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

Frank LAI

Occupational Therapy Department

Tai Po Hospital

Members .....

Occupational Therapy Department, Tai Po Hospital

Eric HO

Tay TSE

Frank CHIU

Phyllis TSE

Silvia FAN

Alice LEE

Jess TSUI

Bing SO

Jonathan CHEUNG

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
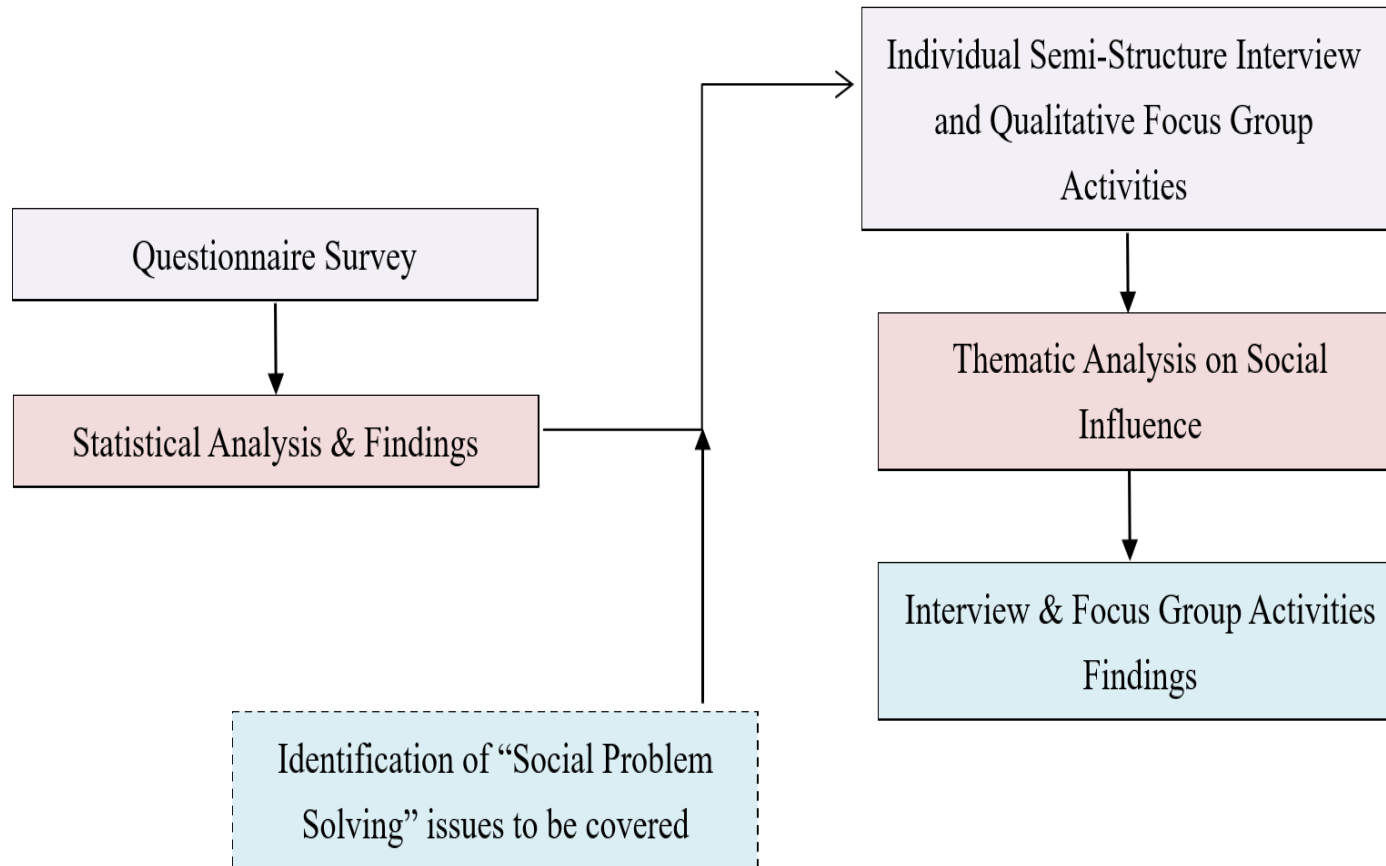
Affects a person's functioning …… including

……. 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).

Mixed Methods Research – Explanatory Sequential Design

```
                                              ┌─────────────────────────────┐
                                              │  Individual Semi-Structure   │
                                              │  Interview and Qualitative   │
                                              │     Focus Group Activities   │
                                              └─────────────────────────────┘
┌─────────────────────────┐                                  │
│  Questionnaire Survey    │                                  ▼
└─────────────────────────┘                   ┌─────────────────────────────┐
            │                                  │  Thematic Analysis on        │
            ▼                                  │      Social Influence        │
┌─────────────────────────┐                   └─────────────────────────────┘
│ Statistical Analysis &   │                                  │
│      Findings            │                                  ▼
└─────────────────────────┘                   ┌─────────────────────────────┐
                                              │  Interview & Focus Group     │
                                              │  Activities Findings         │
      ┌─────────────────────────┐            └─────────────────────────────┘
      │ Identification of "Social │
      │ Problem Solving" issues   │
      │    to be covered          │
      └─────────────────────────┘
```

Integration through design

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.

First Phase – By Questionnaire Set (n=40)

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)

Var...		Less than 3		3 years or		

- 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.

Drug Involvement Scale (to assess problematic beliefs and values)		52.12	14.32	65.32	7.01	5.49 **
Knowledge		15.23	2.21	14.33	2.12	.82
Attitude		8.78	1.21	8.67	1.79	.74

- 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)

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

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)

Relapse Risk	Social Problem Solving Inventory (Pearson r)				
	Positive Problem Orientation (PPO)	Negative Problem Orientation (NPO)	Rational Problem Solving (RPS)	Avoidance (AS)	Impulsivity or Carelessness (ICS)
Intention to Use Drugs	-.35	.66 *	-.41	-.26	-.31 *
Emotional Problem	.22	.78 **	-.26*	.27	- .27
Compulsivity for Drugs	.32	.55 *	.31	-.25 **	-.25
Positive Expectancies for Drugs	.32	.52	.33	.32	-.31 *
Impetus and Confidence to Avoid Drugs	.78 *	-.44 **	.71**	.29	- .29 **
Lack of Control over Drugs	-.46	.68 **	-.34 *	.36 *	.36 *

Note.* p< .05, ** p< .01.

Prediction of Impetus to Avoid Drugs (N = 40)

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

Social problem solving in handling social stress is important

Second Phase – By Interview and Activities (n=20)

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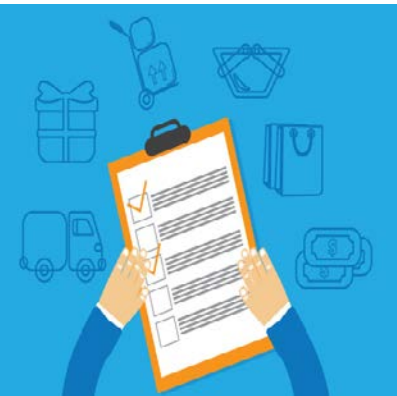
Free-listing

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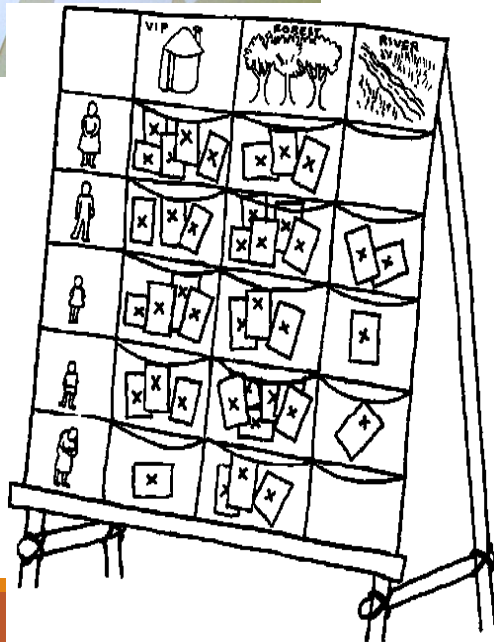
Introduced source of social situation cards one-by-one and to verify that subjects knows each of them.

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)

	Stress from Peers	Stress from Family	Stress from Work /Study
Stress from Peers	10	4	6
Stress from Family	4	6	10
Stress from Work /Study	6	10	4

Results of Second Phase (N=20)

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

	Stress from Peers	Stress from Family	Stress from Work /Study
Orientation			
Positive Orientation	8	6	3
Negative Orientation	12	14	17

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

	Stress from Peers	Stress from Family	Stress from Work /Study
Styles			
Rational	8	6	3
Avoidant	6	7	10
Impulsive / Careless	6	7	7

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.

Discussion

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

This manuscript was accepted by the International Journal of Current Innovation Research [(ISSN: 2395-5775) SJIF 2017 = 4.326]

Reference

Allison, R.E. (1997). The concept of harmony in Chuang Tza. In S.H. Liu & R.E. Allison (Eds.), *Harmony and strife: Contemporary perspectives, east and west* (pp. 169-186). Hong Kong: The Chinese University Press.

Austin, A.M., & Macgowan, M.J., & Wagner, E.F., (2005). Effective family-based interventions for adolescents with substance use problems: *A systematic review Research on Social Work Practice*, *15*(2), 67-83.

Bronner , R.L. & Rich, A.R. (1988). Negative life stress, social problem-solving, self-appraisal, and hopelessness: Implications for suicide research. *Cognitive Therapy and Research*, *12,* 549-556.

Castro, F. G., Kellison, J. G., Boyd, S. J., & Kopak, A. (2010). A methodology for conducting integrative mixed methods research and data analysis. *Journal of Mixed Methods Research*, *4*(4), 342-360.

Census and Statistics Department Hong Kong Special Administrative Region (2016). *Population and Household Statistics Analysed by District Council District*.
https://www.statistics.gov.hk/pub/B11303012015AN15B0100.pdf

Creswell, J. W., & Zhang, W. (2009). The application of mixed methods designs to trauma research. *Journal of Traumatic Stress*, (Nov), 1-10.

Curry, L. A., Nembhard, I. M., & Bradley, E. H. (2009). Qualitative and mixed methods provide unique contributions to outcomes research. *Circulation*, *119*, 1442-1452.

D'Zurilla, T. J., Nezu,A.M., & Maydeu-Olivares, A. (2002). *Manual for the Social Problem –Solving Inventory-Revised (SPSI-R)*. Tonawanda, NU: Multi-Health Systems

D'Zurilla, T.J. & Chang, E.C. (1995). The relations between social problem solving and coping. *Cognitive Therapy and Research*, *19*, 547-562.

D'Zurilla, T.J., Nezu, A.M., & Maydeu-Olivares, A.(1996). *Manual for the Social Problem Solving Inventory – Revised (SPSI-R).* New York: MultiHealth System, Inc.

Friedman, R. (2006). The changing face of teenage drug abuse: The trend toward prescription drugs. *The New England Journal of Medicine*, *14*(6), 23-26.

Haugh, J.A. (2006). Specificity and social problem-solving: Relation to depressive and anxious symptomatology. *Journal of Social and Clinical Psychology*, *25*, 392-403.

Humphreys, K. (2004). Circles of recovery: Self-help organizations for addictions. New York, NY: Cambridge University Press.

Institute of Behavioral Research, Texas Christian University. (2008). TCU MOTForm scales and item scoring guide. http://www.ibr.tcu.edu/pubs/datacoll/Forms/adc-MOTsg.pdf

Isaacson, J.H., Fleming, M., Kraus, M., Kahn, R., & Mundt, M. (2008). A national survey of training in substance use disorders in residency programs. *Journal of Studies on Alcohol and Drugs*, *61*(6), 912-915.

Reference

Jacobson, N.S., & Margolin, G.(1979). *Marital therapy: Strategies based on social learning and behavior exchange principles*. New York: Brunner / Mazel.

Kelly, J. F., Myers, M. G., & Brown, S. A. (2000). A multivariate process model of adolescent 12-step attendance and substance use outcome following inpatient treatment. *Psychology of Addictive Behaviors*, *14*(4), 376-389.

Lam, C.W., Ng, H.Y., & Boey, K.W. (2002). Measuring drug abuse: The development of the Chinese Drug Involvement Scale in Hong Kong. *Research on Social Work Practice*, *12*(4), 525-533.

Levin J. S., Glass, T. A., Kushi, L. H., Schuck, J. R., Steele, L., & Jonas, W. B. (1997). Quantitative methods in research on complementary and alternative medicine. *Medical Care*, *35*, 1079-1094.

Nezu, A. M. (1986a). Negative life stress and anxiety: Problem solving as moderator variable. *Psychological Reports*, *58*, 279-283.

Nezu, A. M. (1986b). Social problem solving as a moderating variable between negative life stress and depressive symptoms. *Cognitive Therapy and Research*, *10*, 489-498.

Nezu, A.M., Nezu, C.M. & D'Zurilla, T.J.(2013). *Problem-solving Therapy: a treatment manual*. Springer Publishing Company. New York.

Russell, K. C., (2007). Adolescent substance-use treatment: Service delivery, research on effectiveness, and emerging treatment alternatives. *Journal of Groups in Addiction & Recovery*, *2*(2-4), 68-96.

Shek, D.T.L. & Chan,L.K. (1998). Perceptions of a happy family amongst Chinese adolescents and their parents. *Journal of Youth Studies, 1,* 178-189.

Simpson, D.D. (2004). Conceptual Framework for Drug Process and Outcomes. *Journal of Substance Abuse Treatment, 27,* 99-121.

Simpson, D. D., & Joe, G. W. (1993). Motivation as a predictor of early dropout from drug abuse treatment. *Psychotherapy, 30,* 357 – 368.

Siu, A.M.H. & Shek, D.T.L. (2005a). Relations between social problem solving and indicators of interpersonal and family well-being among Chinese adolescents in Hong Kong. *Social Indicator Research, 71,* 517-539.

Siu, A.M.H. & Shek, D.T.L. (2005b). The Chinese version of the Social Problem-Solving Inventory: Some initial results on reliability and validity. *Journal of Clinical Psychology, 61,* 347-360.

Stevens, S. J., Schwebel, R., Ruiz, B. (2007). The seven challenges: An effective treatment for adolescents with co-occurring substance abuse and mental health problems. *Journal of Social Work Practice in the Addictions, 7*(3), 29-49.

Tai Po District Council Environment, Housing and Works Committee (2017). *Progress Report of Replacement and Rehabilitation of Water Mains in Tai Po District*. Tai Po District Council Discussion Paper No. EHW 19/2017.

Tevyaw T. O., & Monti, P. M., (2004). Motivational enhancement and other brief interventions for adolescent substance abuse: foundations, applications and evaluations. *Society for the Study of Addiction, 99* (suppl. 2), 63-75.

Wong, D.F.K, Sun. S.Y.K., Tse, J., & Wong, F. (2002). Evaluating the outcome of a cognitive-behavioral group intervention model for persons at risk of developing mental health problems in Hong Kong: A pretest-postest study. *Research on Social Work Practice, 12*(4), 534-545

Yu, T.S., Wong, T.W., Liu, J.L.U., Lee, N.L. & Lloyd, O.L. (1997). Health Care Needs in the Tai Po District of Hong Kong: initial indicators from a population-based study. *Hong Kong Medical Journal*, 3,34-42.

Yuen, E.C.P. (2001). The common drugs of abuse in Hong Kong. *Hong Kong Journal of Emergency Medicine, 8,* 90-95.