

INTRODUCTION

- Self-Rated Health (SRH) is a subjective measure where individuals assess their overall health status, usually through a survey¹, as shown in Figure 3
- Socioeconomic status (SES), particularly income and education, is a major determinant of SRH²
- Korea and Japan share cultural similarities but differ markedly in their healthcare systems, social welfare structures, and income inequality levels, yet comparative evidence on how socioeconomic factors shape SRH across both nations remains scarce³
- Identifying these cross-national differences is essential for informing targeted health equity policies and determining the generalizability of findings across both contexts

OBJECTIVE

- To investigate the association of income and education with poor SRH in Korea and Japan
- To assess the influence of individual studies on the overall results using leave-one-out (LOO) sensitivity analysis

METHODS

- Three studies met the inclusion criteria and were included in the quantitative synthesis of income, education, and SRH in Korea and Japan. The overall methodology is summarised in Figure 4
- Included studies reporting quantitative effect estimates (e.g., log-odds or regression coefficients) for income or education related to poor SRH
- A random-effects meta-analysis was conducted using the rma() function from the metafor package
- The Restricted Maximum Likelihood (REML) method was used to estimate and account for between-study heterogeneity in the pooled effect sizes
- A leave-one-out (LOO) sensitivity analysis was conducted to evaluate the influence of each study on the overall pooled estimate
- Forest plots were generated to visually represent individual study effect estimates alongside the overall pooled effect and their corresponding confidence intervals (CIs)

RESULTS

- Education demonstrated a statistically significant association with self-rated health ($\beta = -0.0598$; 95% CI: -0.1037 to -0.0159 ; $p = 0.0076$), indicating that higher levels of educational attainment were consistently associated with better self-rated health outcomes across the included studies (Figure 1)
- The pooled effect estimate for income was -0.1631 (95% CI: -0.4123 to 0.0860 ; $p = 0.1994$), reflecting a non-significant trend toward better health with higher income. As the CI crossed zero, the association between income and self-rated health did not reach statistical significance (Figure 5)
- Sensitivity and influence analyses revealed that the education model was relatively robust, while the income model exhibited greater sensitivity to individual study effects. Study 3 exerted the strongest influence on heterogeneity and pooled effect size, followed by Study 2 (moderate) and Study 1 (minimal) (Figures 2 and 6)
- Findings suggested that education was a more stable and consistent predictor of self-rated health compared to income across the included studies conducted in Korea and Japan
- The REML-based random-effects meta-analysis accounted for between-study heterogeneity, improving the reliability of pooled effect estimates for both income and education analyses
- LOO sensitivity and influence analyses demonstrated that the education model remained relatively robust, whereas the income model was more sensitive to individual study effects

Figure 1: Forest Plot for the Education and Self-Rated Health

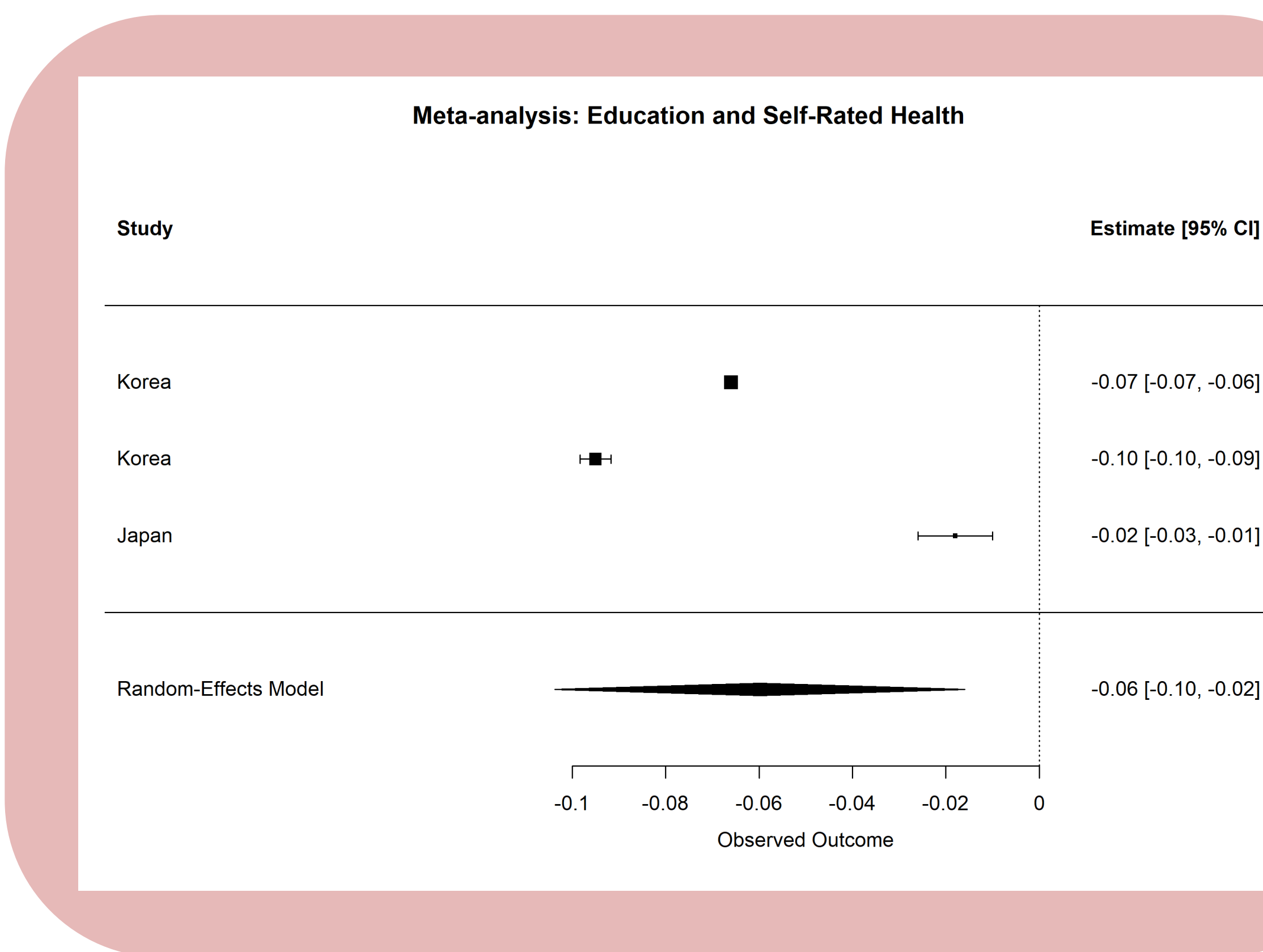


Figure 2 : Influence Diagnostics: Education and Self-Rated Health

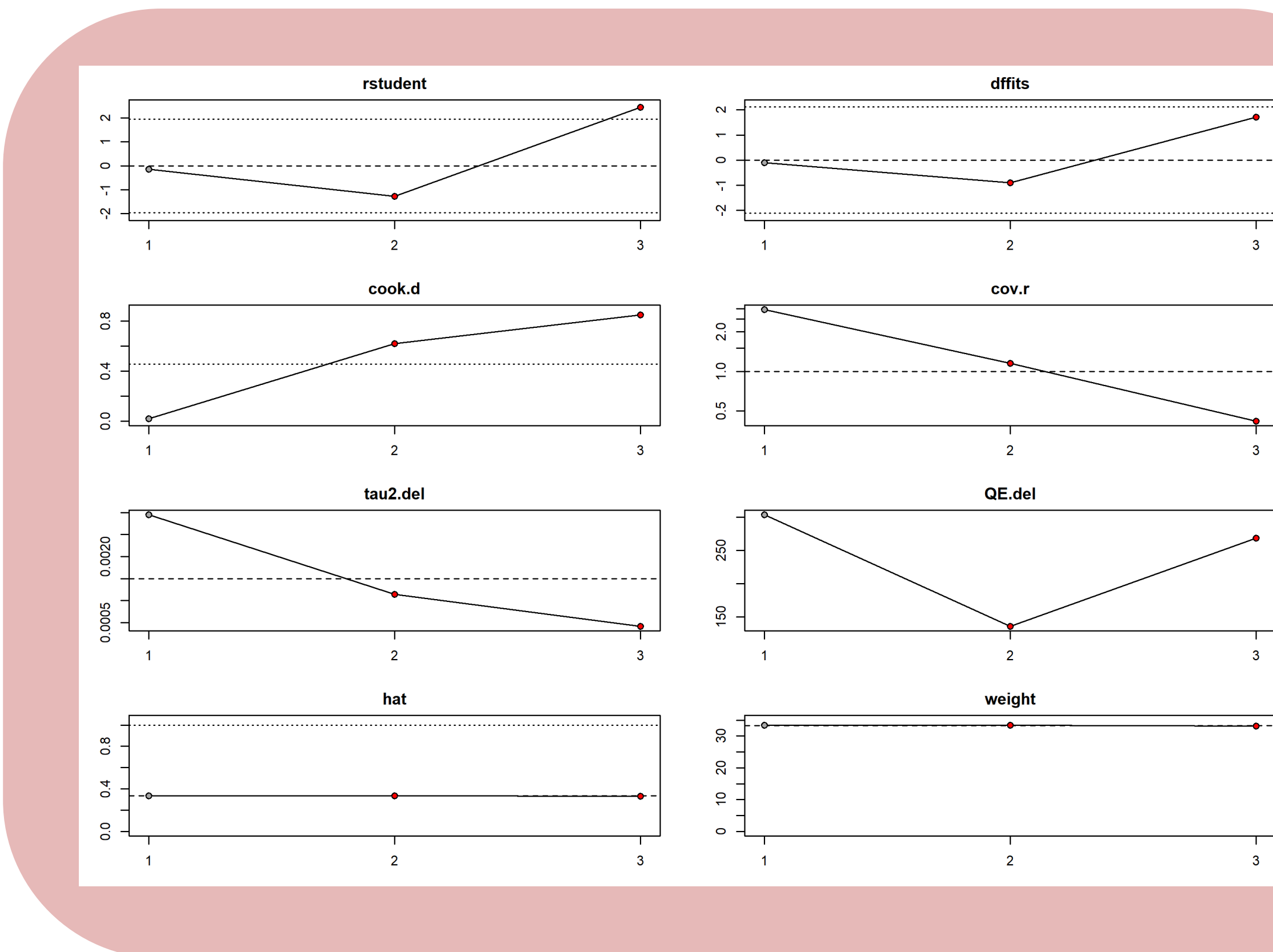


Figure 3: Visual Representation of the Self-Rated Health (SRH) Scale

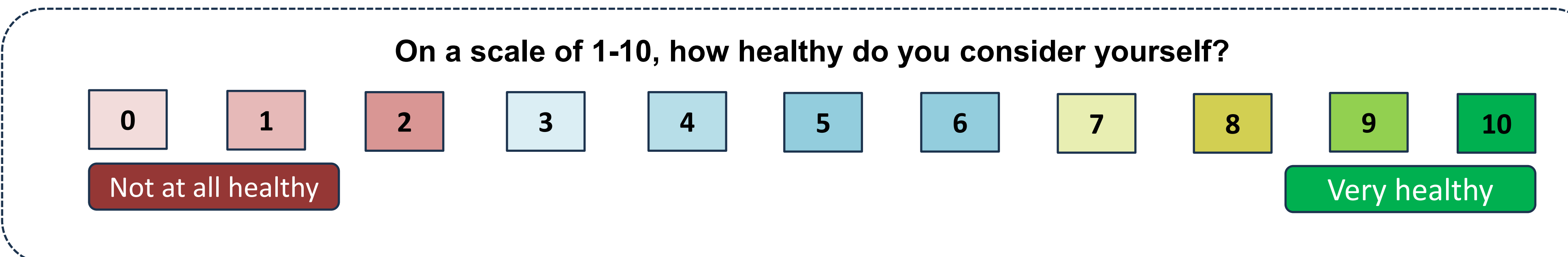


Figure 4: Methodology Flow chart

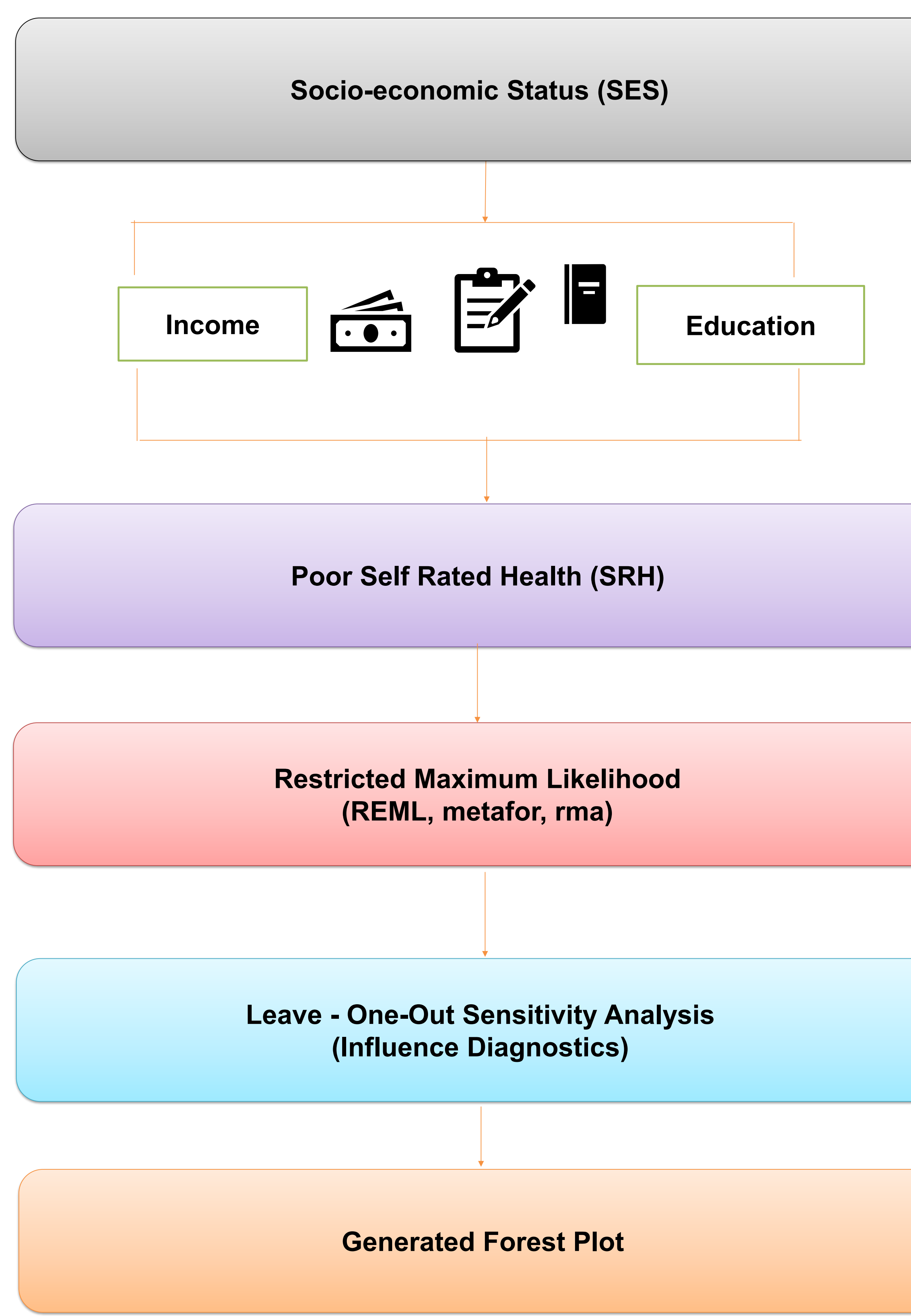


Figure 5: Forest Plot for the Income and Self-Rated Health

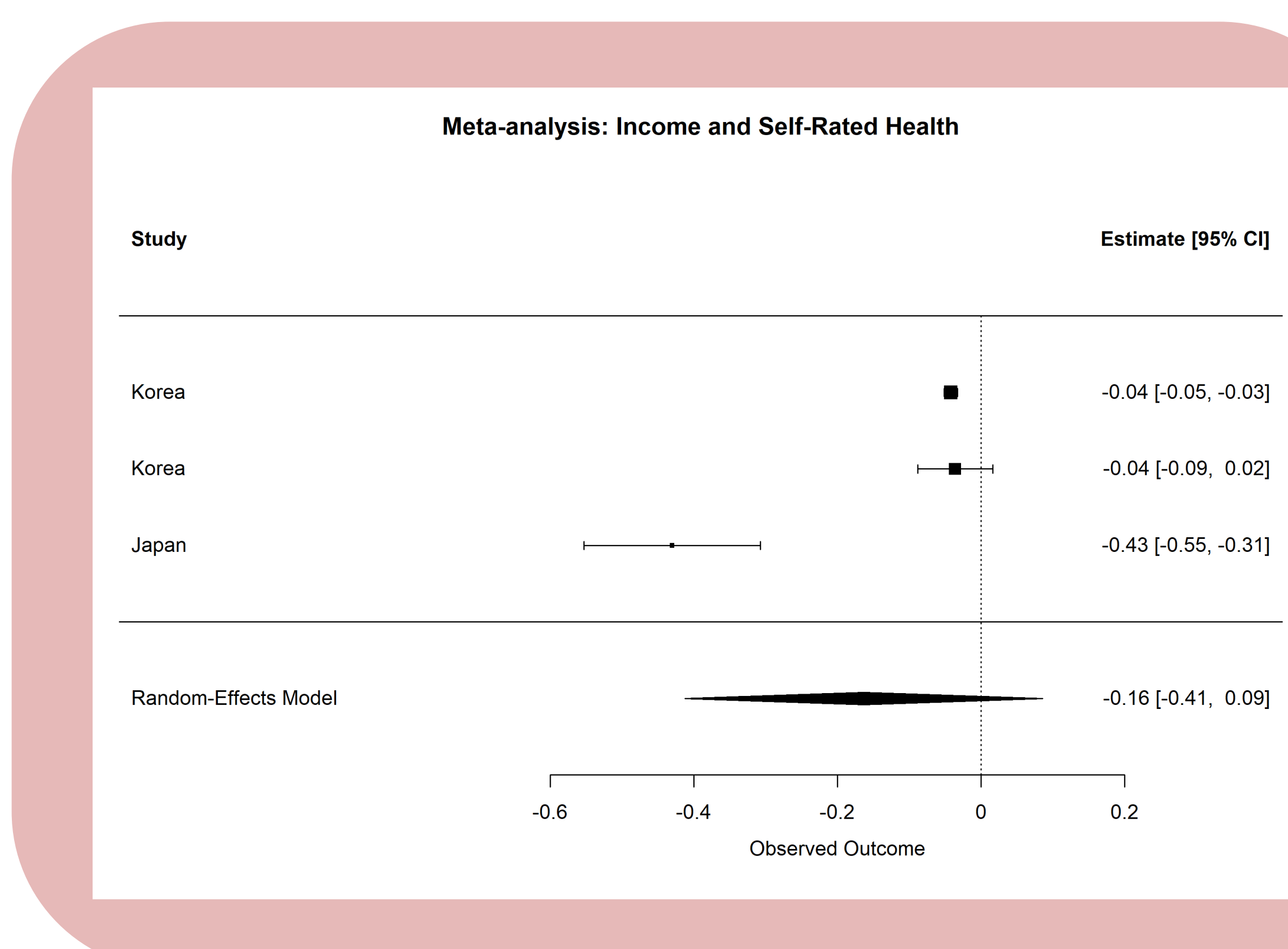
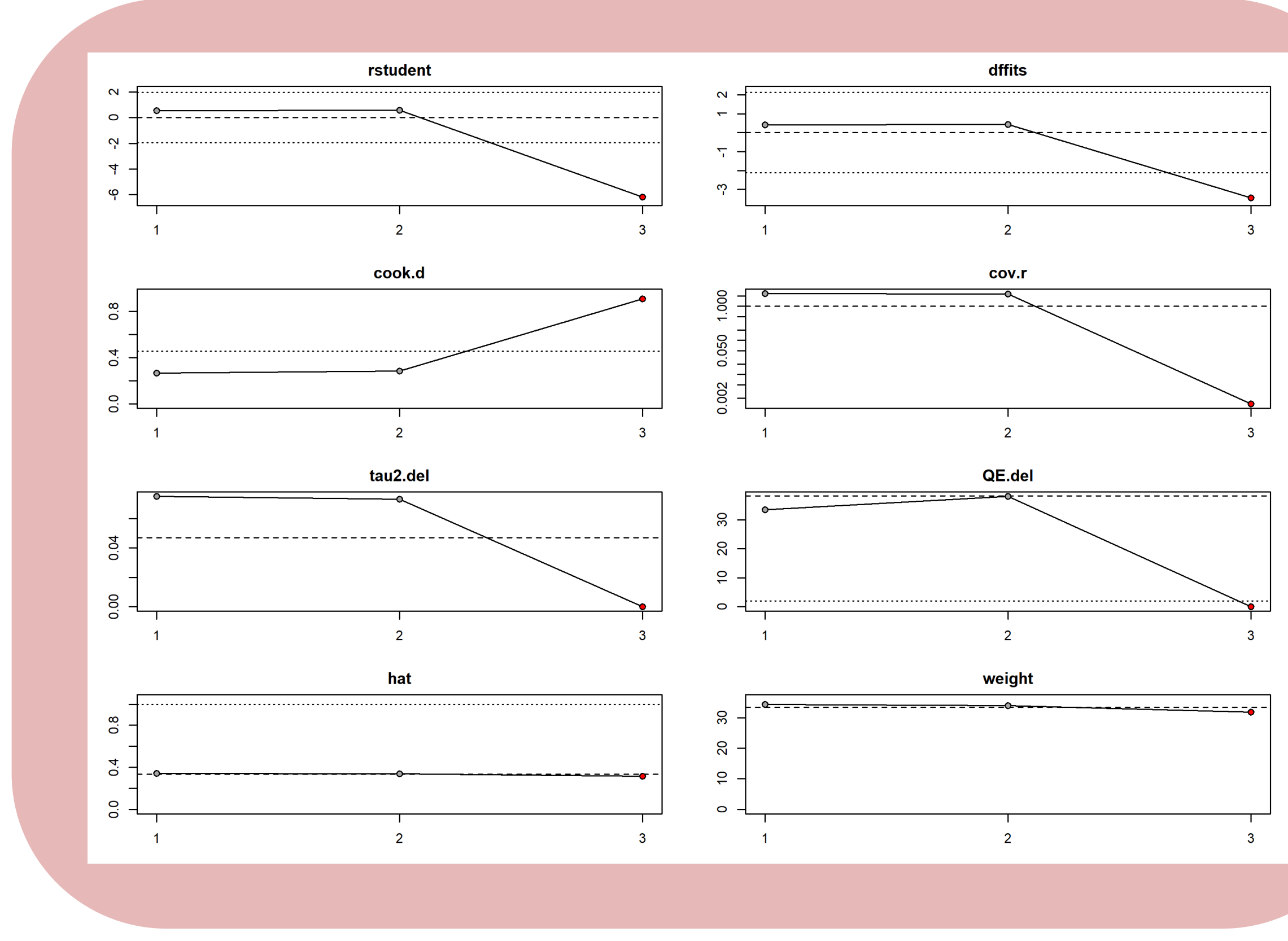


Figure 6: Influence Diagnostics: Income and Self-Rated Health



LIMITATIONS

- The analysis focuses only on Korea and Japan, which are both high-income countries with well-developed healthcare systems. This limits the generalizability of findings to low- and middle-income countries or regions with different healthcare access and social structures
- Despite using the REML method, significant between-study heterogeneity may still influence the pooled estimates. Differences in study design, population characteristics, and measurement of SES and SRH can introduce variability
- Only three studies were included in the meta-analysis, which may reduce the statistical power and limit the robustness of the pooled estimates

CONCLUSIONS

- Education shows a consistent and statistically significant association with self-rated health in South Korea and Japan. Higher educational attainment is linked to better perceived health, indicating that it is a strong and reliable determinant of SRH
- Income demonstrates a non-significant and variable association with SRH. Although there is a trend suggesting better health with higher income, the results are inconsistent and influenced by study-level differences
- Sensitivity and influence analyses show that education findings are stable, while specific studies drive income result
- Overall, education emerges as a more dependable factor, highlighting the importance of policies focused on educational equity to improve health outcomes

References

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