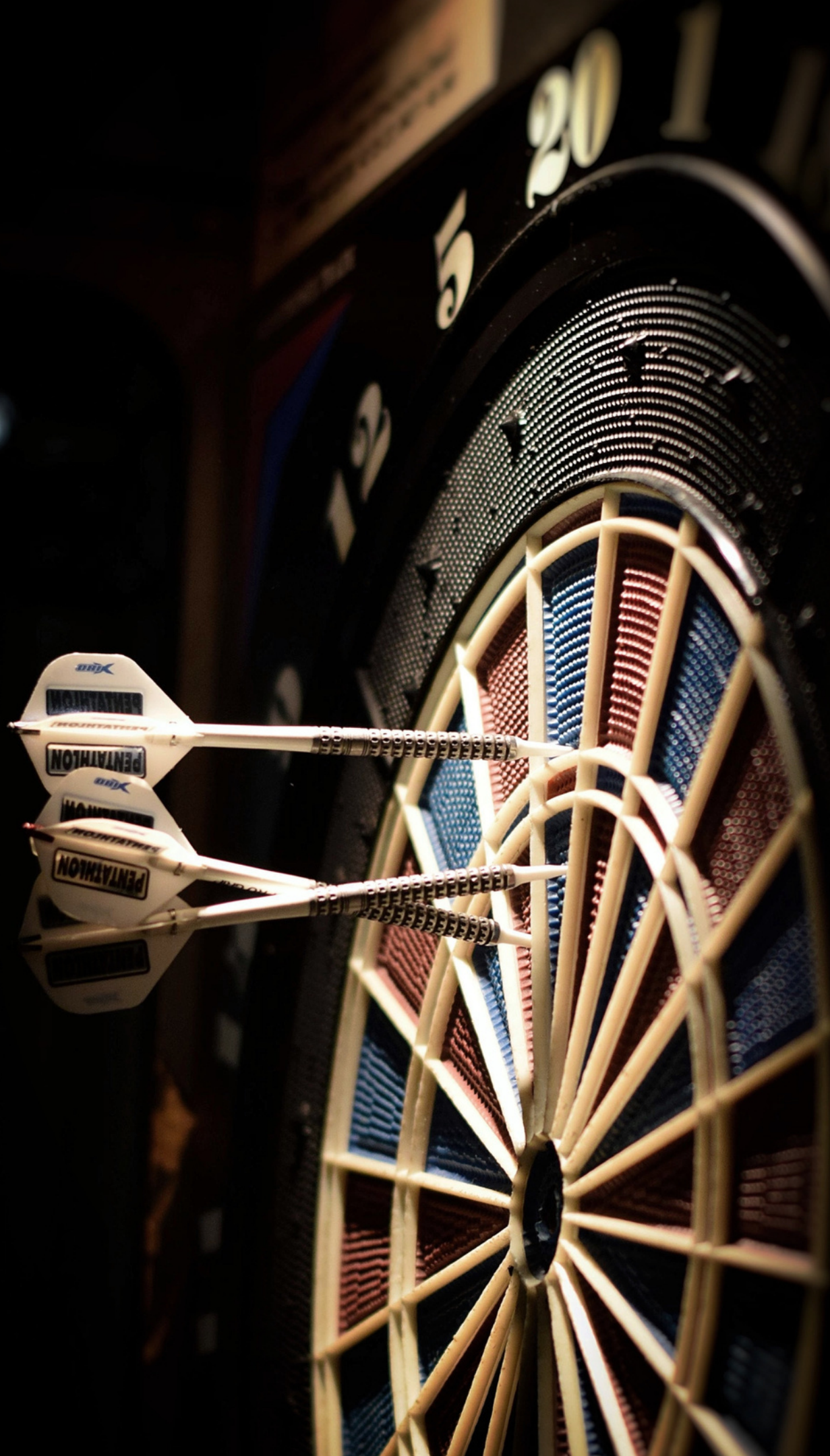


STUDYING IMPACT OF VR ON SPORTS

Innovating The Future Of Sports

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INTRODUCTION

- Research Question- Does practicing throwing darts in a virtual reality setting cause an increase in performance (score) of throwing darts in real life?
- Hypothesis- Participants who practice throwing darts in virtual reality will perform better in subsequent real-world dart-throwing tests
- Motivation - Utilize the advancements in VR technology to improve sports performance



EXPERIMENT

The treatment group practiced throwing darts in VR before throwing them in real life, while the control group only threw darts in real life.

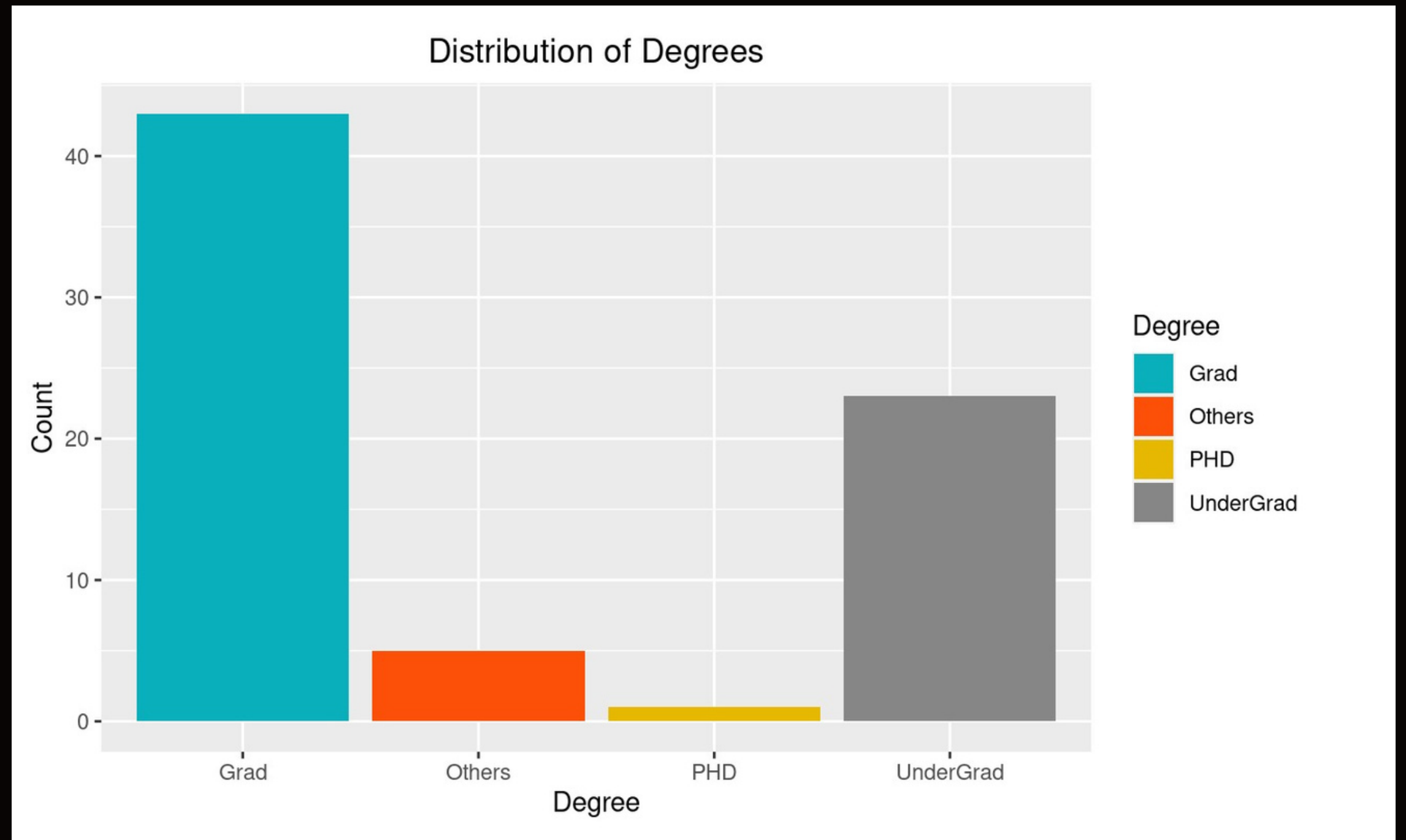
- Randomisation : individual level (coin flip)
- Accuracy Metric : Hitting the bullseye
- Sample Size : 72 participants



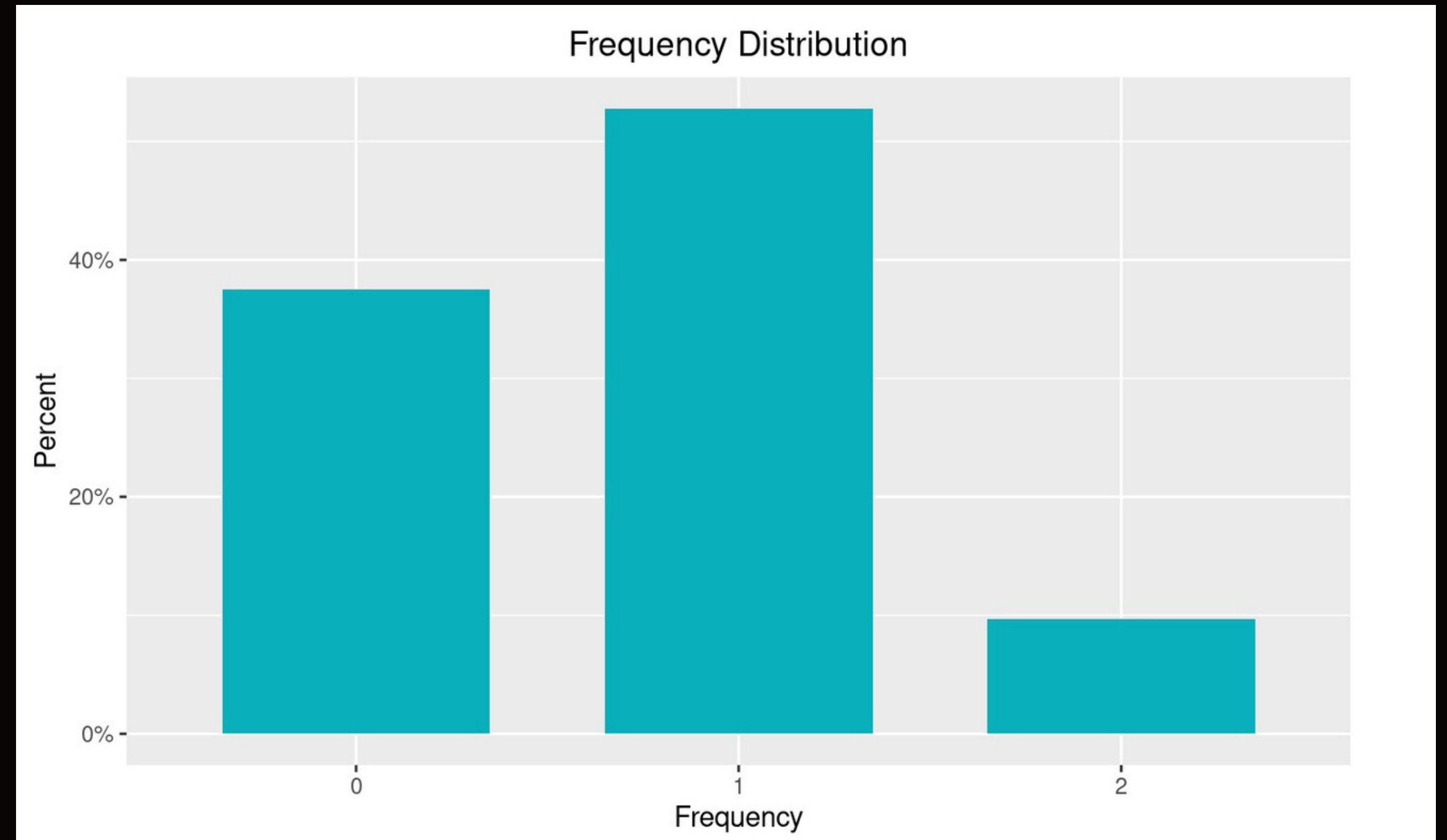
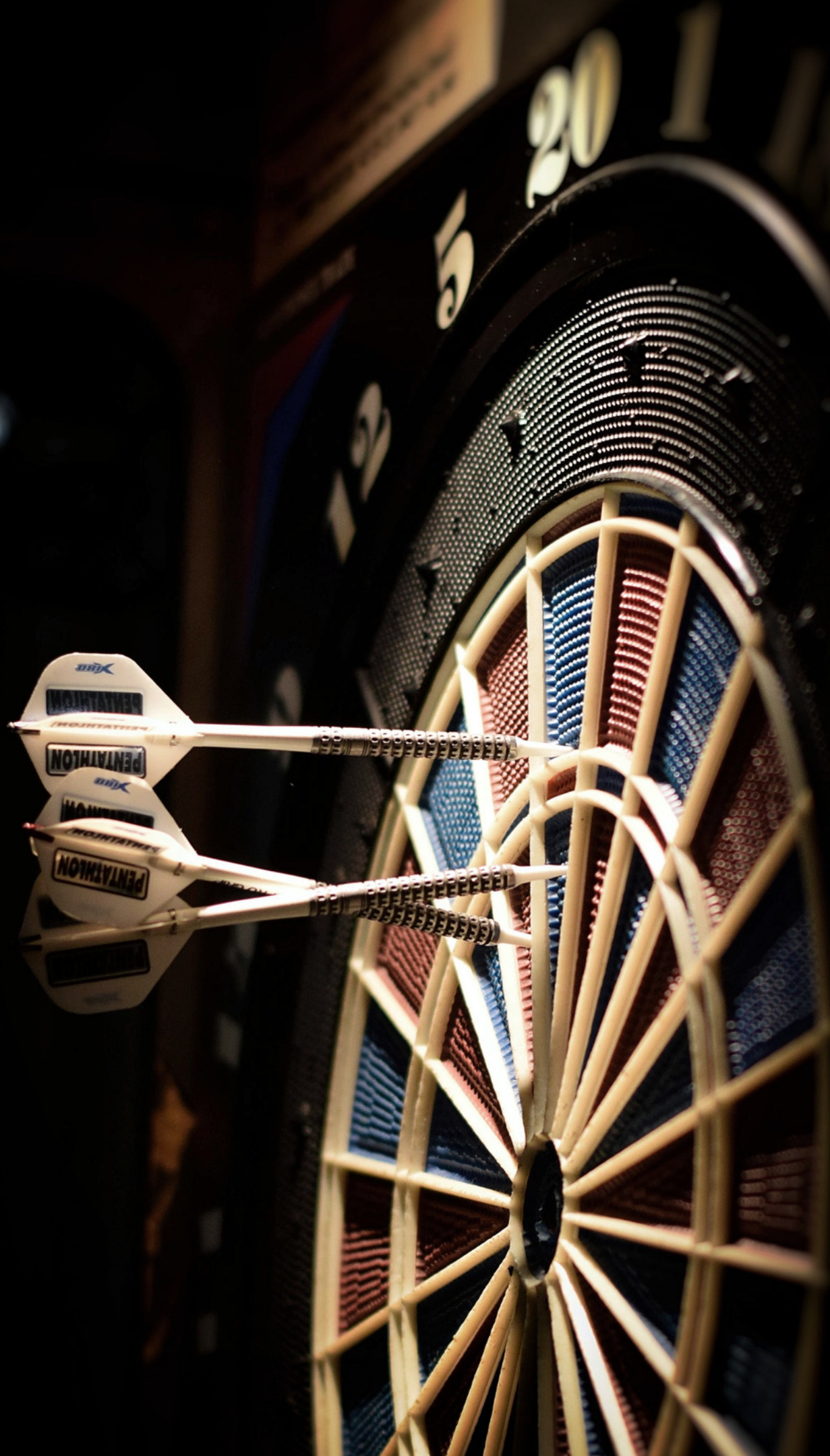
DATA EXPLORATION

- Name and Email id
- Sex
- Age
- Degree
- Frequency
- Scores of 1st, 2nd & 3rd Throw
- Treatment Column

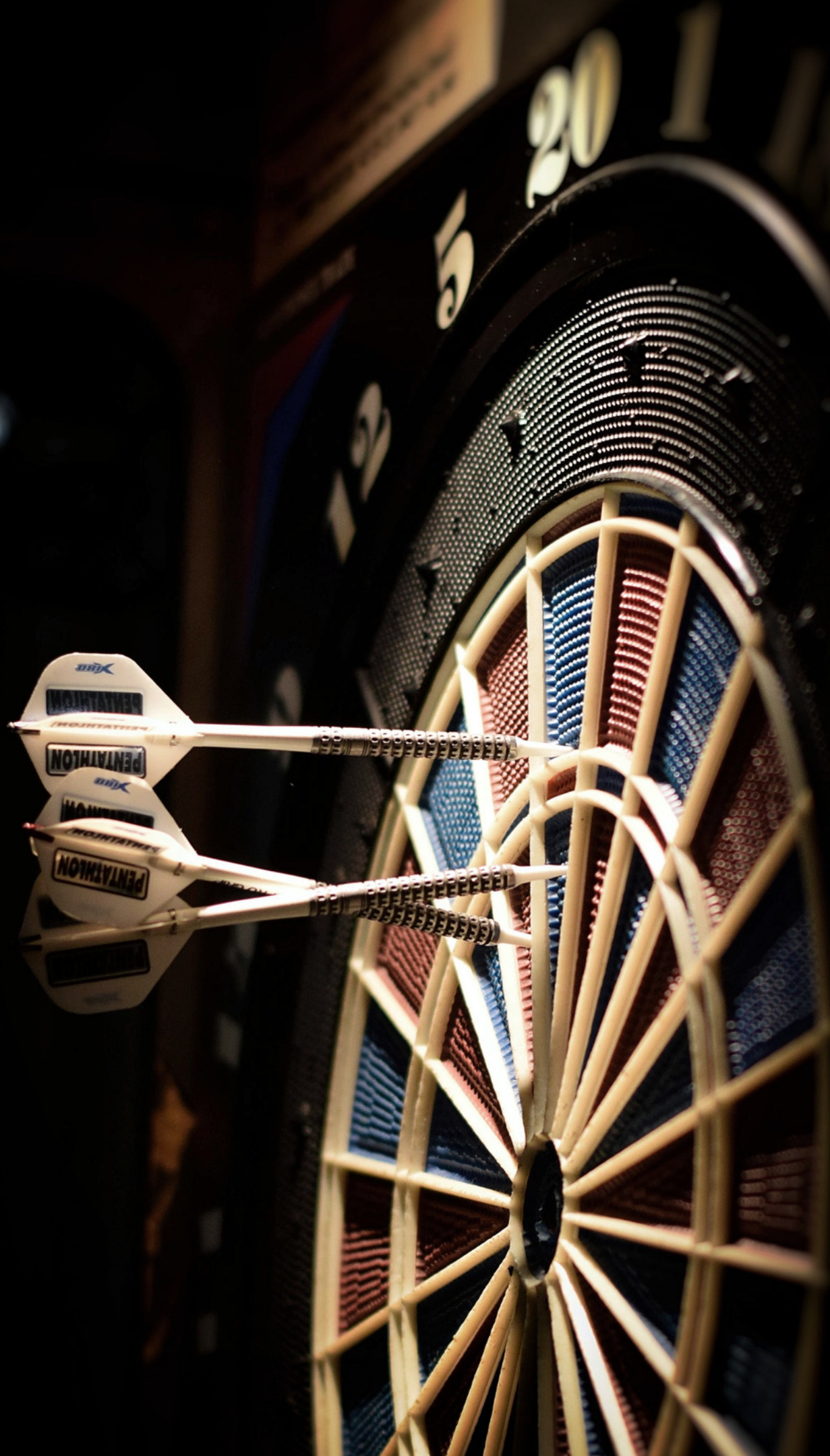
DATA EXPLORATION



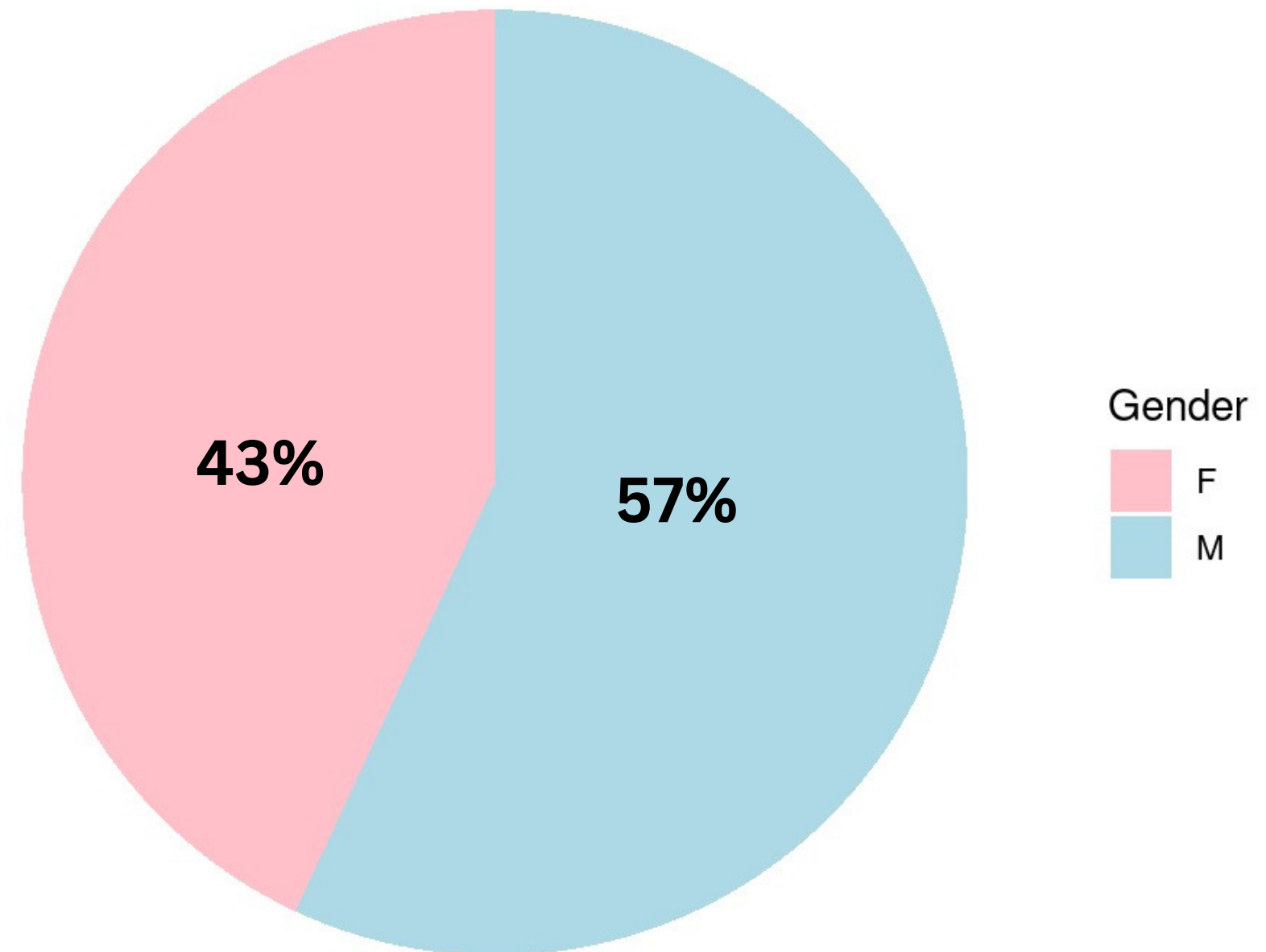
DATA EXPLORATION



DATA EXPLORATION



Gender Distribution



ANALYSIS

Effect of treatment on accuracy

```
## {r}
model_reg <- lm(accuracy ~ test, data = dataset)
summary(model_reg)
##
```

Call:
lm(formula = accuracy ~ test, data = dataset)

Residuals:

	Min	1Q	Median	3Q	Max
	-0.17870	-0.05463	-0.02130	0.05463	0.25463

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	0.15463	0.01581	9.783	9.87e-15 ***
test	0.02407	0.02235	1.077	0.285

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.09484 on 70 degrees of freedom
Multiple R-squared: 0.0163, Adjusted R-squared: 0.002247
F-statistic: 1.16 on 1 and 70 DF, p-value: 0.2852

ANALYSIS

Effect of treatment on accuracy with covariate frequency

```
## {r}
model_reg <- lm(accuracy ~ test + frequency, data = dataset)
summary(model_reg)

##
```

Call:
lm(formula = accuracy ~ test + frequency, data = dataset)

Residuals:

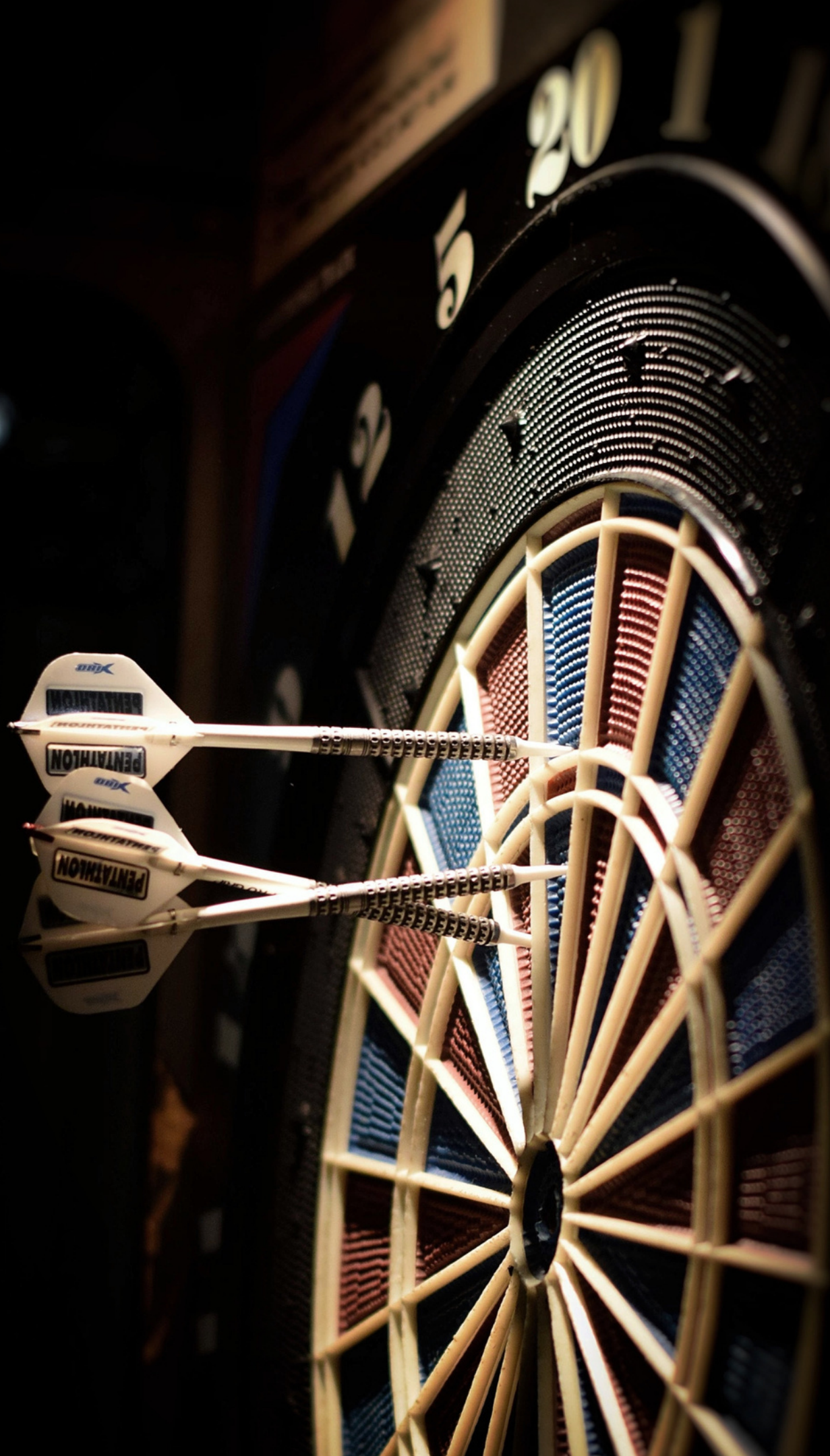
	Min	1Q	Median	3Q	Max
	-0.175318	-0.058090	-0.002984	0.051856	0.258012

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)	
(Intercept)	0.156551	0.020827	7.517	1.65e-10	***
test	0.018767	0.023787	0.789	0.433	
frequency1	0.006156	0.024693	0.249	0.804	
frequency2	-0.025901	0.041114	-0.630	0.531	

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.09579 on 68 degrees of freedom
Multiple R-squared: 0.02504, Adjusted R-squared: -0.01798
F-statistic: 0.582 on 3 and 68 DF, p-value: 0.6288

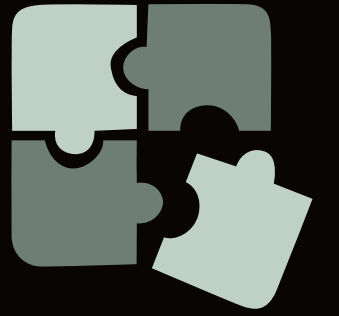


ANALYSIS

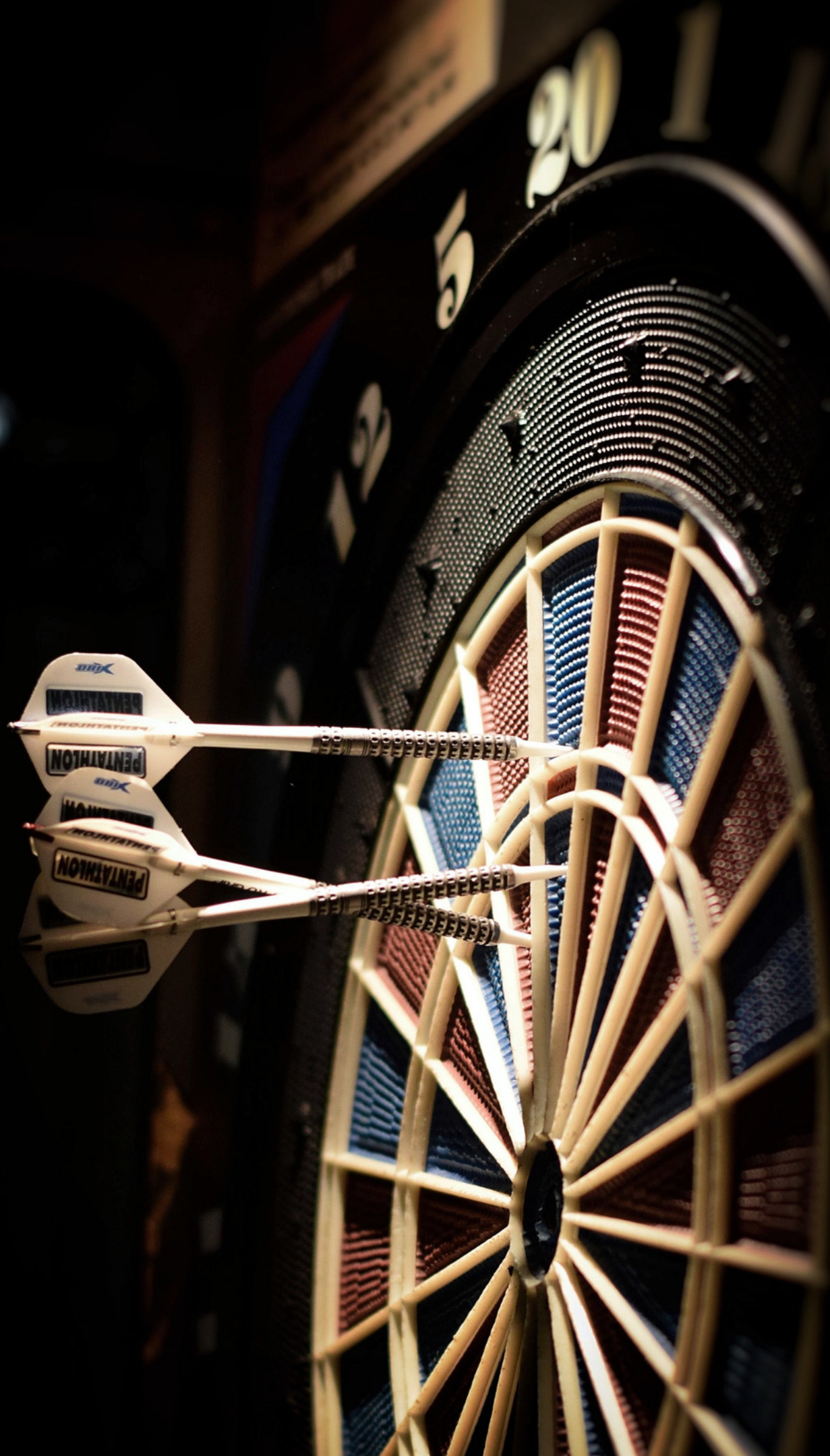
Effect of treatment on individual throws

Throw	Coefficient	SE	P-Value
1	-0.4167	0.3868	0.285
2	0.722	0.2819	0.0126*
3	0.4167	0.4521	0.36

LIMITATION



- Sample Size
- Self-reported dart-throwing experience may not be accurate
- Equipment limitations

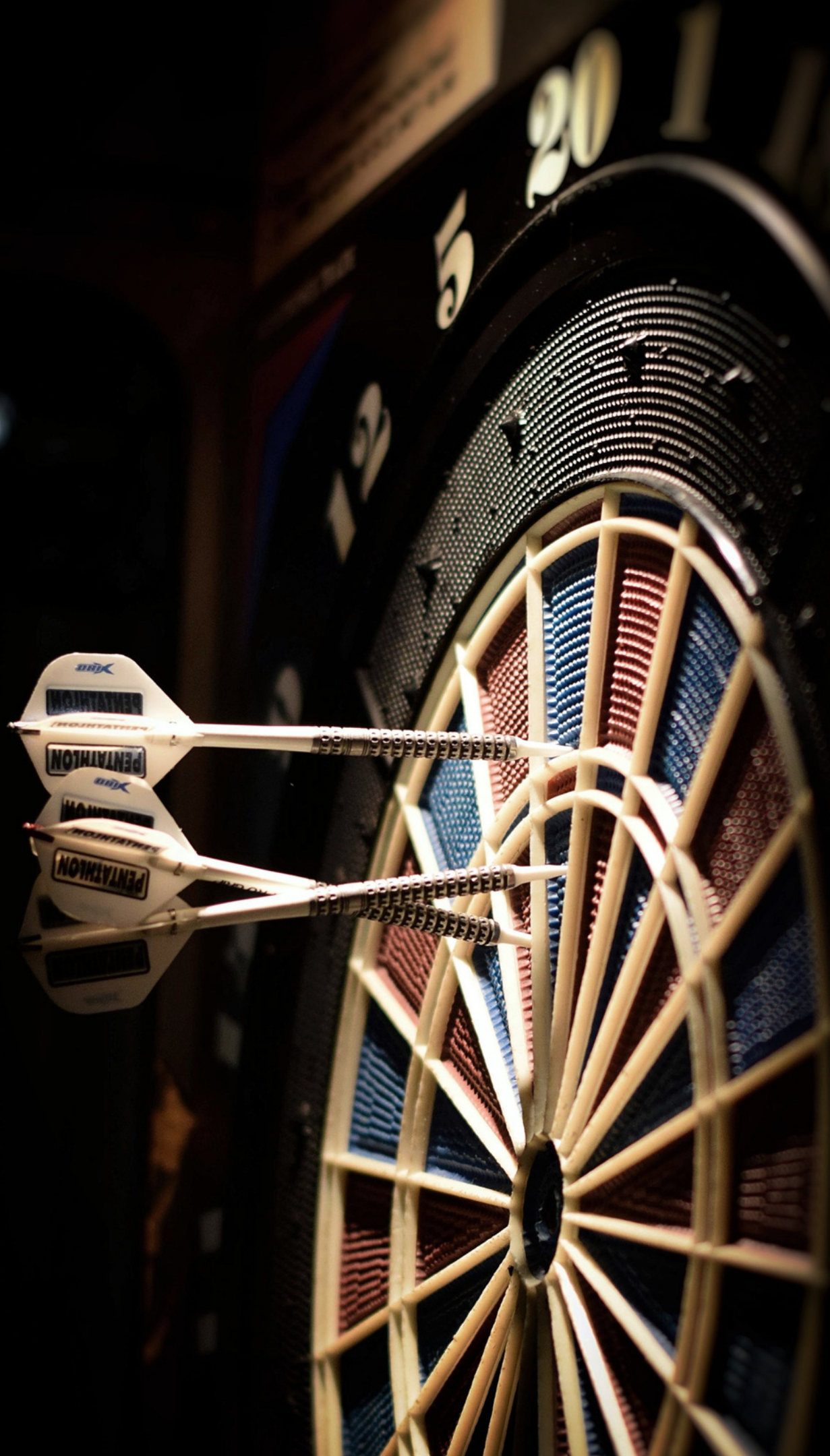


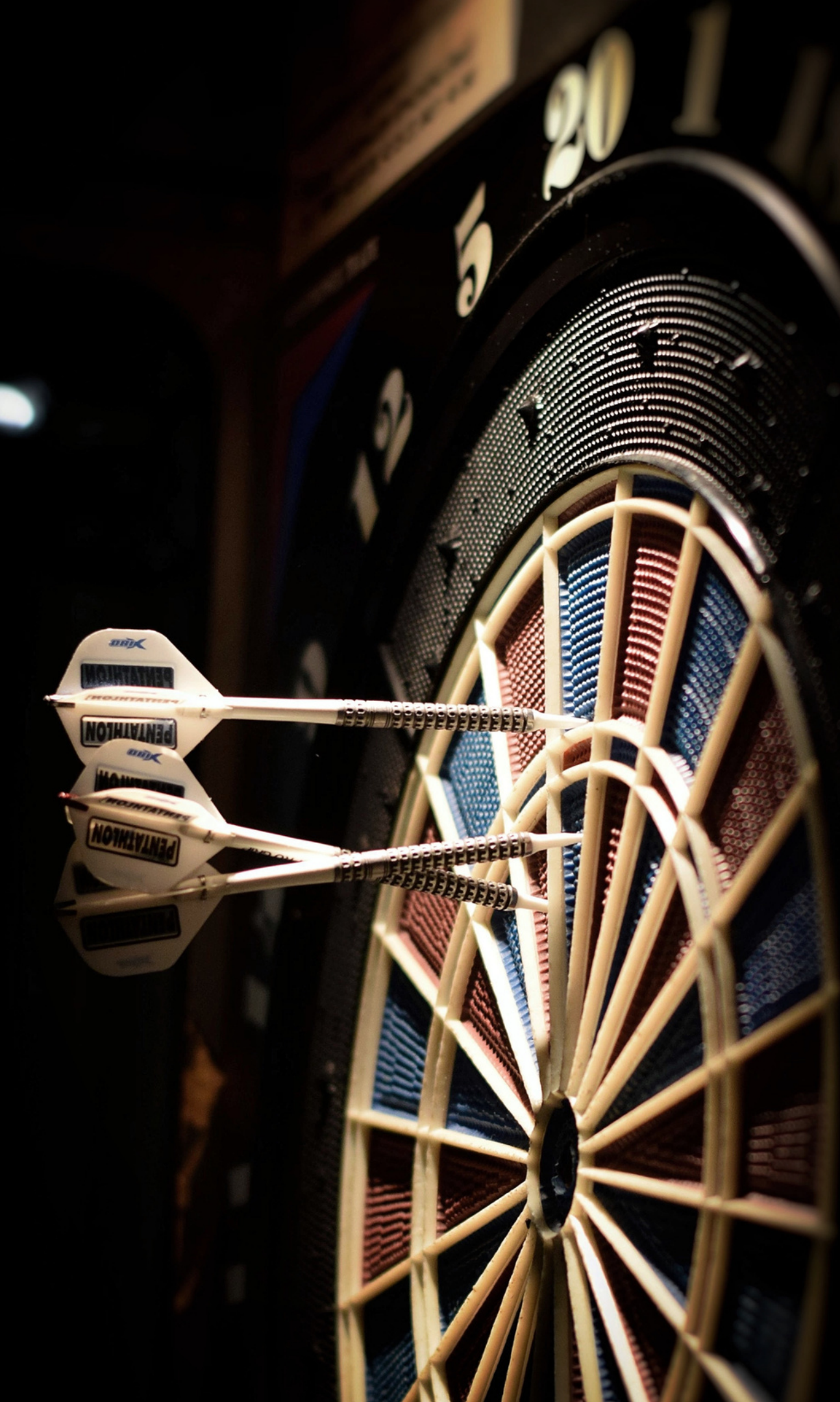
CONCLUSION

We could not find statistically significant results



The only statistically significant result we found was throw2 ~ test.





Questions ?