Can Beck's Cognitive Theory of Depression Be Applied to Asian Populations?

By Professor Tian Po Oei

School of Psychology &
CBT Unit, Toowong Private Hospital
Objectives

(1) To validate Beck’s cognitive theory for depression in an Asian population

(2) To examine EMPIRICALLY how well this western generated theory can be applied to Asian populations
- Why CBT
- Why Beck’s theory
- Why Asian population
Efficacy of CBT is firmly established in Western literature

- Review papers
  - e.g., Oei & Dingle, JAD, 2008
  - Butler, Chapman, Forman, & Beck, CPR, 2006

- Book chapters and books

- Professional societies
  - e.g., American Psychological Society

APS
CBT is widely used in Asia, in particular:

- People’s Republic of China
- Hong Kong
- India
- Indonesia
- Japan
- Malaysia
- Pakistan
- Singapore
- Sri Lanka
- Thailand
Technology Transfer from West to East

Application of Western Evidence Based Therapy (CBT) in Asia is problematic because

Lack of Evidence in:

(a) Valid concepts and constructs
(b) Valid assessment tools
(c) Valid theories
(d) Outcomes
This talk will focus on:

- Valid theory

Because...

Without A valid theory there is **NO** psychotherapy outcome
Beck’s Cognitive Model of Depression

**Important Constructs:**

1. Life Events
2. Cognitive Triads
3. Automatic Thoughts
4. Schemas
The Cognitive Model of Depression

Salkovski et al. (1982)

**Study 1**

**Aim**

Evaluate the tenability of the *integrated cognitive model* using structural equation modeling procedures. Two alternative models were tested in order to compare them to the integrated model; *alternative etiologies model* and *symptom model*.

**Participants**

355 undergraduate students (104 men and 251 women) enrolled in introductory psychology courses at the University of Queensland. Mean age of the participants was 27.1 years (*SD* = 7.5).

**Stats**

SEM
Integrated Cognitive Model

1. Negative life events
2. Interaction
3. Dysfunctional attitudes
4. Automatic thoughts
5. Depressive symptoms

Alternative Aetiologies Model

1. Negative life events
2. Dysfunctional attitudes
3. Automatic thoughts
4. Depressive symptoms

Kwon & Oei (1992/94)
Symptom Model

Negative life events → Depressive symptoms → Automatic thoughts → Dysfunctional attitudes

Kwon & Oei (1992/94)
Main Measures

*Migrant Stress Inventory (MSI; unpublished):*
- Includes 20 different types of stresses that migrants encounter through adaptation process in an unfamiliar culture. e.g. language problems, lack of friends, discrimination, finance
- Cronbach’s $\alpha = 0.80$

*Dysfunctional Attitudes Scale (DAS) (Korean Version; Kwon, 1993b):*
- Designed to measure the presence of dysfunctional attitudes that relate to cognitive vulnerability to depression. e.g. ‘If someone disagrees with me, it probably indicates that he does not like me’
- Cronbach’s $\alpha = 0.79$
**Automatic Thoughts Questionnaire** (ATQ; Hollon and Kendall, 1980) (Korean Version; Kwon and Yoon, 1994)

**Beck Depression Inventory** (BDI; Beck et al., 1961) (Korean Version; Lee and Song, 1991):

- Designed to measure the severity of various depressive symptoms.
- Good concurrent validity in both student and clinical populations.
- Cronbach’s $\alpha = 0.89$
Anxious Self-Statements Questionnaire (ASSQ; Kendall and Hollon, 1989) (Korean Version; Kwon, 1993a):

♣ Assesses anxious self-statements (higher scores represent higher general anxiety).

♣ Found to discriminate significantly between highly anxious and nonanxious subjects.

♣ Cronbach’s $\alpha = 0.91$

Beck Anxiety Inventory (BAI; Beck et al., 1988) (Korean Version; Kwon, 1993a):

♣ Used to assess anxiety symptoms

♣ Shown to discriminate between anxious and nonanxious diagnostic groups.

♣ Cronbach’s $\alpha = 0.82$
Results

In general, the structural equation analyses confirmed not only the integrated model but also the symptom model.

Fig. 1. The initial and modified integrated models tested with cross-sectional data and their results of structural equation analyses. (Solid lines represent causal paths hypothesized by each model. Dashed lines show that interaction terms are correlated with, but cannot be caused by, their constituent variables.) *p < .05. **p < .01.

Fig. 2. Two competing models tested with cross-sectional data and their results of structural equation analyses. *p < .05. **p < .01.
Study 2

Reexamined the two models with two-wave panel data of 200 undergraduates (88 men and 112 women; mean age = 21.3, SD = 6.9) who completed the four scales (LES, DAS, ATQ and BDI) twice, with 3 months between testing sessions.

The structural equation analyses on these data also confirmed both of the two models.

---

Fig. 3. The modified integrated model and the symptom model tested with two-wave panel data and their results of structural equation analyses. *p < .05. **p < .01.
Beck’s Cognitive Model in different cultures

**Aim**

(1) Test the cross-cultural validity of the Integrated Cognitive Model of Depression proposed by Kwon & Oei (1994). Specifically, re-test the integrated and symptom models using a student population from an Eastern culture.

(2) Establish the cross-cultural generalizability of the Kwon & Oei (1992) modified integrated model.

**Participants**

151 Singaporean undergraduate students

355 Australian undergraduate students (Kwon & Oei, 1992)

Structural equation analyses were performed on the Singaporean data to test for the best fitting and most parsimonious models. These models were then compared with Australian data.
**Results**

- Results supported the proposed theoretical constructs of DA and AT in the integrated model.

- However, the symptom model did not adequately fit the Singaporean student data, proving the contrary of the Kwon & Oei (1992) findings (Australian student data).

- The best fitting integrated model for the Singaporean data was an exact replica of the Kwon & Oei modified integrated model.

---

**Figure 1. The Modified Integrated Model**

Underlined scores represent EQS path coefficients of Australian data. Scores in bold represent EQS path coefficients of Singaporean data.

* = p<.05; ** = p<.01.
NEGATIVE LIFE EVENTS

.51**

DEPRESSIVE SYMPTOM

.70**

AUTOMATIC THOUGHTS

.17*

DYSFUNCTIONAL ATTITUDES

* = p<.05; ** = p<.01.

**Figure 2. The Modified Symptom Model using Australian data (Kwon & Oei, 1992).**

NEGATIVE LIFE EVENTS

.563*

DEPRESSIVE SYMPTOM

.71*

AUTOMATIC THOUGHTS

.30*

DYSFUNCTIONAL ATTITUDES

* = p<.05

**Figure 3. The Modified Symptom Model using Singaporean data.**

**Aim**

The objective of the present study is to test the validity of the integrated cognitive model (ICM) of depression with a Latin-American sample. Alternative or competing models of depression were examined, including the alternative aetiologies model, the linear mediational model and the symptom model.

**Participants**

101 Latin-American migrants living permanently in Brisbane, including people from Chile, El Salvador, Nicaragua, Argentina and Guatemala.
Six models were tested and the results of the structural equation modelling analysis indicated that the symptom model only fits the Latin-American data. This finding adds to growing evidence in the literature that the relationship between cognitions and depression is bidirectional, rather than unidirectional from cognitions to symptoms.
Table 2. Results of the AMOS analyses of the different models of depression

<table>
<thead>
<tr>
<th>Model</th>
<th>$\chi^2$</th>
<th>df</th>
<th>p</th>
<th>CFI</th>
<th>SRMR</th>
<th>ECVI</th>
<th>90% CI for ECVI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrated model</td>
<td>11.94</td>
<td>1</td>
<td>&lt;.001</td>
<td>0.90</td>
<td>0.08</td>
<td>0.22</td>
<td>(0.14, 0.37)</td>
</tr>
<tr>
<td>Modified integrated model</td>
<td>21.63</td>
<td>2</td>
<td>&lt;.001</td>
<td>0.82</td>
<td>0.15</td>
<td>0.38</td>
<td>(0.26, 0.56)</td>
</tr>
<tr>
<td>Alternative aetiologies model A</td>
<td>50.94</td>
<td>3</td>
<td>&lt;.001</td>
<td>0.82</td>
<td>0.25</td>
<td>0.85</td>
<td>(0.45, 0.92)</td>
</tr>
<tr>
<td>Alternative aetiologies model B</td>
<td>24.13</td>
<td>3</td>
<td>&lt;.001</td>
<td>0.83</td>
<td>0.13</td>
<td>0.38</td>
<td>(0.26, 0.56)</td>
</tr>
<tr>
<td>Symptom model</td>
<td>7.29</td>
<td>3</td>
<td>.06</td>
<td>0.97</td>
<td>0.05</td>
<td>0.21</td>
<td>(0.17, 0.33)</td>
</tr>
<tr>
<td>Linear mediational model</td>
<td>37.75</td>
<td>3</td>
<td>&lt;.001</td>
<td>0.72</td>
<td>0.19</td>
<td>0.52</td>
<td>(0.35, 0.75)</td>
</tr>
</tbody>
</table>

$n = 101$. CFI, comparative fit index; CI, confidence interval; df, degrees of freedom; ECVI, expected cross-validation index; SRMR, standardized root mean residual.

**Aim**

To empirically test the specificity of the integrated cognitive model (ICM) of depression. Also, sought to examine three competing models: the linear mediation model, the alternative etiologies model, and the symptom model.

**Participants**

Two-wave panel data were obtained from a group of 107 Korean migrants (63 male and 44 female; mean age = 27.3, SD = 9.5) who had been in Australia less than 1 year. 95 were married and 32 were single. Furthermore, 11 were employed, 38 full-time students and 58 unemployed.
Results

Structural equation modeling revealed that the ICM provided an adequate and much better fit than the three competing models. The ICM was also found to support the cognitive specificity theory of depression and anxiety.

Figure 5. The ICM of depression for migrants’ data. Note. The coefficients at each arrowhead denote the proportion of variance to be explained and its statistical significance.
Figure 6. Three competing models tested with migrants’ data. Note. The coefficients at each arrowhead denote the proportion of variance to be explained and its statistical significance.
### TABLE 3. Fit indices of the ICM of depression and its competing models

<table>
<thead>
<tr>
<th>Model</th>
<th>$\chi^2$/df</th>
<th>GFI</th>
<th>AGF</th>
<th>NFI</th>
<th>CFI</th>
<th>TLI</th>
<th>RMSEA</th>
<th>AIC</th>
<th>BCC</th>
<th>CAIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrated cognitive model</td>
<td>.12</td>
<td>.99</td>
<td>.99</td>
<td>.99</td>
<td>1.00</td>
<td>1.02</td>
<td>.00</td>
<td>10.46</td>
<td>10.51</td>
<td>28.48</td>
</tr>
<tr>
<td>Alternative etiologies model</td>
<td>1.38</td>
<td>.96</td>
<td>.93</td>
<td>.96</td>
<td>.98</td>
<td>.97</td>
<td>.06</td>
<td>18.16</td>
<td>18.86</td>
<td>43.87</td>
</tr>
<tr>
<td>Linear mediational model</td>
<td>6.79</td>
<td>.91</td>
<td>.71</td>
<td>.80</td>
<td>.82</td>
<td>.64</td>
<td>.23</td>
<td>34.38</td>
<td>35.07</td>
<td>60.09</td>
</tr>
<tr>
<td>Symptom model</td>
<td>7.78</td>
<td>.91</td>
<td>.72</td>
<td>.77</td>
<td>.79</td>
<td>.58</td>
<td>.25</td>
<td>37.36</td>
<td>38.06</td>
<td>63.07</td>
</tr>
</tbody>
</table>
The ICM provided the best fit to the data with an Asian sample, as compared to three other competing models.
Beck’s Model developed in the West is partially supported and can be applied to Asian populations WITH SOME modification.
What does this mean?

- Good news first:
  - Maybe culture is not such an important barrier
  - CBT thus can be used in Asian populations
Bad news:

- Not a good fit because:
  - Constructs are not applicable
  - Measurement instruments not valid
  - Culture, religion and other issues
  - Theory is not appropriate/adequate
Where to go from here?
Future theory: CBT


The central role of psychological processes
Future theory/research: CBT

The 3 Ingredients of Emotion
Oei 2007

EVENTS

 cognition

biology

behaviour

EMOTION RESPONSE
e.g. depression

Oei (2002)
Thank you