LATENT TRANSITION ANALYSIS APPROACH FOR EVALUATING PARENTING PROGRAMS: EXAMPLE OF THE INTERVENTION FOR PARENTS OF CHILDREN WITH ASTHMA

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PURPOSE

- Latent Transition Analysis (LTA) is a method of modeling change over time in categorical variables. It has been popular in social sciences for many years, yet it has hardly ever been used for evaluating the effectiveness/efficacy of parenting prevention and intervention programs.
- To illustrate the utility of this approach in the field of prevention/intervention research, we applied it to the data (secondary analysis) from a randomised controlled trial designed to test the impact of a brief parenting intervention for parents of children with asthma to improve parent skills in child illness management and child behaviour problems.

BACKGROUND

- Children with asthma are at an increased risk of behaviour problems, and their parents experience higher levels of parenting difficulties, including illness management problems (e.g., Hysing, Elgen, Gillberg, Lie, & Lundervold, 2007; Hysing, Elgen, Gillberg & Lundervold, 2009).
- This study aimed to evaluate the efficacy of a brief, group-based intervention for parents of children (ages 3-10 years old) with asthma using the Latent Transition Analysis approach.
- The aims were to: (a) define a class structure of parents based on their patterns of child illness management; (b) model transition in classes relative to the intervention; (c) evaluate the effects of class membership at post-intervention on child behaviour problems measured after the intervention.

DESIGN

- Randomised controlled trial using 2 (intervention vs care-as-usual) x 2 (time: pre-test, post-test) design was used to test the relative impact of the intervention.
- Parents completed questionnaires assessing problems experienced with illness management (Asthma Parent Tasks Checklist, Morawska et al., 2008) at Times 1 and 2.
- All parents completed the questionnaire assessing child behaviour problems (Asthma Behaviour Checklist, Morawska et al., 2008) at Time 2.

PARTICIPANTS N = 107

- 52 parents in the intervention condition and 55 in the care-as-usual condition
- 100% mothers with the mean age 37 years old (SD = 4.88)
- Most were married (79.4%) and held university qualifications (83.3%)
- 94% identified as white Australian with the remaining 16% identifying as Asian
- Child mean age was 5 years old (SD = 2.19)
- Good ratio of boys and girls (52% girls and 55% boys) was obtained

ANALYSIS

- We applied LTA in Mplus v. 7.1 to evaluate changes over time in latent class membership relative to participation in the intervention program.
- The lasting impacts of the intervention on child behaviour after the intervention were assessed by adding a distant outcome (child behaviour) to the model.

RESULTS

- A two-class model of parents based on their illness management skills was found to provide the best fit, based on interpretability and the lowest BIC values.
- The unconditional LTA model indicated that only 38.1% of parents in the poor illness management group at Time 1 transitioned into favourable direction after the intervention (Time 2).
- The conditional model revealed that the intervention effect was not significant in predicting post-intervention class membership ($\beta = -.90$, $p = .93$). In both conditions, parents were equally likely to transfer into preferable direction (OR = .80, 95%CI (.29-2.21)).
- Parents who were in the effective child illness management group at post-intervention reported significantly less child behaviour problems at Time 2 than did parents in the poor illness management group (Wald $X^2(1)$ = 6.72, $p < .05$).

CONCLUSION

- LTA is certainly important and useful in evaluating change over time when using categorical variables in the parenting prevention and intervention research.
- It allows to collapse large arrays of categorical data into meaningful patterns and to understand changes and transitions between patterns over time.
- It provides a more in depth picture of individuals attending the intervention, allows identifying at risk individuals (e.g., parents with elevated levels of child illness management problems) and permits better understanding of the impacts of the intervention and nature of changes for each category of participants.

FURTHER INFORMATION

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