Application of Explanatory Sequential Design in Reconciling Qualitative and Quantitative Findings of Social Problem Solving in Substance Abuse Population

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Service Enhancement Presentation 5
- Healthcare Advances, Research and Innovations

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Room 421, Level 4, HKCEC
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- Bing SO
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- Thomas CHAN
- Simon WONG
Substance Abuse (SA)

SA has been a problem with every society and across every generation

......... causes a huge impact to our healthcare system

......... complexity of psychosocial nature

......... the utility of both qualitative and quantitative research methods have been becoming increasingly accepted

......... this is a pioneer project that employed mixed methods research for SA population.
Social Problem Solving

.......... is the process of problem solving as it occurs in the real world (D’Zurilla, Nezu & Maydeu-Olivares, 2002).

.......... influences one’s adaptive functioning in their real-life social environment (D’Zurilla, Nezu & Maydeu-Olivares, 1996).
Social Problem Solving

Affects a person’s functioning ...... including

...... impersonal problems (e.g. insufficient finances planning) as by D’Zurilla & Chang in 1995),

...... personal problems (emotional, behavioral, cognitive or health problems) by Bronner & Rich (1988),

...... interpersonal problems (e.g. relationships conflicts and family disputes) by Haugh (2006)

...... broader community and societal problems (e.g. crime) by D’Zurilla and Chang (1995).
The impact of various social stressors like stress from peers, from family and from work or study will be explored.
Two Phases

First ...... to collect quantitative data through questionnaire in problem recognition, treatment readiness, social values and their orientation in social problem solving.

Second ...... individual semi-structure interview, and qualitative focus group activities of free-listing and pile-sorting to collect qualitative data on the impact of various social stressors like stress from peers, family, and work or study.

Final ...... we interpreted findings from these two subsets of quantitative and qualitative data.
The **Chinese version of Treatment Needs and Motivation Assessment** (Institute of Behavioral Research, Texas Christian University, 2008) was used to examine their ability in problem recognition, their desire for help, treatment readiness and their specific treatment needs.

The **Drug Involvement Scale – DIS** (Lam, Ng & Boey, 2002) was used to assess their problematic beliefs and values.

The **Chinese Social Problem Solving Inventory** (Siu & Shek, 2005a; 2005b) was adopted to assess for their orientations and styles in social problem solving.
### Comparison of Problematic Values, Knowledge of SA and Attitude of SA between Years of Experience (with Age as the Covariate)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Less than 3</th>
<th>3 years or more</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drug Involvement Scale (to assess problematic beliefs and values)</td>
<td>52.12</td>
<td>14.32</td>
</tr>
<tr>
<td>Knowledge</td>
<td>15.23</td>
<td>2.21</td>
</tr>
<tr>
<td>Attitude</td>
<td>8.78</td>
<td>1.21</td>
</tr>
</tbody>
</table>

- All subjects showed their understanding on the adversity of substance abuse ($t = 4.5, p < .01$). Duration of SA yielded no significant difference in their knowledge on adversity of SA.

- All subjects showed the correct attitudes towards quitting SA. Nevertheless, this could be out of social desirability as suggested by Yuen (2001) and Narcotic Division (2002).

Note: * $p < .05$, ** $p < .01$, *** $p < .001$. 

## Correlation between Social Problem Solving and Treatment Needs (n = 40)

<table>
<thead>
<tr>
<th>Treatment Needs &amp; Motivation</th>
<th>Social Problem Solving Inventory (Pearson r)</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Positive Problem Orientation (PPO)</td>
<td>Negative Problem Orientation (NPO)</td>
<td>Rational Problem Solving (RPS)</td>
<td>Avoidance (AS)</td>
<td>Impulsivity or Carelessness (ICS)</td>
<td></td>
</tr>
<tr>
<td>Problem Recognition</td>
<td>.55 *</td>
<td>-.26**</td>
<td>.51 *</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment Needs</td>
<td>.42 *</td>
<td>-.28*</td>
<td>.26**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pressure for Treatment</td>
<td>.32</td>
<td>.32</td>
<td>.31</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Desire for Help</td>
<td>.67 *</td>
<td>-.52 *</td>
<td>.63*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment Readiness</td>
<td>.78 *</td>
<td>-.44 *</td>
<td>.71*</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Alike the findings from Simpson & Joe (1993), motivation for treatment like problem recognition, desire for help and treatment readiness, is closely tied to positive problem orientation ($r = .68, p < .01$).

**Note:** * $p < .05$, ** $p < .01$. 
## Correlation between Social Problem Solving and Relapse Risk (n = 40)

<table>
<thead>
<tr>
<th>Relapse Risk</th>
<th>Social Problem Solving Inventory (Pearson r)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Positive Problem Orientation (PPO)</td>
</tr>
<tr>
<td>Intention to Use Drugs</td>
<td>-.35</td>
</tr>
<tr>
<td>Emotional Problem</td>
<td>.22</td>
</tr>
<tr>
<td>Compulsivity for Drugs</td>
<td>.32</td>
</tr>
<tr>
<td>Positive Expectancies for Drugs</td>
<td>.32</td>
</tr>
<tr>
<td>Impetus and Confidence to Avoid Drugs</td>
<td>.78 *</td>
</tr>
<tr>
<td>Lack of Control over Drugs</td>
<td>-.46</td>
</tr>
</tbody>
</table>

*Note.* *p* < .05, **p** < .01.
### Results of First Phase

#### Prediction of Impetus to Avoid Drugs (N = 40)

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>B</th>
<th>SE</th>
<th>β</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Problem Solving Inventory</td>
<td>6.32</td>
<td>.26</td>
<td>.21</td>
<td>2.1 *</td>
</tr>
<tr>
<td>Treatment Needs and Motivation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment Readiness</td>
<td>3.44</td>
<td>1.31</td>
<td>.11</td>
<td>1.23*</td>
</tr>
<tr>
<td>Problem Recognition</td>
<td>2.54</td>
<td>.79</td>
<td>.10</td>
<td>1.58 *</td>
</tr>
<tr>
<td>Relapse Risk</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional Problem</td>
<td>1.45</td>
<td>.72</td>
<td>.10</td>
<td>.87*</td>
</tr>
</tbody>
</table>

Social problem solving in handling social stress is important
Second Phase – By Interview and Activities (n=20)

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Sample</th>
<th>Goal</th>
<th>Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semi-structured Interviews</td>
<td>Purposive sample of 20 adolescents</td>
<td>Identify an explanatory model for substance abuse</td>
<td>Grounded theory</td>
</tr>
<tr>
<td>Free Listing and Pile Sorts</td>
<td>Free listing as first stage, and pile sorts as the second stage.</td>
<td>Identify the domain of social influence and its characteristics</td>
<td>Cultural consensus</td>
</tr>
</tbody>
</table>
Free-listing

...... to “list all the source social situation that might cause you to substance abuse.”

...... to “list all the social problem solving strategies that you tried to use.”

...... techniques on nonspecific prompting, reading back the list of free-listed items (allows subjects to review list and add items they thought had mentioned)

...... raw data would be converted into proximity matrices and to perform data analysis.
Pile-sorting

Introduced source of social situation cards one-by-one and to verify that subjects knows each of them.

Lay all the cards out in front of subject and ask them to make groups of either stress from peers, family or work / study.

Ask subject to explain/talk about each group.

A data profile matrix was produced with a table of cases and their associated variables.

Proximity matrices contain measurements of relations or proximities between items.
Results of Second Phase (N=20)

_Proximity Matrix of Social Situation That Might Cause Substance Abuse (n =20)_

<table>
<thead>
<tr>
<th></th>
<th>Stress from Peers</th>
<th>Stress from Family</th>
<th>Stress from Work /Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stress from Peers</td>
<td>10</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Stress from Family</td>
<td>4</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Stress from Work /Study</td>
<td>6</td>
<td>10</td>
<td>4</td>
</tr>
</tbody>
</table>
### Results of Second Phase (N=20)

*Orientation of Social Problem Solving in Social Situation That Might Cause to Substance Abuse (n =20)*

<table>
<thead>
<tr>
<th>Orientation</th>
<th>Stress from Peers</th>
<th>Stress from Family</th>
<th>Stress from Work /Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive Orientation</td>
<td>8</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Negative Orientation</td>
<td>12</td>
<td>14</td>
<td>17</td>
</tr>
</tbody>
</table>

*Styles of Social Problem Solving in Social Situation That Might Cause to Substance Abuse (n =20)*

<table>
<thead>
<tr>
<th>Styles</th>
<th>Stress from Peers</th>
<th>Stress from Family</th>
<th>Stress from Work /Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rational</td>
<td>8</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Avoidant</td>
<td>6</td>
<td>7</td>
<td>10</td>
</tr>
<tr>
<td>Impulsive / Careless</td>
<td>6</td>
<td>7</td>
<td>7</td>
</tr>
</tbody>
</table>
Discussion

Positive problem orientation and rational problem solving showed significant correlation with subjects’ confidence to avoid drugs. These findings shared similar opinion as in Russell (2007) that positive expectation and hope for future was one of the pre-requisites in further avoiding substance abuses.

To enhance rational social problem-solving skills (Stevens, Schwebel & Ruiz, 2007) and to re-direct their negative problem orientation and impulsiveness (Kelly, Myers & Brown, 2000).

Introducing rational thinking and coping skills, was effective in helping persons at risk of developing mental health problems in Hong Kong (Wong, Sun, Tse & Wong, 2002).
Discussion

Most of the subjects also showed negative orientation in their social problem solving.

Through activities in this qualitative study, they rated most negative in social problem solving in work / study stress, while the least negative in stress from peers. This can be partially reflected from their strong influence in peer influence.

Should consider to widen their social circle with other normal community subjects through partnerships with NGOs.

With consideration of this specificity on their individualized characteristics, different strategies should be tailored for different styles of social problem solving in preventing further substance reinstatement.
With clear instructions, techniques of free-listing and pile sorting can address intracultural variation (Levin, Glass, Kushi, Schuck, Steele & Jonas, 1997), which cannot be easily achieved through quantitative methods.

These techniques are quantifiable and can find areas of consensus as to reflect the findings of social problem solving as in the phase one of quantitative study.
Publication

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Reference


