



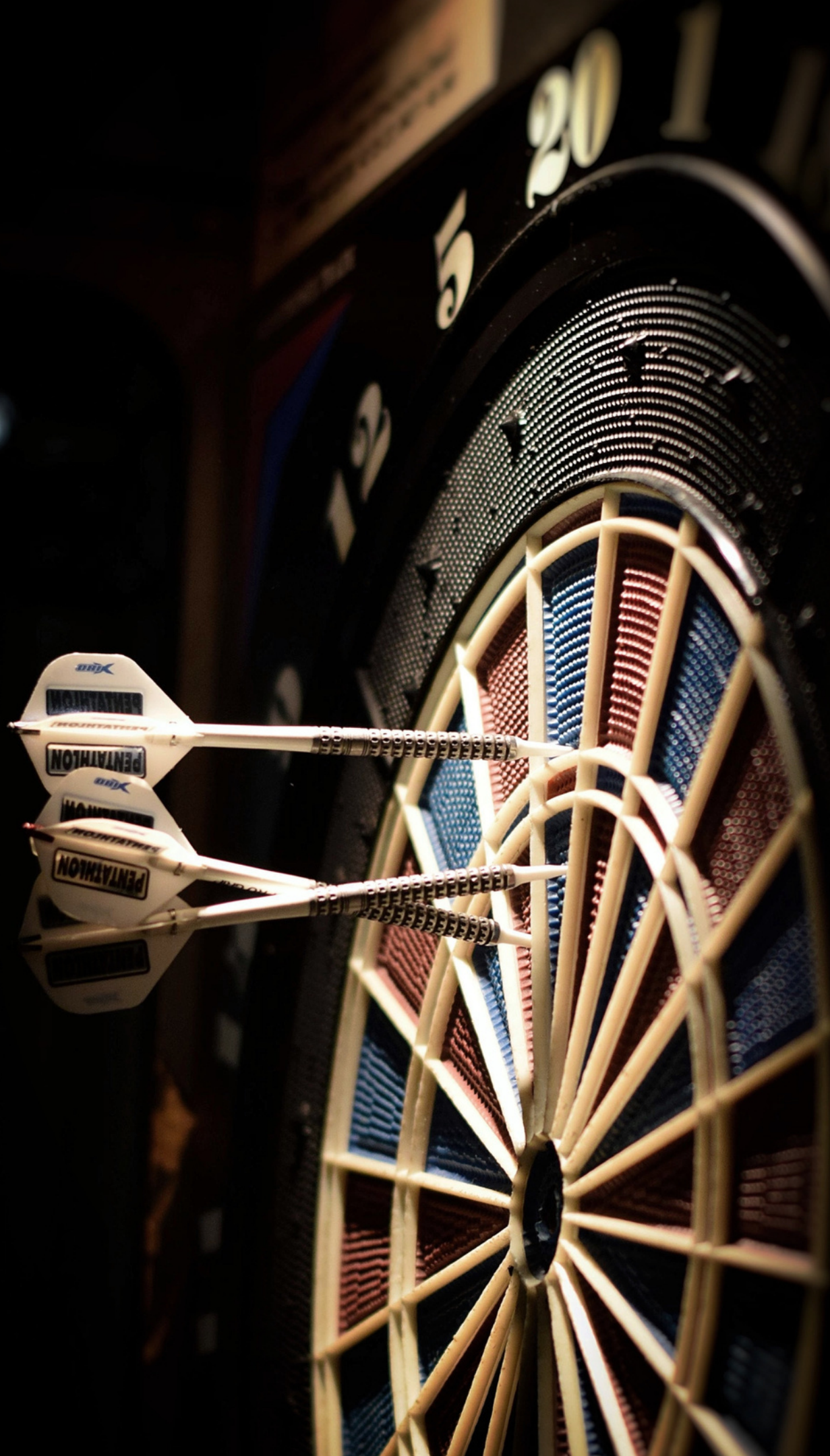
# STUDYING IMPACT OF VR ON SPORTS

Innovating The Future Of Sports

## PRESENTED BY

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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



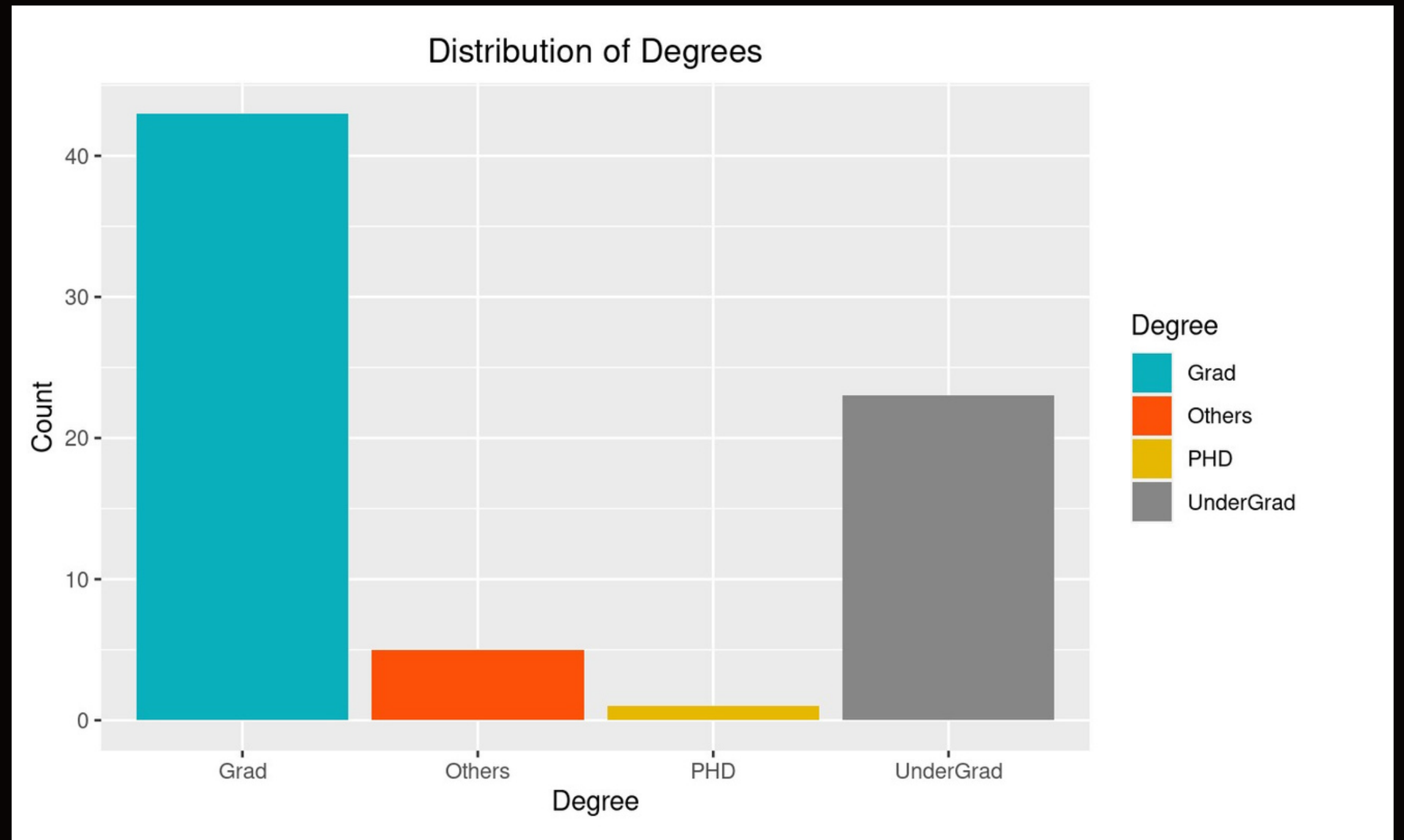


# DATA EXPLORATION

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

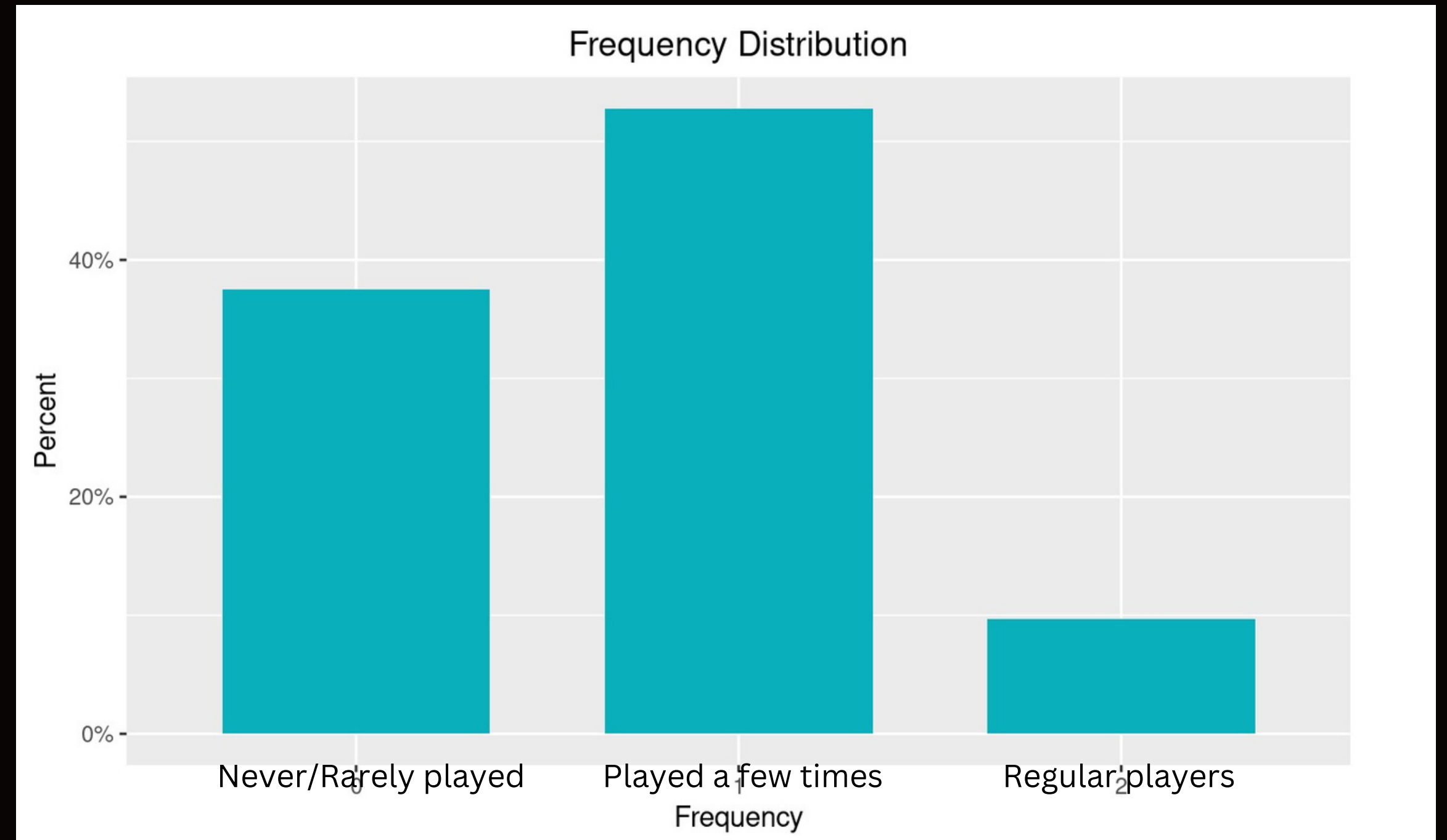


# DATA EXPLORATION



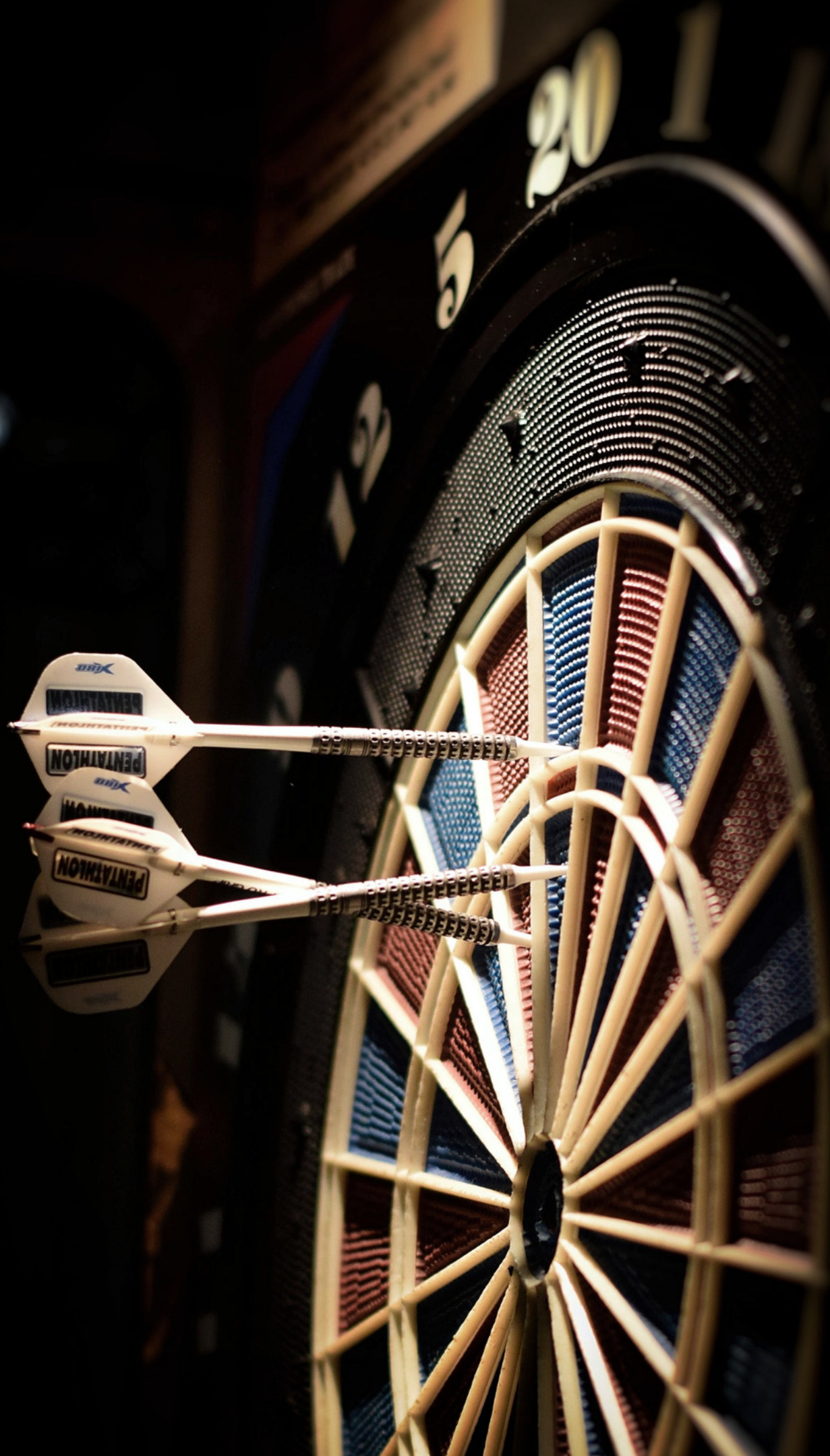


# DATA EXPLORATION

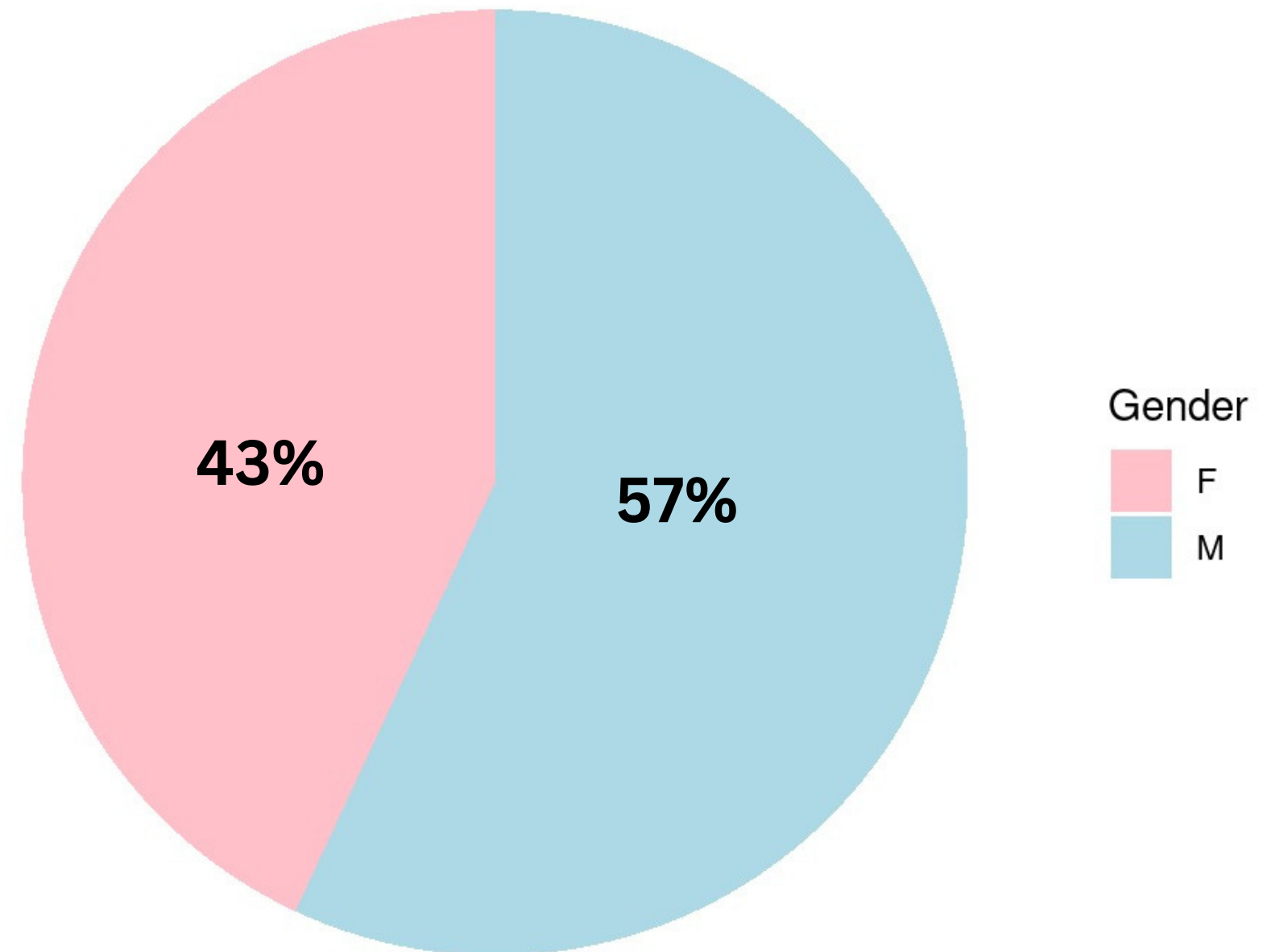




# DATA EXPLORATION



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

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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:

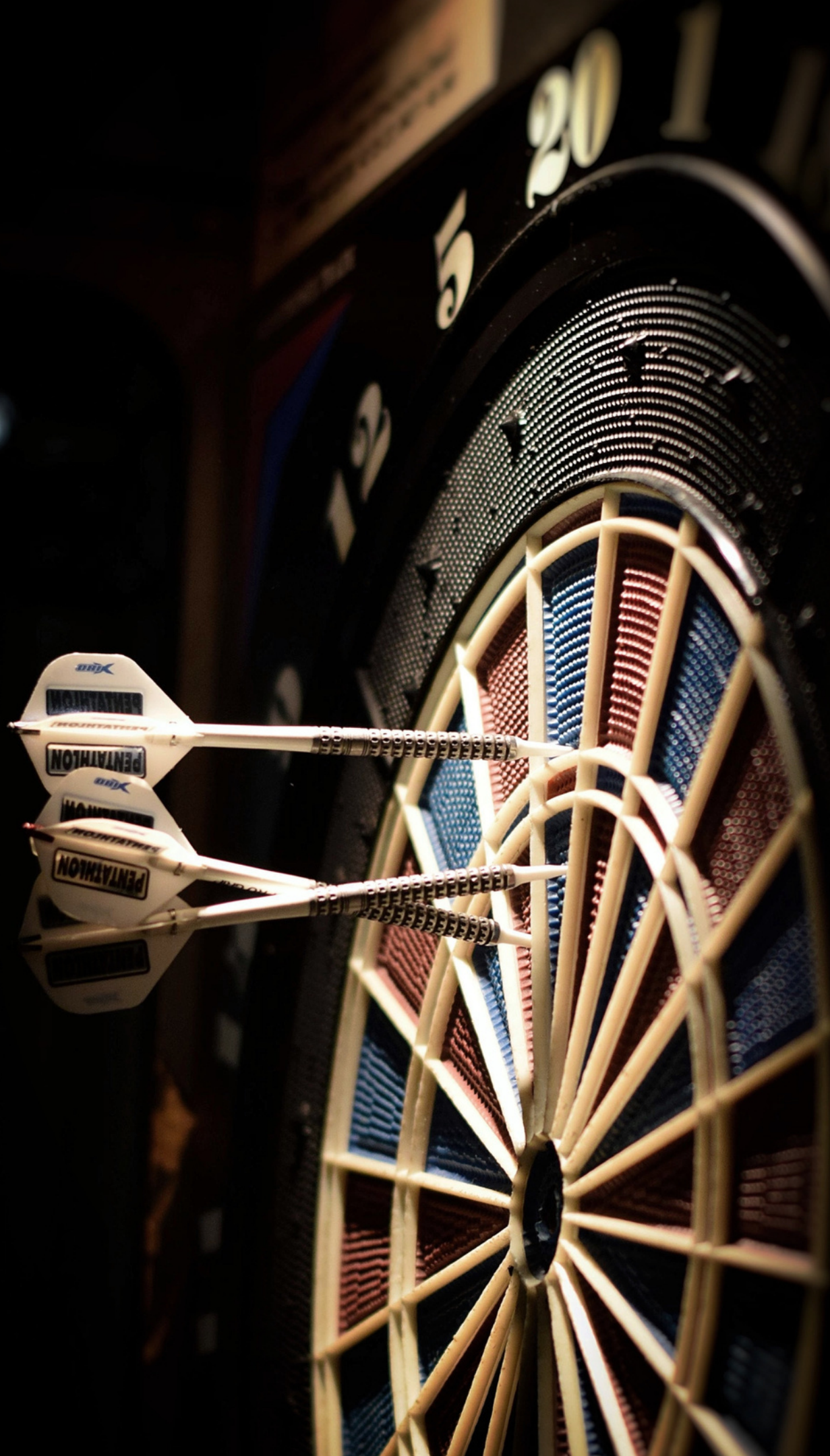
	Estimate	Std. Error	t value	Pr(> t )	
(Intercept)	0.156551	0.020827	7.517	1.65e-10	***
test	0.018767	0.023787	0.789	0.433	
frequency1	0.006156	0.024693	0.249	0.804	
frequency2	-0.025901	0.041114	-0.630	0.531	

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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





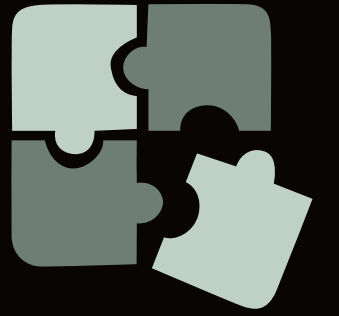
# ANALYSIS

Effect of treatment on individual throws

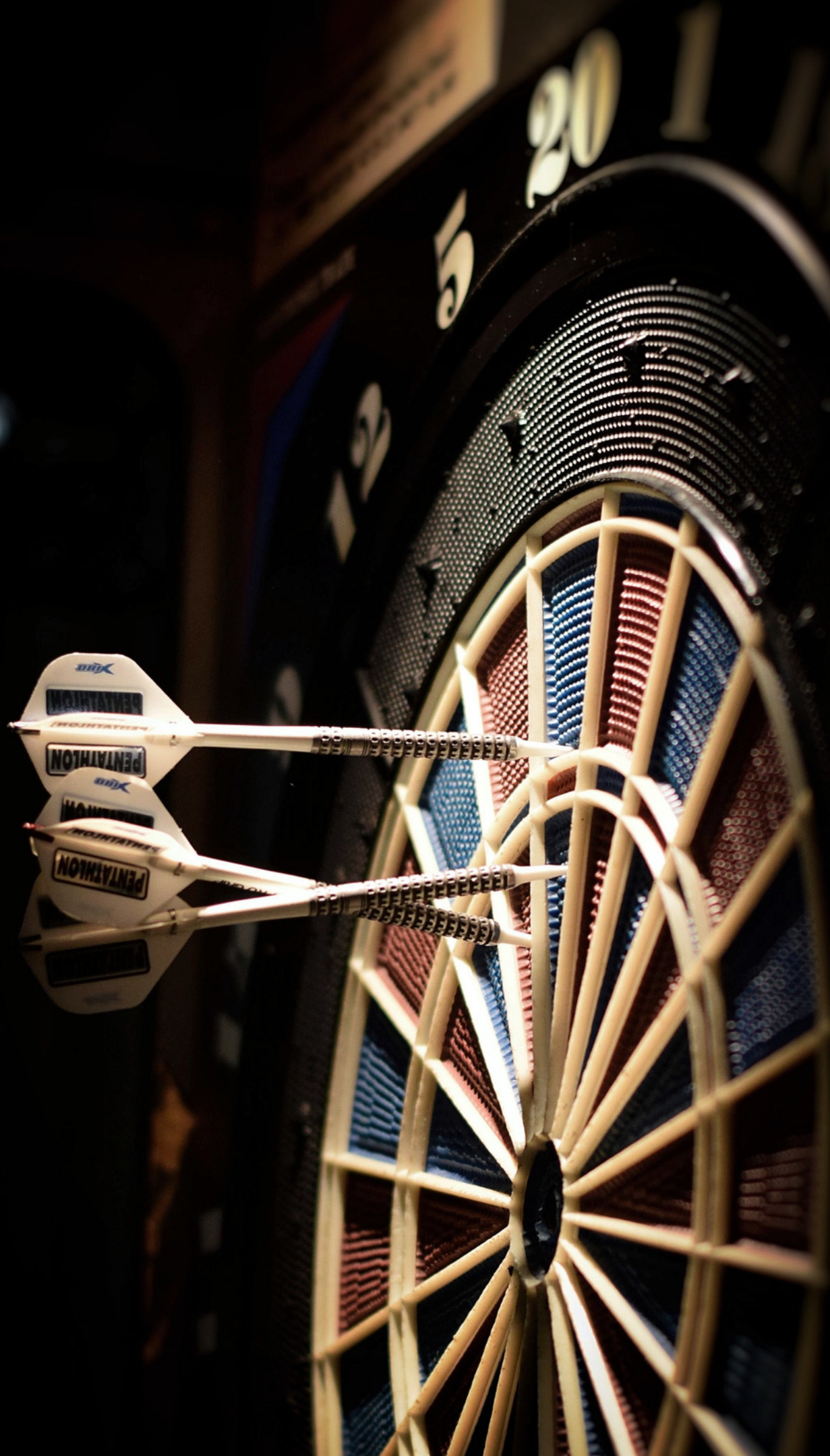
Throw	Coefficient	SE	P-Value
1	-0.4167	0.3868	0.285
2	0.722	0.2819	0.0126*
3	0.4167	0.4521	0.36



# LIMITATION



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



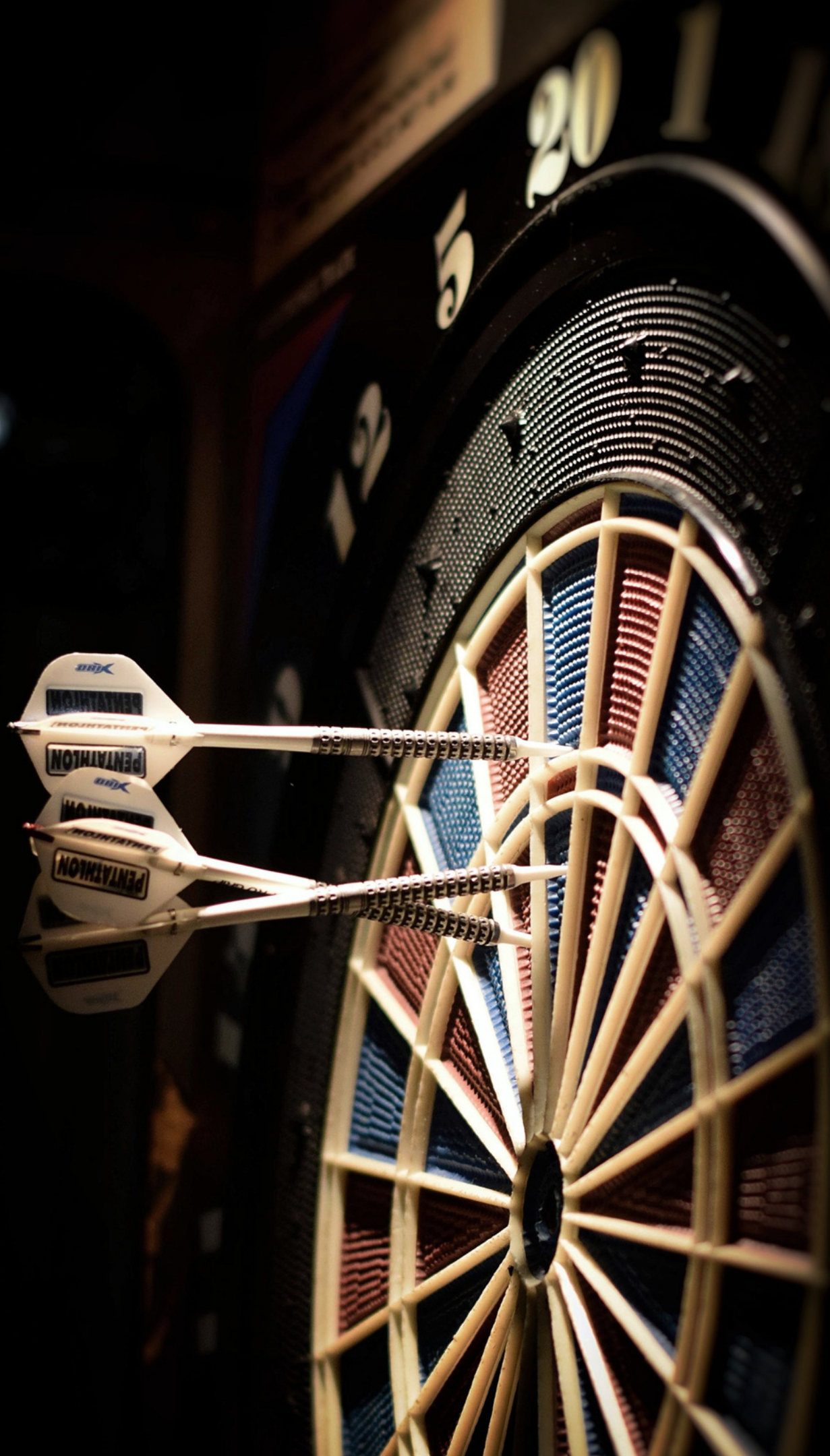


# CONCLUSION

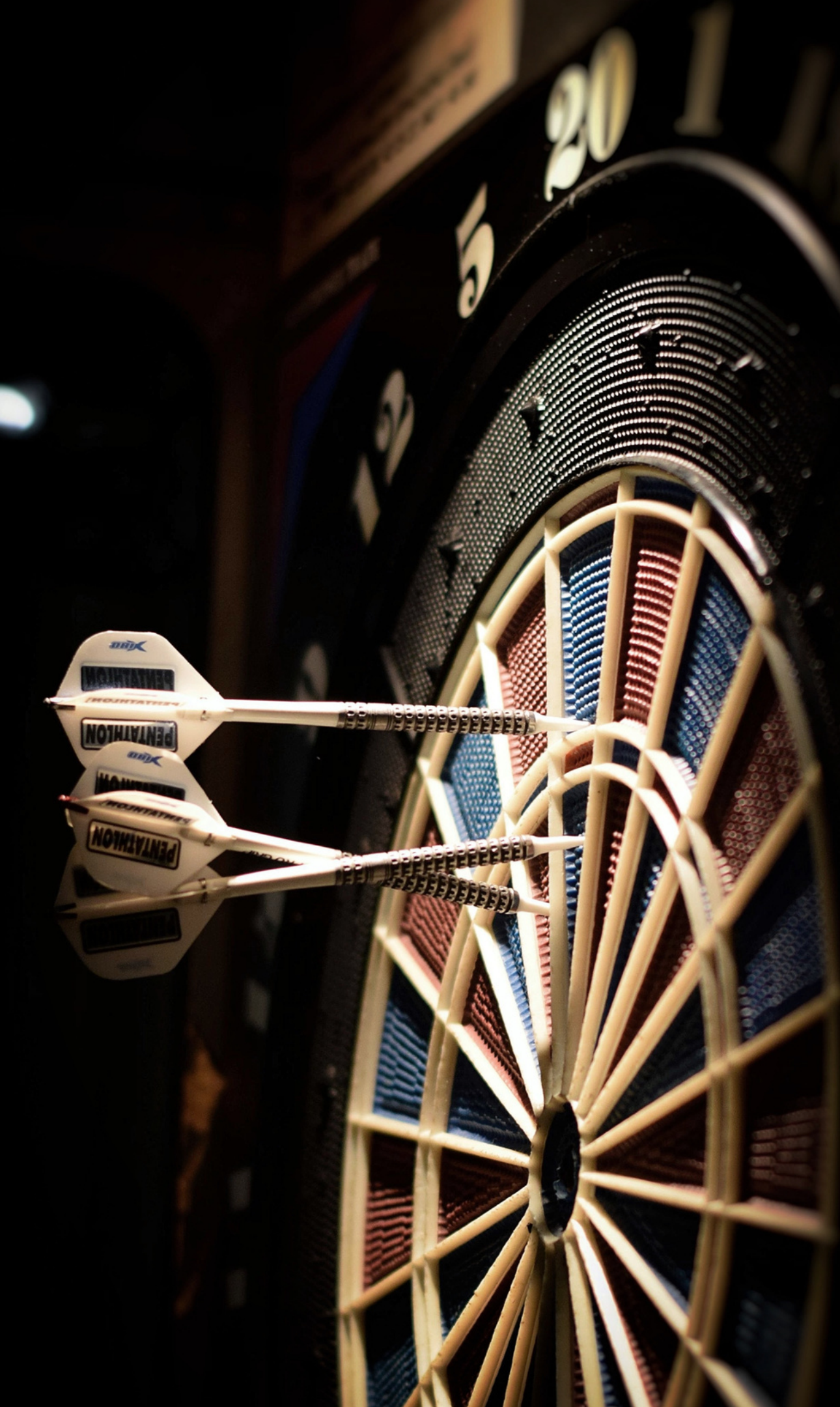
We could not find statistically significant results



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







Questions ?