AN IMPROVED PATHWAYS DEVELOPMENT MODEL OF PROBLEM GAMBLING:
A SUMMARY OF 11 STUDIES IN HONG KONG & MACAU

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INTRODUCTION

The rationale of this study came from a casual meeting of our supervisor Dr. Chan Chi Chuen and Professor Blaszczynski on a bus after the 2009 Reno conference.

On the bus, C. C. promised Mr. Blaszczynski that he would validate the pathways model in Hong Kong and Macau. And in the next 5 years, Dr. C.C. Chan and his students conducted 11 research projects on problem gambling in Hong Kong and Macau.

Purposes of current study

- To arrive on a summary finding from 11 studies on problem gambling
- To validate the pathways development model proposed by Blaszczynski & Nower (2002)
- To investigate what particular cultural factors in Hong Kong and Macau have contributed to problem gambling
THEORETICAL FRAMEWORK

- Integrated model of pathways development (Blaszczynski & Nower, 2002)

Pathway 1: Behaviorally Conditioned Problem Gamblers

Pathway 2: Emotionally Vulnerable Problem Gamblers

Pathway 3: Antisocial, Impulsivist Problem Gamblers
**THEORETICAL FRAMEWORK**

- **Behaviorally-Conditioned Gamblers**
  - Display minimal levels of pre-morbid psychopathology
  - Exhibit depression or anxiety as a consequence of chasing and financial loss
  - Gamble for actions, fun and excitement

- **ECOLOGICAL FACTORS**
  - Increased Availability
  - Increased Accessibility

- **ECOLOGICAL FACTORS CONDITIONING**
  - Arousal/Excitement
    - Subjective excitement
    - Physiological Arousal
  - Cognitive Schemas
    - Irrational Beliefs
    - Illusion of control

- **HABITUATION**
  - Pattern of habitual gambling established

- **CHASING**
  - Chasing wins, losses
  - Losing more than expected

- **PROBLEM AND PATHOLOGICAL GAMBLING**
Emotionally-Vulnerable Gamblers
- More prevalence among female gamblers
- Significant degree of pre-morbid anxiety and/or depression
- Poor coping strategies, poor problem-solving skills
- Gamble to escape or dissociate from negative moods

Factors:
- **Emotional Vulnerability**
  - Childhood disturbance
  - Personality
    - Chasing wins, losses
    - Losing more than expected
  - Mood
    - Disturbance
    - Depression
    - Anxiety
  - Poor Coping/Problem-solving
    - Life Stresses
    - Substance Use

- **Biological Vulnerability**
  - Biochemical
    - Serotonergic
    - Norenergic
    - Dopaminergic
  - Cortical
    - EEG differential

- **Habituation**
  - Pattern of habitual gambling established

- **Chasing**
  - Chasing wins, losses
  - Losing more than expected

- **Ecological Factors**
  - Increased Availability
  - Increased Accessibility

- **Ecological Factors Conditioning**
  - Arousal/Excitement
    - Subjective excitement
    - Physiological Arousal
  - Cognitive Schemas
    - Irrational Beliefs
    - Illusion of control
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untisocialaImpulsivistKÿamblers

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HighlyKdisturbedKindividualsKwithKbiologicalKvulnerability

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PoorKinterpersonalKrelationshipsYKsubstanceKabusesYKattentionKdeficitsYKantiasocialKtraitsYKearlyKcriminalKrecords

๏

UndesirableKfamilyKbackgroundYKpoorKschoolingKandKconductKproblems

ECOLOGICAL FACTORS
• Increased Availability
• Increased Accessibility

ECOLOGICAL FACTORS CONDITIONING
Arousal/ Excitement
• Subjective excitement
• Physiological Arousals
Cognitive Schemas
• Irrational Beliefs
• Illusion of control

EMOTIONAL VULNERABILITY
Childhood disturbance
Personality
• Chasing wins, losses
• Losing more than expected
Mood Disturbance
• Depression
• Anxiety
Poor Coping/ Problem-solving
• Life Stresses
• Substance Use

BIOLOGICAL VULNERABILITY
Biochemical
• Serotonergic
• Norenergic
• Dopaminergic
Cortical
• EEG differential

IMPULSIVEIST TRAITS
Neuropsychological
• ADHD
• Impulsivity
Anti-social behaviour
Substance abuse

HABITUATION
• Pattern of habitual gambling established

CHASING
• Chasing wins, losses
• Losing more than expected

PROBLEM AND PATHOLOGICAL GAMBLING

๏ HighlY disturbed individuals with biological vulnerability
๏ Poor interpersonal relationships, substance abuses, attention deficits, anti-social traits, early criminal records
๏ Undesirable family background, poor schooling and conduct problems
METHODOLOGY

✦ The current study is a meta-analysis of the studies undertaken by the Dr. C.C. Chan and his research teams in Hong Kong and Macau.

✦ It covers a series of small-scale qualitative studies carried out during the period of 2008-2013.
METHODOLOGY

- All together 190 participants (M=101, F=89, mean age: 40). There were 11 studies; all follow similar procedures. All participants were interviewed using semi-structured questionnaires that covered their developmental history, gambling habits and lifestyles.
- The interviews were based on the DSM-IV-TR (APA, 2000) & the PGSI (Ferris & Wayne, 2001)
- Some studies were included the administration of Beck Depressive Scale to assess the emotional states of participants
CROSS-SECTIONAL STUDIES

This study reviews those data from 11 qualitative studies.

1. Casino Players in Macau
   ($N=15$, 10M, 6F, age: 24-53)

2. Young Sport Bettors
   ($N=20$, 19M, 1F, age: 16-26)

3. Housewives of Low Income Groups
   ($N=20$, age: 26-55)

4. Day Traders in Stock Markets
   ($N=16$, 10M, 6F, age: 20-55)
This study reviews those data from 11 qualitative studies.

5. Gamblers with Criminal Background
   ($N=11$, $10M, 1F$, age:34-58)

6. Male Sex Workers and Taxi Drivers
   ($N=20$, age: 34-48)

7. Female Sex Workers
   ($N=20$, age: 34-60)
CROSS-SECTIONAL STUDIES

This study reviews those data from 11 qualitative studies.

8. Cargo Labors
   \( N = 25, \ M = 22, \ F = 3, \ \text{age: 22-50} \)

9. Filipino Female Domestic Helpers
   \( N = 11, \ \text{age: 29-53} \)

10. Gambling Anonymous
    \( N = 17, \ 15M, \ 2F, \ \text{age: 22-58} \)

11. Elderly & Retirees
    \( N = 20, \ 12M, \ 8F, \ \text{age: 55-85} \)

All studies follow similar methodology in data collection
RESULTS

✦ Summary of Participants (By sectors):

<table>
<thead>
<tr>
<th>Category</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cargo Labors</td>
<td>23</td>
</tr>
<tr>
<td>Casino Players</td>
<td>15</td>
</tr>
<tr>
<td>Day Traders</td>
<td>16</td>
</tr>
<tr>
<td>Elderly</td>
<td>20</td>
</tr>
<tr>
<td>Female Sex Workers</td>
<td>20</td>
</tr>
<tr>
<td>Filipino Maids</td>
<td>17</td>
</tr>
<tr>
<td>GA</td>
<td>20</td>
</tr>
<tr>
<td>House Wives</td>
<td>6</td>
</tr>
<tr>
<td>Male Sex Workers</td>
<td>10</td>
</tr>
<tr>
<td>Taxi Drivers</td>
<td>12</td>
</tr>
<tr>
<td>Triad Members</td>
<td>20</td>
</tr>
<tr>
<td>Youth Sport Bettors</td>
<td>20</td>
</tr>
</tbody>
</table>
RESULTS

- Descriptive Statistics of Participants (N=190):

<table>
<thead>
<tr>
<th>Average</th>
<th>Female (N=89)</th>
<th>Male (N=101)</th>
<th>Grand Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>39.87</td>
<td>39.72</td>
<td>39.79</td>
</tr>
<tr>
<td>PGSI</td>
<td>7.80</td>
<td>9.11</td>
<td>8.57</td>
</tr>
</tbody>
</table>

![Bar chart showing participants aged 15-25, 26-35, 36-45, 46-55, 56-65, 66-75, 76-85. The chart compares the number of Male and Female participants across these age groups.](chart.png)
RESULTS

◆ Descriptive Statistics of Participants (N=190):

<table>
<thead>
<tr>
<th>Classifications</th>
<th>Recreational</th>
<th>Behavioral</th>
<th>Emotional</th>
<th>Anti-social</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female (N=89)</td>
<td>38</td>
<td>22</td>
<td>13</td>
<td>8</td>
</tr>
<tr>
<td>Male (N=101)</td>
<td>39</td>
<td>47</td>
<td>3</td>
<td>20</td>
</tr>
</tbody>
</table>

- Female:
  - Recreational/Social: 47%
  - Behavioral: 27%
  - Emotional: 16%
  - Anti-social: 10%

- Male:
  - Recreational/Social: 36%
  - Emotional: 3%
  - Behavioral: 43%
  - Anti-social: 18%
RESULTS ✦ Behavioral-Conditioned Gamblers

ECOLOGICAL FACTORS
- Increased Availability
- Increased Accessibility
+ Peer Influence in work & school

ECOLOGICAL FACTORS CONDITIONING
Arousal/Excitement
- Subjective excitement
- Physiological Arousal

Cognitive Schemas
- Irrational Beliefs
- Illusion of control

HABITUATION
- Pattern of habitual gambling established

PROBLEM AND PATHOLOGICAL GAMBLING

CHASING
- Chasing wins, losses
- Losing more than expected
+ Significant Impaired Control of Gambling

A model of strong attachment to gambling (reproduced from Orford)

PRIMARY
- Controlling Factors
- Positive experience of gambling
- Escalating Factors

SECONDARY
- Secrecy
- Cognitive defense
- Contemplation of change
- Chasing losses
- Negative experience of gambling
- Drive for money

TERTIARY
- Harm
RESULTS - Emotionally-Vulnerable Gamblers

ECOLOGICAL FACTORS
- Increased Availability ✓
- Increased Accessibility ✓

ECOLOGICAL FACTORS CONDITIONING
Arousal/Excitement
- Subjective excitement ✓
- Physiological Arousal ✓
Cognitive Schemas
- Irrational Beliefs ✓
- Illusion of control ✓

HABITUATION
- Pattern of habitual gambling established ✓

EMOTIONAL VULNERABILITY
Childhood disturbance
- Personality
  - Chasing wins, losses ✓
  - Losing more than expected ✓
Mood Disturbance
- Depression ✓
- Anxiety ✓
Poor Coping/Problem-solving
- Life Stresses ✓
- Substance Use ✓

BIOLOGICAL VULNERABILITY
Biochemical
- Serotonergic ✓
- Noreadnergic ✓
- Dopaminergic ✓
Cortical
- EEG differential ✓

PROBLEM AND PATHOLOGICAL GAMBLING

PRIMARY
- Controlling Factors
- Positive experience of gambling

SECONDARY
- Cognitive defense
- Strong attachment

TERTIARY
- Secrecy
- Harm
- Contemplation of change
- Negative experience of gambling
- Drive for money

A model of strong attachment to gambling (reproduced from Orford)

CHASING
- Chasing wins, losses ✓
- Losing more than expected ✓
### RESULTS

♦ Antisocial-Impulsivist Gamblers

#### ECOLOGICAL FACTORS
- Increased Availability
- Increased Accessibility

#### ECOLOGICAL FACTORS CONDITIONING
- Arousal/Excitement
  - Subjective excitement
  - Physiological Arousal
- Cognitive Schemas
  - Irrational Beliefs
  - Illusion of control

#### HABITUATION
- Pattern of habitual gambling established

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#### EMOTIONAL VULNERABILITY
- Childhood disturbance Personality
  - Chasing wins, losses
  - Losing more than expected
- Mood Disturbance
  - Depression
  - Anxiety
- Poor Coping/Problem-solving
  - Life Stresses
  - Substance Use

#### BIOLOGICAL VULNERABILITY
- Biochemical
  - Serotonergic
  - Noreadnergic
  - Dopaminergic
- Cortical
  - EEG differential

#### IMPULSIVEIST TRAITS
- Neuropsychological
- ADHD?
- Impulsivity
- Anti-social behaviour
- Substance abuse

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#### PRIMARY ATTACH GAMBLING AS DAILY HABIT
- Controlling Factors
- Positive experience of gambling
- Escalating Factors
- Drive for money

#### SECONDARY STRONG ATTACHMENT
- Secrecy
- Cognitive defense
- Chasing losses

#### TERTIARY CONTEMPLATION OF CHANGE
- Harm
- Contemplation of change
- Negative experience of gambling

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A model of strong attachment to gambling (reproduced from Orford)

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#### CHASING
- Chasing wins, losses
- Losing more than expected

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#### PRIMARY VONTROLLING FACTORS
- Positive experience of gambling

#### SECONDARY STRONG ATTACHMENT
- Controlling Factors
- Secrecy

#### TERTIARY CONTEMPLATION OF CHANGE
- Harm
- Contemplation of change
- Negative experience of gambling
DISCUSSIONS

✦ The B & N can adequately explain and distinguish the pathways development of all the problem gamblers. However, we argue that certain new elements should be added to improve the model.

✦ Extra findings:
  - More time involvement in gambling create more impaired control of gambling
  - Sub-cultural influence can shape gambling behaviors
  - Alcohol consumption is insignificant in problem gambling in all three pathway
DISCUSSIONS

- Time involvement & impairment of control

- Longer time involvement
- Deteriorate of self control
- More impulsivity
- More severe problem gambling

- Alcohol consumption is insignificantly related to problem gambling

Variables contributing to the development of level of involvement and impaired control of gambling: main study (Dickerson, 2001)
THANK YOU!

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