Normative Stability of Self-Esteem: A Comparison of Two Methods

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Problem

Self-esteem (SE) (and other personality measures) may be assessed by two methods (Robins, Fraley, Roberts, & Trzesniewski, 2001)

- **Rank-order stability**: correlations are used to measure changes in individuals’ relative SE position in a SE distribution over time
  - This method is well studied (Trzesniewski, Donnellan, & Robins, 2003)

- **Normative stability**: assessed by individuals’ SE changes independent of their relative positions in a SE distribution.
  - This method is not well studied

Two methods for assessing normative stability were examined (Robins, et al.)

- **Mean change (MC) method**: examined longitudinal changes in mean SE with repeated measures ANOVA

- **Reliable change (RC) method** (Christensen & Mendoza, 1986): examined whether an individual’s SE fluctuated over time beyond that expected by measurement error

Method

Respondents were 225 randomly selected mothers of children in rural Head Start programs

- On entry into the study, the ages of the respondents were 17–43 years ($M = 30$, $SD = 5.4$)

SE was assessed each year using Rosenberg’s scale (1965) with a 6-point Likert format

Nine cohorts ($N=25$ each) entered the study over a 9-year period (1994-2002), with one new cohort entering each study year

The study employed a cohort-sequential design

- The oldest cohort was assessed every year thereafter for 9 years, the second-oldest assessed every year thereafter for 8 years, and so on
- Stability assessments after 1 year included nine cohorts, after 2 years eight cohorts, and so on
- Due to smaller Ns (< 85), stabilities after 6 years were not analyzed
- Thus the design allowed the evaluation of SE stability after durations of 1 – 5 years
Results and Conclusions

MC method

A one-way repeated measures ANOVA examined mean change in SE across 6 years (see Fig. 1)
- No change observed, $F(5, 505) = 1.73, p > .10$
- Extremely small effect of years ($\eta^2 = .02$)

RC method

An RC index (Christensen & Mendoza, 1986), based on respondents’ SE scores on entry into the study, was used to generate a 95% CI for each participant. These CIs reflect the measurement error inherent in the scale.

$SE$: standard error of measurement
$s_1$: standard deviation of SE (from 1st year data, $N = 225$)
$r_{xx}$: test-retest reliability of SE (Fleming & Courtney, 1984)

$$SE = s_1 \sqrt{(1 - r_{xx})} = 7.76 \sqrt{(1 - .82)} = 3.29$$

95% CI

$$x_{1\text{st year SE score}} \pm 1.96 \sqrt{(2(SE)^2)}$$

95% CI

$$x_{1\text{st year SE score}} \pm 9.13$$

Change in respondent’s SE was defined as an SE score falling outside the 95% CI (for each respondent; for each 1 – 5 year duration)

The percentage of respondents unchanged at each stability duration was slightly, but consistently, less than expected by chance (see Fig. 2)

Both increases and decreases in SE were consistently greater at each stability duration than expected by chance, with more respondents increasing in SE than decreasing (see Fig. 3)

Table 1 presents percentage change for duration of the stability comparison by respondents’ year in the program and shows similar stabilities at a more fine-grained level of analysis

Comparison of the two methods

Given that SE is known to be related to changes in a person’s environment, and that the present data have reflected such relationships (Bennett, Bennett, & Rafferty, 2004), the stability shown by both methods represents remarkable normative stability in SE over durations as long as 5 years

Despite the stability of SE shown by both methods, the RC method was able to detect change obscured by the MC method, supporting the value of both methods for evaluating the stability of personality assessments
References


![Figure 1. MC method: Stability of self-esteem.](image-url)
Figure 2. RC method: Stability of self-esteem.

Figure 3. RC method: Increases or decreases in self-esteem.
Table 1. Percentage Change as a Function of Duration of Stability Comparison and Respondents’ Year in the Program

<table>
<thead>
<tr>
<th>Respondents’ Year in the Program</th>
<th>Duration of Stability Comparison</th>
<th>1 Year</th>
<th>2 Years</th>
<th>3 Years</th>
<th>4 Years</th>
<th>5 Years</th>
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<tr>
<td>2</td>
<td></td>
<td>3.3%</td>
<td>8.0%</td>
<td>88.7%</td>
<td>% respondents w/lowered SE</td>
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<td></td>
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<td>(212)</td>
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<tr>
<td></td>
<td></td>
<td>2.8%</td>
<td>4.5%</td>
<td>92.7%</td>
<td>% respondents w/raised SE</td>
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<td></td>
<td></td>
<td>(178)</td>
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<tr>
<td>3</td>
<td></td>
<td>5.0%</td>
<td>3.7%</td>
<td>91.3%</td>
<td>% respondents unchanged</td>
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<td></td>
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<td>(160)</td>
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<tr>
<td>4</td>
<td></td>
<td>5.0%</td>
<td>8.2%</td>
<td>92.7%</td>
<td>(N)</td>
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<td>(158)</td>
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<td>89.7%</td>
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<td>(107)</td>
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