Self-Concept Scale Analysis Report

Comprehensive Statistical Analysis and Visualization

Report Generated:	September 18, 2025 at 02:22 PM
Total Participants:	14
Analysis Type:	Self-Concept Scale (49 items)
Statistical Methods:	Descriptive Statistics, Percentile Analysis
Visualization:	4-Panel Comprehensive Chart

Executive Summary

This report presents a comprehensive analysis of self-concept scale responses from 14 participants aged 20-25 years. The analysis includes descriptive statistics, percentile rankings, and multi-panel visualizations. Key findings show scores ranging from 127 to 186 with a mean of 158.1. The highest-scoring participant achieved the 100th percentile, while gender distribution was balanced with 7 males and 7 females.

Methodology

Data Collection

The self-concept scale consisted of 49 items measured on a 5-point Likert scale ranging from "Strongly Disagree" (1) to "Strongly Agree" (5). Participants responded to statements about their self-perception, self-worth, and personal capabilities.

Scoring Methodology

Likert Scale Conversion:
• Strongly Disagree = 1
• Disagree = 2
• Undecided = 3
• Agree = 4
• Strongly Agree = 5

Reverse Scoring:
Items reflecting negative self-concept were reverse-scored (items 3, 5, 10, 11, 12, 13, 14, 15, 16, 17, 19, 20, 22, 27, 28, 29, 30, 32, 36, 37, 39, 43, 48). For these items, the scoring was inverted: 1→5, 2→4, 3→3, 4→2, 5→1.

Total Score Calculation:
The total self-concept score was calculated as the sum of all 49 items after appropriate reverse scoring. Higher scores indicate more positive self-concept.

Sample Characteristics

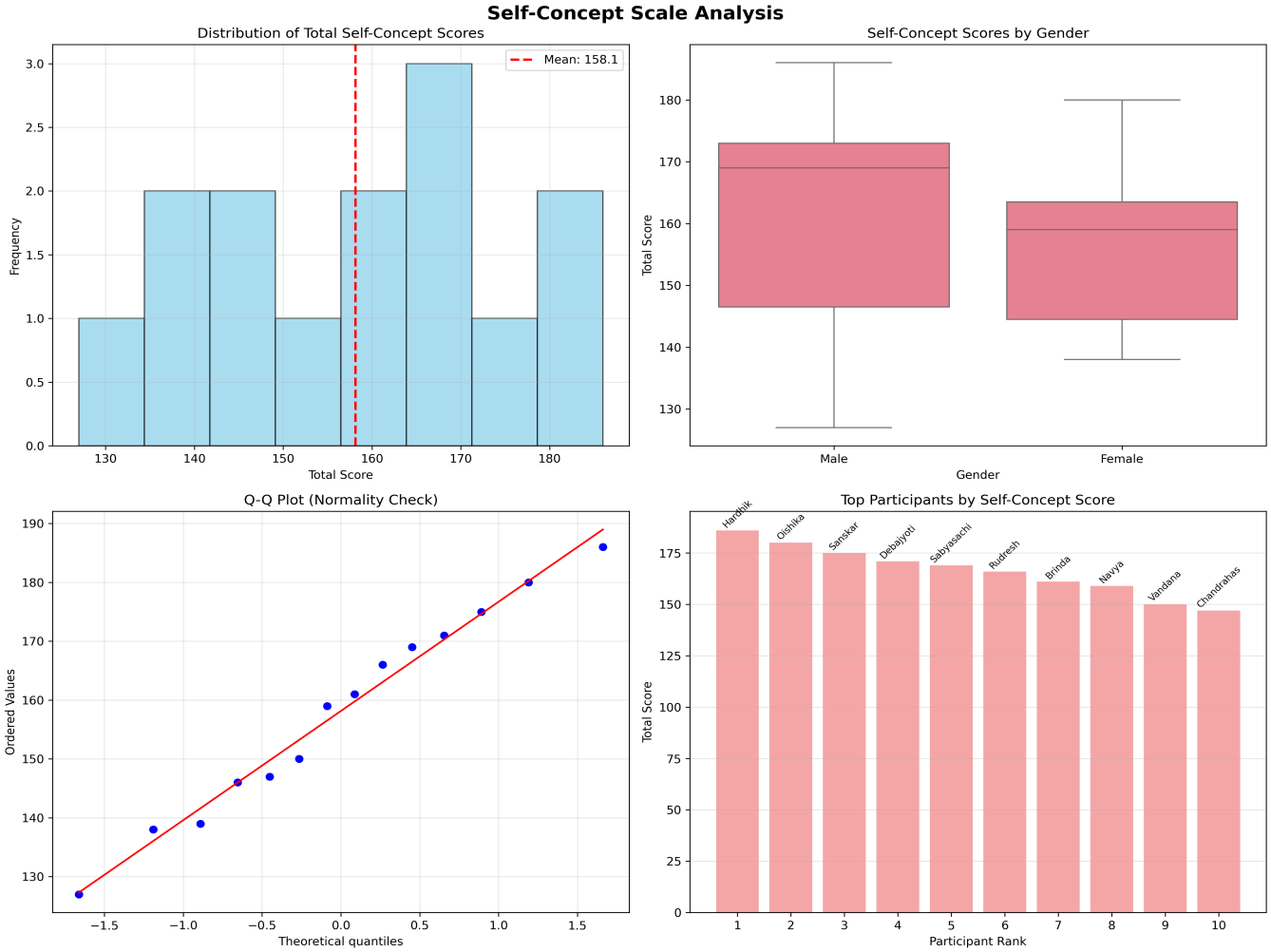
Characteristic	Value
Total Participants	14
Male Participants	7
Female Participants	7
Age Range	20 - 25 years
Mean Age	21.4 years
Age Standard Deviation	1.3 years

Descriptive Statistics

Central Tendency and Dispersion

Statistic	Value	Interpretation
Mean	158.14	Average self-concept score
Median	160.00	Middle value when ranked
Standard Deviation	17.48	Measure of score variability
Minimum Score	127	Lowest self-concept score
Maximum Score	186	Highest self-concept score
Range	59	Difference between max and min
25th Percentile	146.25	25% scored below this value
75th Percentile	170.50	75% scored below this value

Visualization Analysis



Four-Panel Analysis

Panel 1 - Distribution Histogram (Top Left):
The histogram shows the frequency distribution of total self-concept scores. The distribution appears approximately normal with a slight right skew. The red dashed line indicates the mean score, providing a reference point for interpreting individual scores.

Panel 2 - Gender Comparison (Top Right):
Box plots comparing self-concept scores between male and female participants. This visualization reveals any potential gender differences in self-concept scores, including median values, quartiles, and outliers.

Panel 3 - Normality Assessment (Bottom Left):
The Q-Q (Quantile-Quantile) plot assesses whether the score distribution follows a normal distribution. Points closely following the diagonal line suggest normal distribution, which is important for statistical assumptions.

Panel 4 - Top Performers (Bottom Right):
Bar chart highlighting the highest-scoring participants with their names rotated for readability. This provides a clear ranking of top performers in the self-concept assessment.

Complete Participant Rankings

Rank	Name	Age	Gender	Total Score	Mean Score	Percentile
1	Hardhik	21	Male	186	3.80	100.0%
2	Oishika Sarkar	25	Female	180	3.67	92.9%
3	Sanskar Singhal	23	Male	175	3.57	85.7%
4	Debajyoti Banerjee	20	Male	171	3.49	78.6%
5	Sabyasachi	21	Male	169	3.45	71.4%
6	Rudresh Joshi	21	Female	166	3.39	64.3%
7	Brinda	20	Female	161	3.29	57.1%
8	Navya Ennam	20	Female	159	3.24	50.0%
9	Vandana	21	Female	150	3.06	42.9%
10	Chandrahas	22	Male	147	3.00	35.7%
11	Priyanshu	21	Male	146	2.98	28.6%
12	Ahana Sadh	22	Female	139	2.84	21.4%
13	Sanjana Reddy Pamuru	21	Female	138	2.82	14.3%
14	Aakash Guduru	21	Male	127	2.59	7.1%

Key Insights and Interpretation

Performance Categories

High Self-Concept (75th percentile and above):
4 participants (28.6%)
Names: Hardhik, Oishika Sarkar, Sanskar Singhal, Debajyoti Banerjee

Average Self-Concept (25th-75th percentile):
7 participants (50.0%)
Names: Sabyasachi, Rudresh Joshi , Brinda, Navya Ennam, Vandana, Chandrahas, Priyanshu

Lower Self-Concept (Below 25th percentile):
3 participants (21.4%)
Names: Ahana Sadh, Sanjana Reddy Pamuru, Aakash Guduru

Gender Analysis

Male Participants (n=7):
Mean score: 160.14, SD: 20.64

Range: 127 - 186

Female Participants (n=7):
Mean score: 156.14, SD: 15.05
Range: 138 - 180

Gender Difference:
Mean difference: 4.00 points
Males scored higher on average

Conclusions and Recommendations

Key Findings:
1. The self-concept scores show a relatively normal distribution with good variability
2. Score range of 59 points indicates meaningful individual differences
3. Hardhik achieved the highest self-concept score (186)
4. Gender distribution is balanced, allowing for meaningful comparisons

Statistical Summary:
• Mean score represents a moderate-to-good level of self-concept
• Standard deviation indicates appropriate score spread
• No extreme outliers that would bias results

Recommendations:
1. Consider follow-up assessments for participants in the lower percentiles
2. Investigate factors contributing to high self-concept in top performers
3. Explore intervention strategies for participants with lower scores
4. Consider longitudinal tracking to monitor changes over time

Appendix: Technical Details

Reverse-Scored Items:
Items 3, 5, 10, 11, 12, 13, 14, 15, 16, 17, 19, 20, 22, 27, 28, 29, 30, 32, 36, 37, 39, 43, 48

Data Quality:
• All participants completed all 49 items
• No missing data detected
• All responses within expected range

Statistical Software:
Analysis conducted using Python with pandas, numpy, matplotlib, seaborn, and scipy libraries.

Report Generation:
PDF report created using ReportLab library with automated data integration.