

**Assessment of Possible Impact of a Health Promotion Program in Korea
from Health Risk Trends in a Longitudinally Observed Cohort.**

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Background

Longitudinally observed cohort data can be utilized to assess the potential for health promotion and healthcare planning by comparing the estimated risk factor trends of non-intervened with that of intervened. The paper seeks (1) to estimate a natural transition (patterns of movement between states) of health risk state from a Korean cohort data using a Markov model, (2) to derive an effective and necessary health promotion strategy for the population, and (3) to project a possible impact of an intervention program on health status.

Methods

The observed transition of health risk states in a Korean employee cohort was utilized to estimate the natural flow of aggregated health risk states from eight health risk measures using Markov chain models. In addition, a reinforced transition was simulated, given that a health promotion program was implemented for the cohort, to project a possible impact on improvement of health status. An intervened risk transition was obtained based on age, gender, and baseline risk state, adjusted to match with the Korean cohort, from a simulated random sample of a US employee population, where a health intervention was in place.

Results

The estimated natural flow (non-intervened), following Markov chain order 2, showed a decrease in low risk state by 3.1 percentage points in the Korean population while the simulated reinforced transition (intervened) projected an increase in low risk state by 7.5 percentage points. Estimated transitions of risk states demonstrated the necessity of not only the risk reduction but also low risk maintenance.

Conclusions

The frame work of Markov chain efficiently estimated the trend, and captured the tendency in the natural flow. Given only a minimally intense health promotion program, potential risk reduction and low risk maintenance was projected.