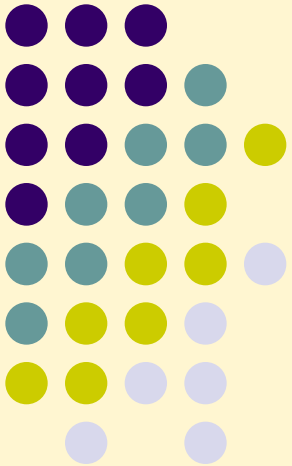
Leisure, Lifestyle, Lifecycle Project (LLLP): Design, Challenges and Initial Results

David C. Hodgins, Ph.D.
University of Calgary

Montreal 2013



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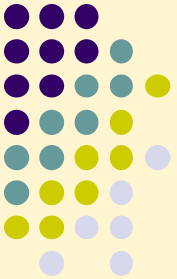
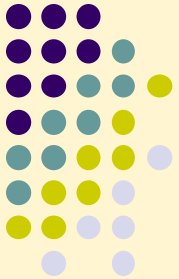
Investigators Involved in the Leisure, Lifestyle, Lifecycle Project



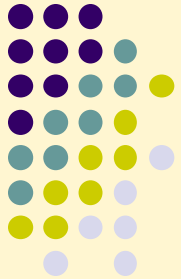
- Nady el-Guebaly, MD
- David Hodgins, Ph.D.
- Garry Smith, Ph.D.
- Rob Williams, Ph.D.
- Don Schopflocher, Ph.D.
- David Casey, Ph.D.
- Shawn Currie, Ph.D.

Outline



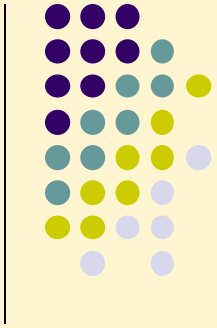
- Background and design of the study
- Recruitment and follow-up rates
- Some initial results

Background



- Initiated in 2004
- Few studies of determinants of gambling & disordered gambling
- Interested in better understanding:
  - Factors that promote responsible gambling
  - Factors that make some susceptible to problem gambling
- Guided by bio-psycho-social conceptual model

LLLP Conceptual Model



BIOLOGICAL RISK
- Neuropsychological functioning
  - Frontal lobe
- Neurotransmitter
  - DA (blood & saliva DNA)
  - MAOI activity
- Gender

TEMPERAMENT/PERSONALITY
- Impulsivity
- Trait anxiety
- Moral disengagement
- Self-esteem

COGNITIVE
- Intelligence
- Attentional Ability
- Gambling fallacies
- Coping Skills

DEMOGRAPHICS
- Religion
- Age
- SES
- Family background
- Ethnicity

FAMILY HISTORY
- Social & problem gambling
- Substance use disorders
- Psychiatric disorders
- Deviance

STRESSORS
- Physical health/disability
- School/work
- Familial/peer
- Legal

GAMBLING INVOLVEMENT
- Frequency & Duration
- Type & Range
- Context

FAMILY ENVIRONMENT
- Parental behavior
- Marital Status/conflict
- Abuse experiences

EXTRA FAMILIAL ENVIRONMENT
- Social Support
- Friendships/peers
- Religion/Spirituality
- Ethnicity/Culture
- Social organization

EXTERNALIZING PROBLEMS
- Alcohol use
- Substance use
- Tobacco use
- Delinquent activity
- Sexual activity

INTERNALIZING PROBLEMS
- Depression
- Anxiety

GAMBLING DISORDERS
- Frequency & Duration
- Type & Range
- Context

PREVENTION & TREATMENT

BROADER SOCIO-CULTURAL FACTORS
- Availability of gambling; public attitudes; prevention programs; legislative changes; gambling knowledge

Background (cont'd)

- A prospective, panel study of gambling behavior
  - Study Albertans over a 5-year period
  - Initial sample
    - Stratified by region of the province
    - 5 age groups
    - Over sampled high frequency gamblers
    - -70th percentile for age and sex

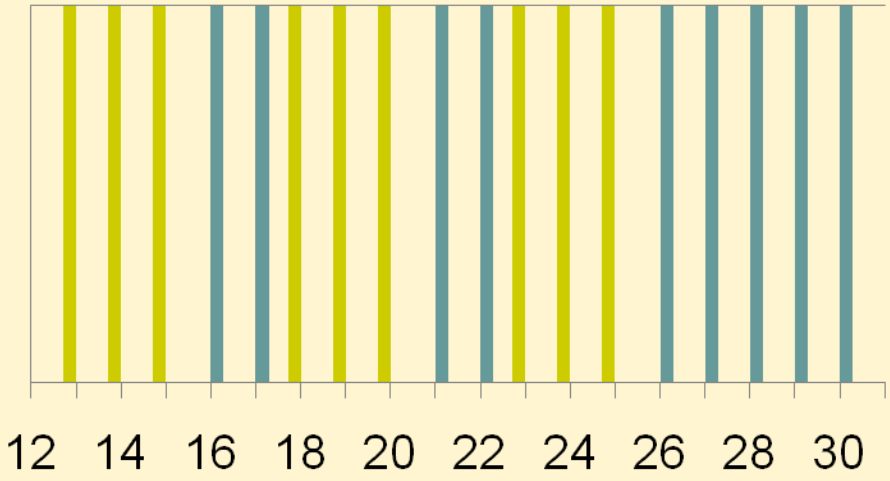
Age Groups – accelerated longitudinal design

Baseline

- 13 to 15
- 18 to 20
- 23 to 25
- 43 to 45
- 63 to 65

Time 4

- 18 to 20
- 23 to 25
- 28 to 30
- 48 to 50
- 68 to 70



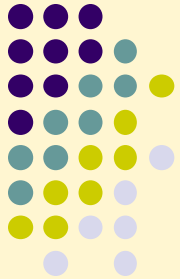
Methods - Procedures

- **Telephone interview**
  - Subcontracted the completion of these interviews
  - Adult interviews (~ 45 minutes)
  - Adolescent interviews (~ 30 minutes)
  - Majority of demographic & gambling questions
- **Face-to-face interview**
  - Completed by Research Assistants
  - Adult interviews (~ 3 hrs)
  - Adolescent interviews (~ 2 hrs)
  - Parent interviews (~ 40 minutes)

Response Rates

- Recruitment
  - Uneven recruitment across locations (Edmonton low relative to Calgary)
  - Over sampling procedure was laborious and expensive (9 versus 3 months)
    - 543 versus 1000 high frequency
  - Of eligible households
    - 52% did screening, 27% agreed to interview,
    - 73% of consenters completed (not different than non-completers)
  - Eligible telephone numbers- 32, 870 (5.4%)
  - Eligible households 17,357 (10.2%)

Recruitment and Retention



- Time 1 – N = 1808
  - High frequency did not differ from high frequency in general population
  - General population bootstrapped weights derived (age, sex, geography, high frequency)
- Time 2 – n = 1495 84% (online)
- Time 3 – n = 1316 73% (online)
- Time 4 – n = 1343 75% (online)
- Blood and spit – n = 679

Attrition Bias

- Males
- Non-Caucasians
- single, less educated, attending school,
- More types of gambling, more time spend gambling (not frequency)
- Greater gambling problem severity

Analytic Approach

- Parallel analysis with Quinte Longitudinal Study (QLS)
- 4123 Quinte residents
  - Same timeframe
  - No age cohorts
  - Over sampled higher frequency
  - 5 assessments over 5 years
  - Many of the same measures
  - 94% retention rate

Some Initial Results

- How stable is problem gambling?
  - Substantial degree of change observed inconsistent with the traditonnal addiction model
- What factors predict gambling and problem gambling over time?
  - An evolving etiological model

Stability of Problem Gambling

- Important to factor in measurement error
- Accuracy of self-report compromised by:
  - short period of time participants given to answer the questions
  - incomplete recall
  - recency bias
  - self-deception
  - mood state
  - social desirability
  - genuine uncertainty about whether they meet the criteria we are asking about (guilt, financial problems, etc.)

Reliable Change Index (RCI)

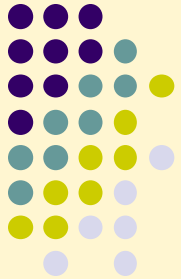
- Difference in the person's score over 2 time periods divided by the standard error of difference between the 2 test scores:

$$RCI = \frac{x_1 - x_2}{\sqrt{2(SD_1\sqrt{1 - r_{xx}})^2}}$$

- RCI scores provide a measure of the change in *standardized units*. Thus, a RCI of 1.96 or larger is needed for statistical significance at $p < .05$

Jacobson & Truaxx (1991)

Reliable Change Index: QLS & LLLP



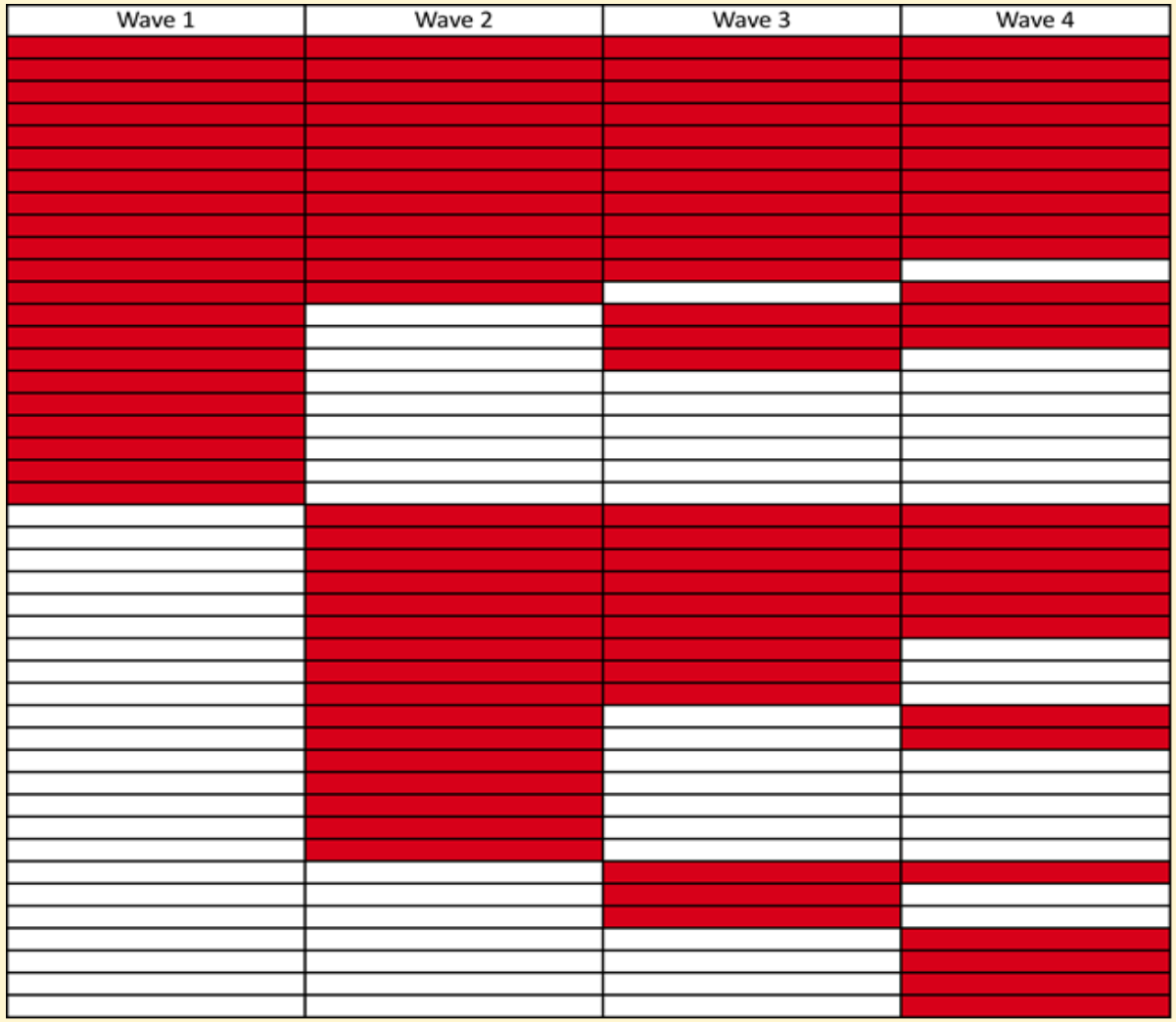
- PGSI has average test-retest reliability of .765 (over a number of studies)

- *Average SD* of PGSI over the 4 Time periods is 2.15 in LLLP and 1.86 in QLS over the 5 Time Periods

- Hence, a raw score increase or decrease of

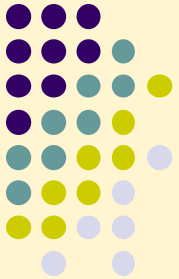
$\geq$ **3** at the subsequent time period is what is required for a statistically significant change

Stability of PGSI 5+ Problem Gambling using the RCI



Red = PG; White = NPG; N = 44 (each row represents a case)

Summary of PG Stability Findings

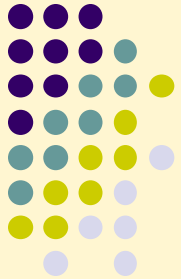


- **Good consistency** in findings across the two data sets (QLS and LLLP) and between the two assessment instruments (PPGM and PGSI).

Chronicity and Duration

- About half of problem gamblers are problem gamblers in only one time period.
- Chronic unremitting problem gambling is uncommon.
  - Only one-third of problem gamblers are problem gamblers in 3 or more time periods
  - Only one-quarter are problem gamblers in 4 or more time periods
- Risk of chronic problem gambling increases with each consecutive year of problem gambling status.

Summary of PG Stability Findings



Recovery

- The above results also mean that close to three-quarters of problem gamblers are observed to recover (no longer meet problem gambling criteria).

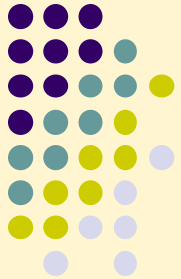
Relapse

- Of those that no longer meet problem gambling criteria, three-quarters do not relapse (at least during a 4-5 year time frame). Only a minority of people move in and out of problem gambling in a 4-5 year time period.
- Probability of relapse increases with increased prior duration of problem gambling.

Longer time frames are needed to understand overall course of problem gambling.

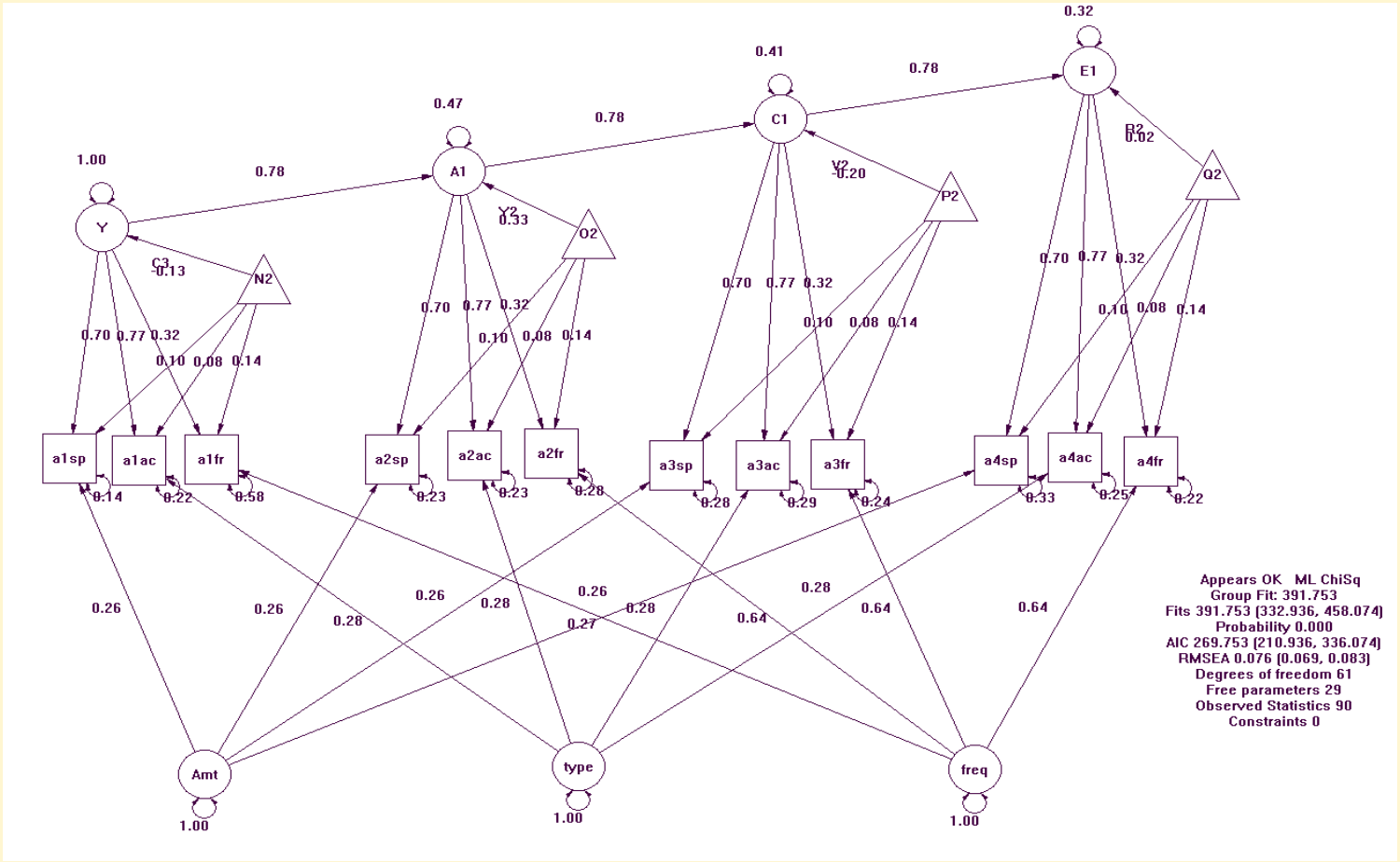
Ongoing Qualitative Study of Transitions

An evolving etiological model

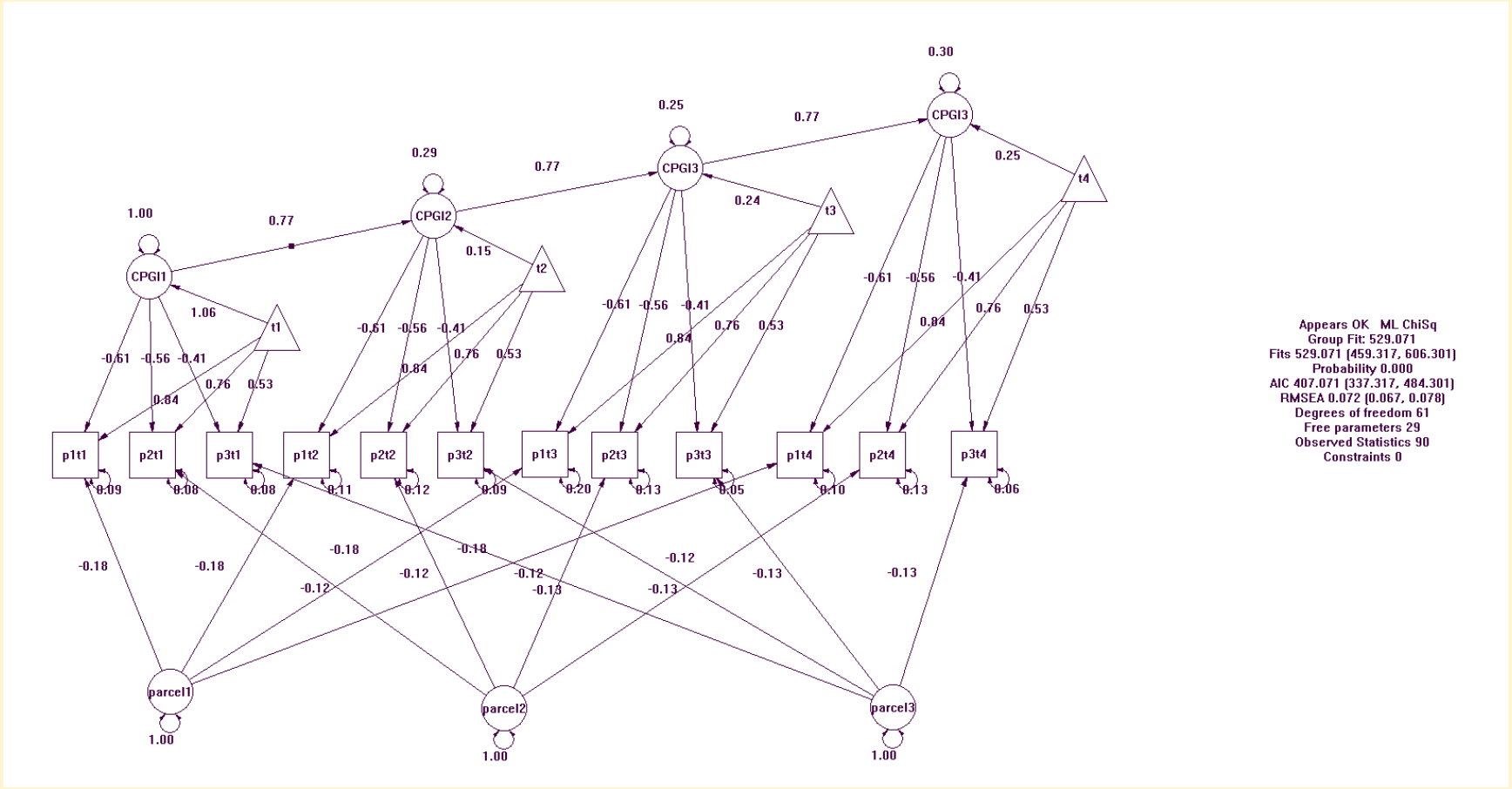


- Iterative process of modeling relationships using structural equation models
  - Gambling behaviour
    - Number of types of gambling
    - Expenditure
    - Frequency
  - Gambling Problems
    - CPGI - PGSI (3 parcels of items)

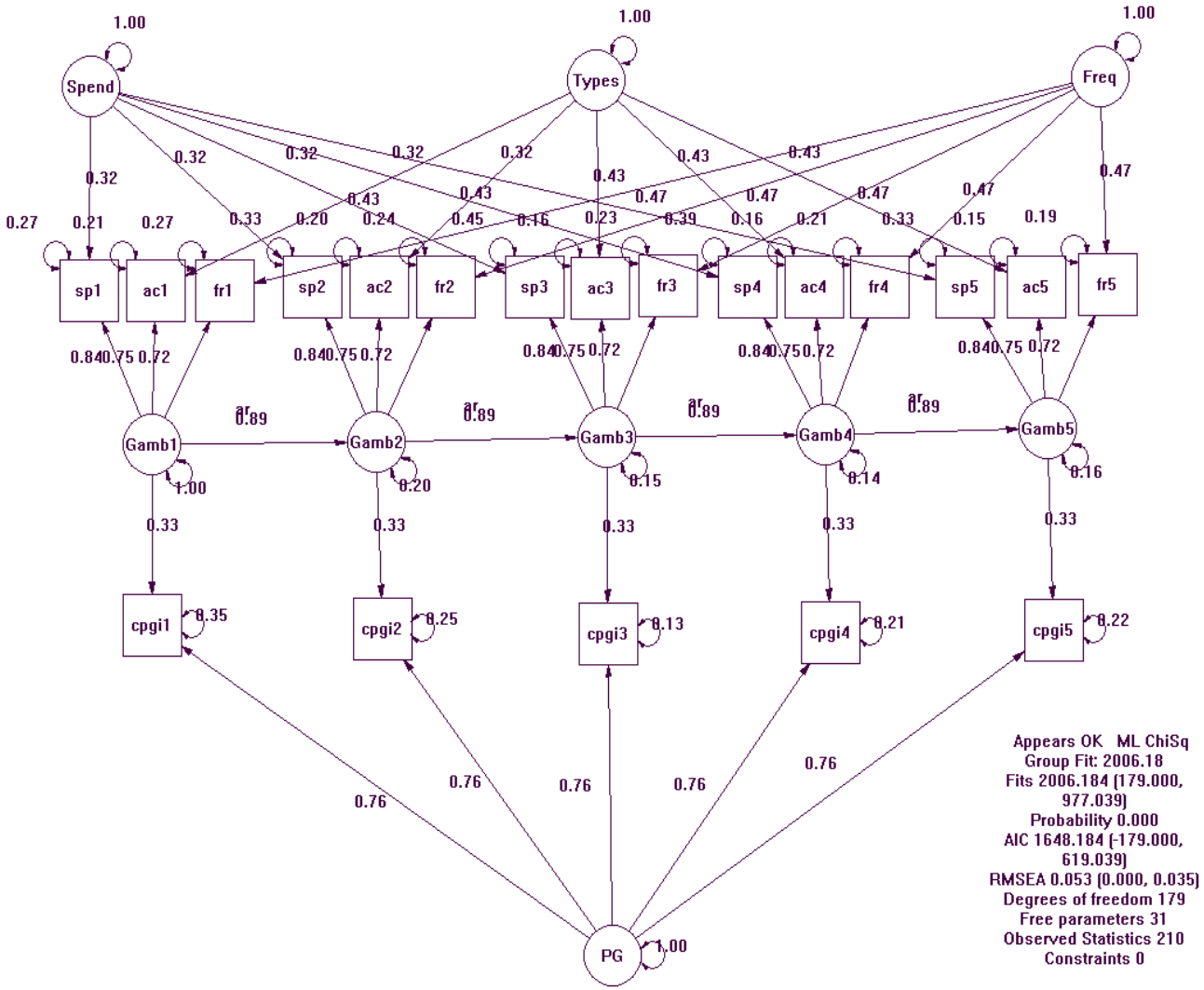
Gambling is stable over time

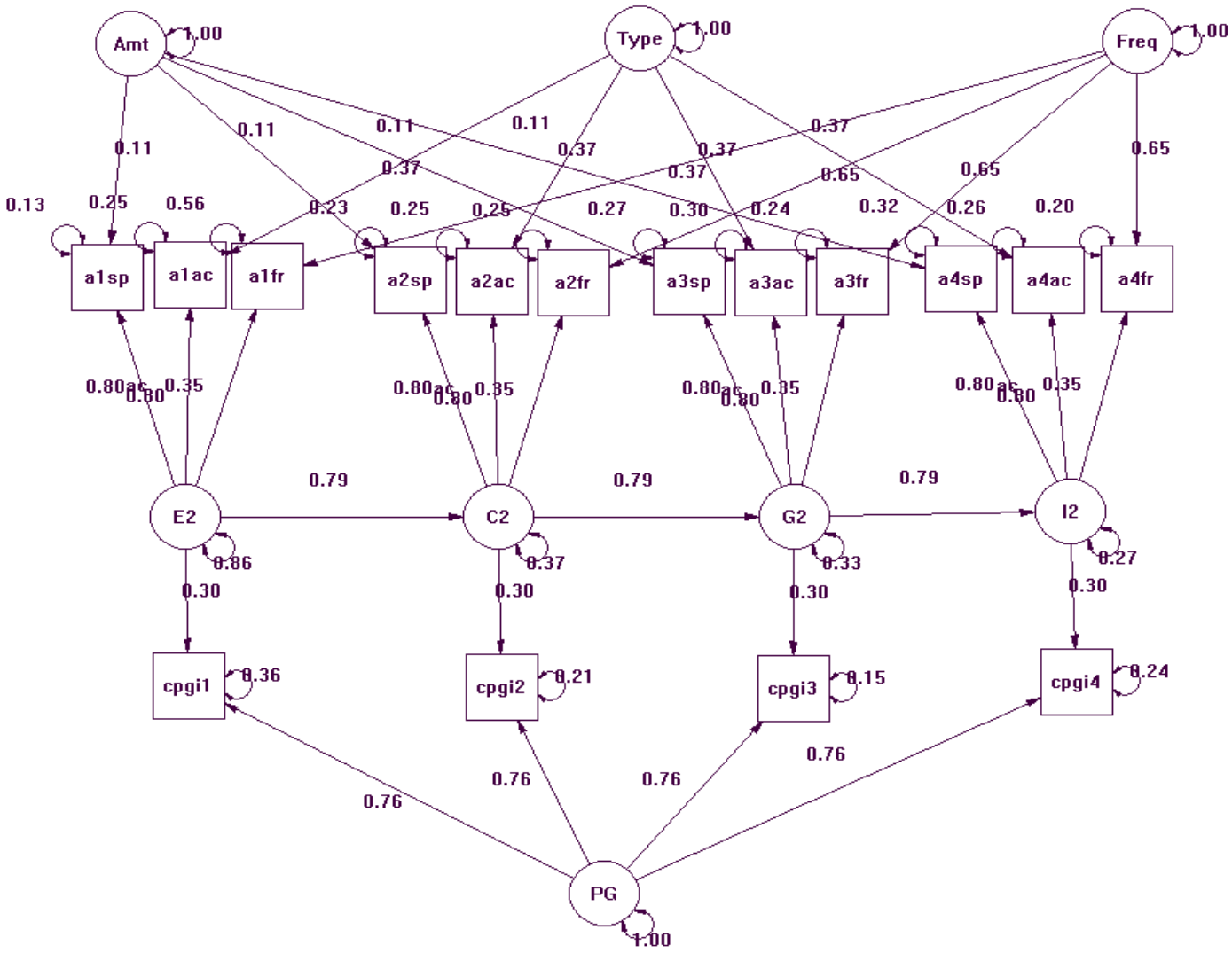


Problem gambling is stable over time



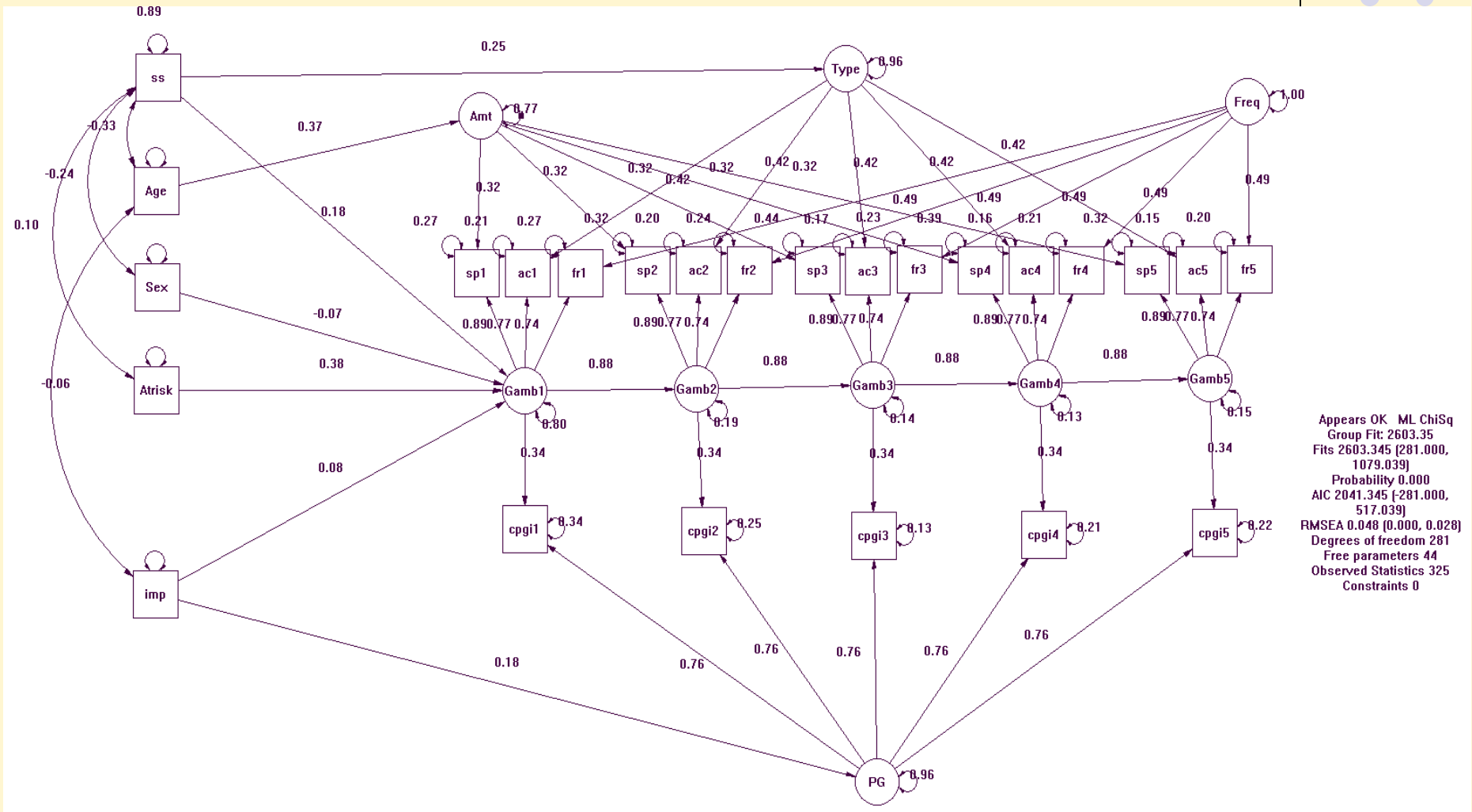
Gambling and Problem Gambling are stable over time





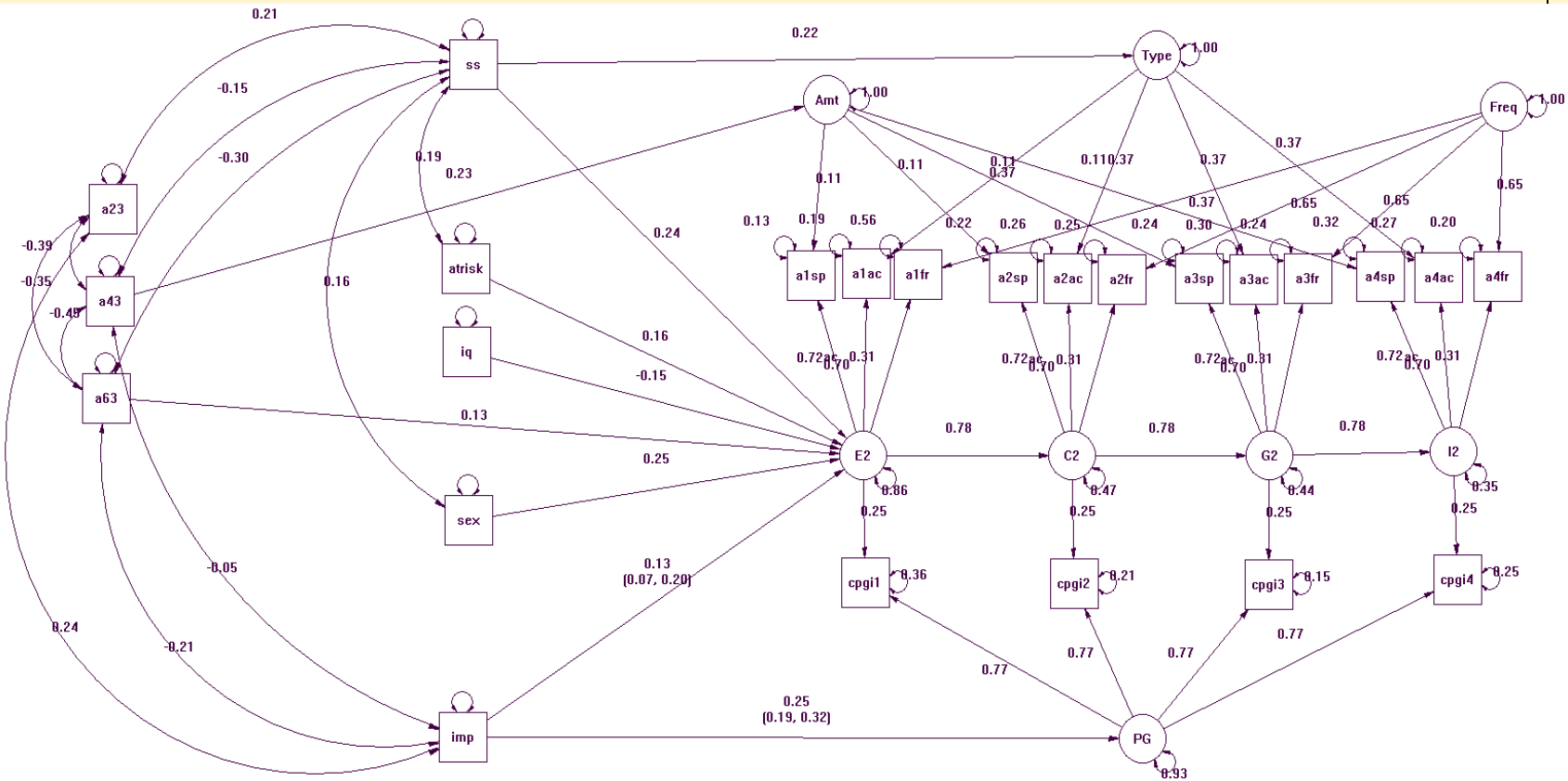
Appears OK ML ChiSq
Group Fit: 560.958
Fits 560.958 (490.653, 638.792)
Probability 0.000
AIC 342.958 (272.653, 420.792)
RMSEA 0.067 (0.061, 0.072)
Degrees of freedom 109
Free parameters 27
Observed Statistics 136
Constraints 0

Adding Covariates QLS



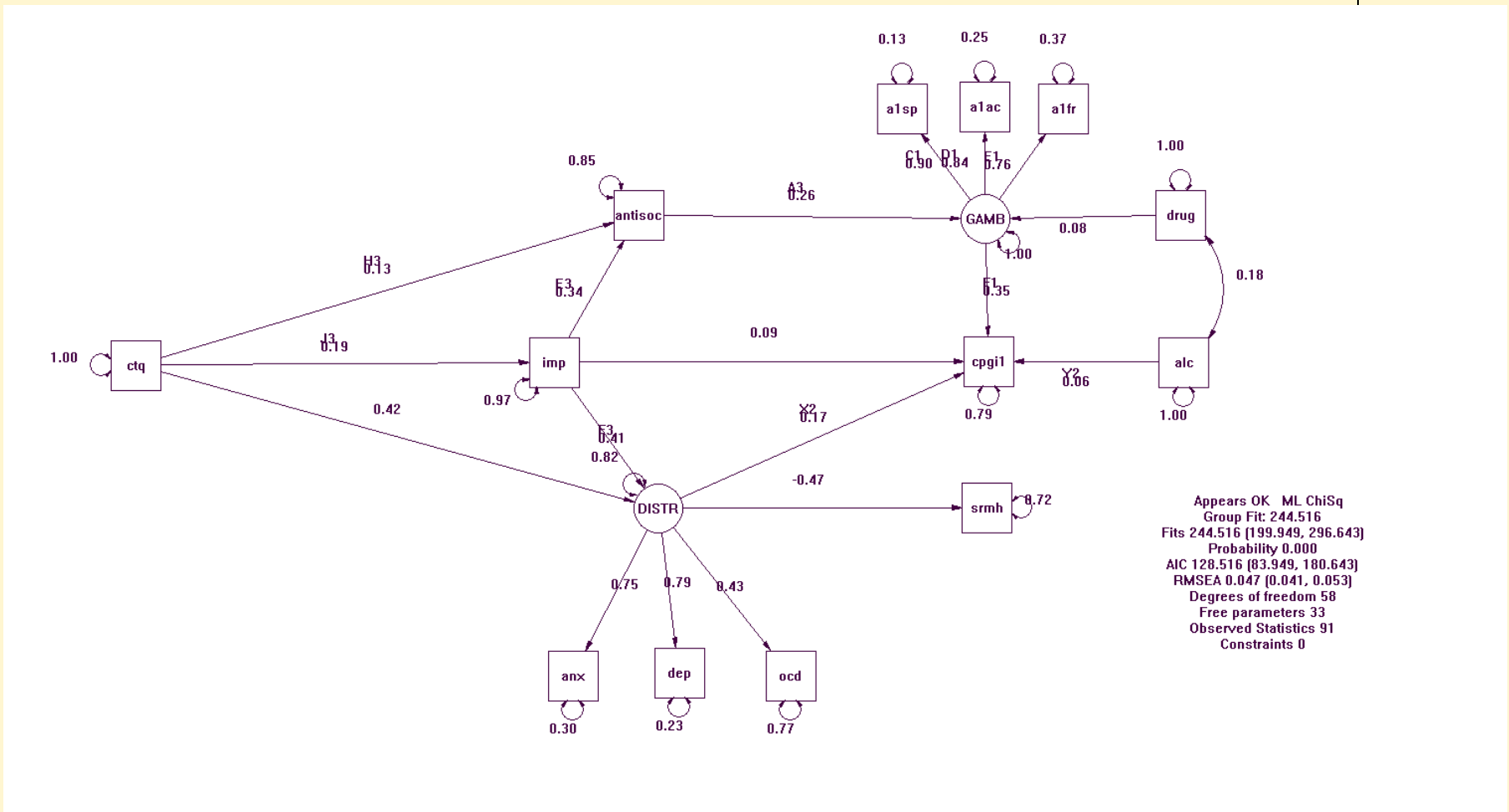
Risk group, Age, Sex, Personality traits Excitement Seeking and Impulsivity, IQ

Adding Covariates LLLP

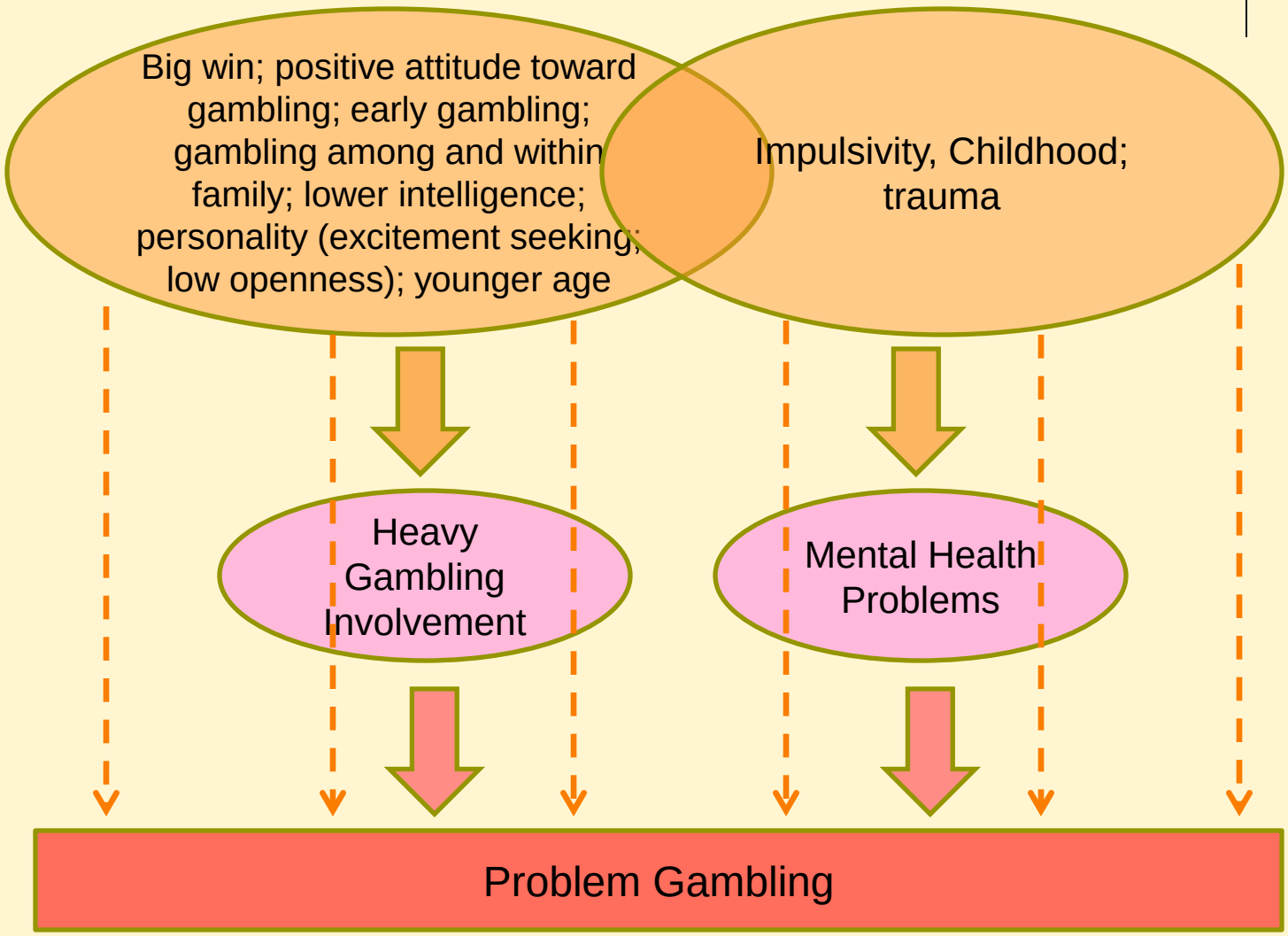


Risk group, Age, Sex, Personality traits Excitement Seeking and Impulsivity, IQ

Another example- mental health variables- LLP



Emerging Model….



Merci!