The efficacy of solution-focused brief therapy for distress among parents of pediatric congenital heart diseases in China

A pilot randomized controlled trial

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Congenital heart disease (CHD) is among the **world’s most common congenital defects** (Dolk, Loane, & Garne, 2011), and its prevalence has **increased by 11%** in children from **2000 to 2010 world wide** (Marelli et al., 2014).

1% of all children at birth in America

0.7% among live births in China, which translates to **150,000 new cases annually**
Pediatric patients with CHD are among the most vulnerable patient populations and, other than the healthcare team, they almost exclusively depend on their parents during treatment and recovery.
Psychological distress is defined as “the unique discomforting, emotional state [like depression or anxiety] experienced by an individual in response to a specific stressor or demand ... to the person” (Ridner, 2004, p. 539).
High level of parental psychological distress

Patient-doctor communication

Capacity of parental care

Parent-child relationship
Psychological distress of parents of pediatric CHD patients is an even greater issue among Chinese patients for several reasons:

1. Most Chinese parents are unwilling to receive psychological interventions outside of the hospital while taking care of their children during hospitalization.

2. Even for those parents who are willing to seek external psychosocial care, options are limited as China’s mental health service system is still in the preliminary stage of development.
In contrast to the limited empirical evidence of interventions for parental distress in China, Western literature (of both empirical studies and systematic and/or meta-analytic reviews) indicated that psychosocial interventions can be beneficial in hospital settings for psychological distress (e.g., Donker et al., 2009; Pai et al., 2006).

Past literature unanimously points out that it is vital to address common challenges when delivering psychosocial intervention in hospital settings.

- Efficient and quick to establish therapeutic relationship (Scott et al., 2008)
- The necessity to be brief (Davis et al., 2013)
- Collaborative and patient-center approach (Arean et al., 2002)
Solution-Focused Brief Therapy

SFBT is a **strength based, client centered** approach originated from brief family therapy and has received **sufficient empirical support for addressing psychological distress** (Gingerich et al., 2012; Franklin, 2015), with empirical evidence reporting **large effect size** ranging from $d = 0.94$ to $d = 1.26$ for mental disorders in Chinese hospitals (Kim et al., 2015; Gong & Xu, 2015)
More importantly, SFBT is a *brief intervention* (with only 3 to 5 sessions to show therapeutic change) and has features that are *compatible to hospital settings* (Burns, 2016)

*All these features of SFBT indicate its potential for treating parental distress in Chinese hospital settings*
A pilot randomized controlled trial in a tertiary Chinese hospital that examined the effectiveness of SFBT in reducing psychological distress among Chinese parents of children with CHD.
Study Setting:

Led by *Department of Medical Social Work* at Shanghai Children’s Medical Center (SCMC) affiliated with Shanghai Jiaotong University School of Medicine.

Investigation was conducted at SCMC’s *Department of Cardiovascular Surgery and the Department of Cardiology*. [150 beds and a capacity of close 4,000 patients annually]
METHOD

Eligibility of Participants:

Eligible participants were at least 21 years old and the primary parental caregiver of a pediatric patient with congenital heart disease who also met a gender-specific Brief Symptom Inventory – 18 (BSI-18) cut-off score (> 10 for male and > 13 for female) (Zabora et al., 2001).

Parents must be able to receive all four sessions of intervention (a minimum of a 10 day period after initial referral) and have the capacity to offer consent and assent.
Study Design:

This study used a pre-test-post-test design with random assignment. Random assignment was conducted using a computerized random number generator on the number of 100.
METHOD

Provider Training and Supervision

Six graduate level providers were trained by *two trainers with an average of 5 years of clinical experience*. A *16-hour intensive training* was offered to three providers in the treatment group and to the three providers in the control group separately.

*On-going supervision* was offered for all providers.

With clients’ permission, the SFBT trainer randomly observed sessions for *fidelity check*. 
**METHOD**

**Provider Training and Supervision**

For both treatment and control, this study used existing manual.

SFBT group followed the *SFBTA treatment manual 2nd version*

And

Control group followed *existing treatment protocol of SCMC*

*Fidelity check reported satisfactory result of 0.73, indicating good fidelity*
Data Collection Point:

*Baseline scores* were obtained after parents consented and the same scales were employed at *post-treatment two weeks after* the baseline.
Primary and Secondary Measurement

*Primary outcome: parental distress* was measured using the Chinese version of the Brief Symptom Inventory (BSI-18). BSI is the *most concise measure* (Derogatis, 2001) of *psychological distress* and has been recommended for *hospital settings*.

Psychometric studies of the Chinese version of the BSI-18 *supported using it with the Chinese population* (Wang et al., 2014).
Primary and Secondary Measurement

BSI-18 contains 3 dimensions with six items each measuring: (1) depressive symptoms (e.g., feeling blue), (2) anxiety symptoms (e.g., nervousness or shakiness inside), and (3) somatic symptoms (e.g., nausea).

The current study using BSI-18 had a satisfactory internal consistency of Cronbach’s alpha = .94
Primary and Secondary Measurement

*Secondary outcome: level of hope* was measured using the Chinese version of the Herth Hope Index (HHI). HHI is a 12-item Likert scale ranging from 1 = “strongly disagree” to 4 = “strongly agree”.

Previous studies reported *satisfactory psychometric properties* of HHI in *medical settings* (Haugan et al., 2013) and the *Chinese version* of HHI has been reported as being *reliable and valid* (Chan et al., 2012). This study reported Cronbach's alpha = .89.
Power Analysis:

Power analysis revealed a total sample size of 84 was required to achieve 80% power to detect a medium effect size ($f = 0.4$) using fixed-effect ANOVA for 2 groups with an alpha level of 0.05.

Because this is a pilot study, we followed Browne’s (1995) recommendation of a minimum of 30 participants – 53 in our study.
**Data Analysis:**

To increase the statistical power, Analysis of Covariance (*ANCOVA*) was used for intervention outcome, with *post-test score as the dependent variable, pre-test score as the covariate*, and *treatment condition as the fixed factor*.

Because ANCOVA only tests if the treatment condition is superior to the control but *not the magnitude* of treatment effect *nor the difference in the magnitude* between groups. Therefore, within- and between-group treatment effect size (hedges’ g) was calculated as recommended by Cooper and colleagues (2009).
Intent-to-treat Analysis:

This study used *intent-to-treat analysis* for ANCOVA and hedges’ g. *To handle missing data* for participants who did not complete post-treatment evaluation, this study used *single imputation of group means* recommended by Armijo-Olivo and colleagues (2009) when the proportion of missing data is low (22% in this study).
## RESULTS

Table 1. Comparison of Demographic and Baseline Evaluation between Completers and Drop-outs, and between Groups.

<table>
<thead>
<tr>
<th></th>
<th>Treatment Complete (n = 18)</th>
<th>Treatment Drop-out (n = 7)</th>
<th>Within Dif. p-value</th>
<th>Control Complete (n = 22)</th>
<th>Control Drop-out (n = 6)</th>
<th>Within Dif. p-value</th>
<th>Between Dif. p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (M/SD)</td>
<td>32.16 / 6.23</td>
<td>31.43 / 4.43</td>
<td>.778</td>
<td>29.96 / 6.22</td>
<td>25.5 / 3.51</td>
<td>.367</td>
<td>.116</td>
</tr>
<tr>
<td>Gender (female %)</td>
<td>61.1%</td>
<td>42.9%</td>
<td>.409</td>
<td>63.6%</td>
<td>66.7%</td>
<td>.891</td>
<td>.579</td>
</tr>
<tr>
<td>Parental Distress (M/SD)</td>
<td>43.00 / 13.10</td>
<td>41.43 / 10.21</td>
<td>.779</td>
<td>33.95 / 16.41</td>
<td>35.00 / 6.45</td>
<td>.881</td>
<td>.029</td>
</tr>
<tr>
<td>Somatization (M/SD)</td>
<td>10.39 / 5.84</td>
<td>8.29 / 2.98</td>
<td>.378</td>
<td>8.41 / 6.43</td>
<td>7.00 / 2.83</td>
<td>.609</td>
<td>.273</td>
</tr>
<tr>
<td>Depression (M/SD)</td>
<td>15.22 / 4.93</td>
<td>14.29 / 4.60</td>
<td>.669</td>
<td>11.32 / 6.19</td>
<td>11.67 / 5.24</td>
<td>.901</td>
<td>.020</td>
</tr>
<tr>
<td>Anxiety (M/SD)</td>
<td>17.39 / 4.17</td>
<td>18.86 / 5.84</td>
<td>.387</td>
<td>14.23 / 5.88</td>
<td>16.33 / 3.78</td>
<td>.416</td>
<td>.031</td>
</tr>
<tr>
<td>Herth Hope Index (M/SD)</td>
<td>32.44 / 4.71</td>
<td>27.71 / 7.52</td>
<td>.07</td>
<td>38.96 / 5.24</td>
<td>36.00 / 3.03</td>
<td>.215</td>
<td>.000</td>
</tr>
</tbody>
</table>
### RESULTS

**Table 2. Results of Treatment Effect Sizes and between Group Comparison (ANCOVA)**

<table>
<thead>
<tr>
<th></th>
<th>Within-group Effect Size</th>
<th>Between-group Effect Size</th>
<th>F test (df=1)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Parental Distress</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment</td>
<td>1.273 [0.740, 1.805]</td>
<td>1.277 [0.908, 1.646]</td>
<td>16.526 ***</td>
</tr>
<tr>
<td>Control</td>
<td>0.378 [-0.001, 0.762]</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Somatization</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment</td>
<td>0.591 [0.165, 1.017]</td>
<td>0.541 [0.245, 0.837]</td>
<td>2.623</td>
</tr>
<tr>
<td>Control</td>
<td>0.123 [-0.249, 0.495]</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Depression</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment</td>
<td>1.273 [0.741, 1.806]</td>
<td>1.268 [0.895, 1.640]</td>
<td>26.400 ***</td>
</tr>
<tr>
<td>Control</td>
<td>0.309 [-0.070, 0.689]</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Anxiety</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment</td>
<td>1.426 [0.864, 1.989]</td>
<td>1.434 [1.004, 1.864]</td>
<td>15.810 ***</td>
</tr>
<tr>
<td>Control</td>
<td>0.467 [0.077, 0.858]</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Hope Level</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment</td>
<td>0.821 [0.366, 1.277]</td>
<td>1.353 [0.918, 1.788]</td>
<td>4.989 *</td>
</tr>
<tr>
<td>Control</td>
<td>-0.566 [-0.966, -0.166]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* *p < .05, **p < .01, ***p < .001

β. All results reported were based on intent-to-treat analysis.
Implications of this study include but are not limited to:

Solution-focused brief therapy demonstrated *treatment effects* for *parental distress and hope* in *hospital settings* within *four sessions*.

Study findings are *consistent with* both *Western and Chinese literature* on SFBT for *internalizing disorders* and in *hospital settings*.

Interestingly, the *Chinese literature* has consistently reported *greater treatment effect* of SFBT than the *Western literature*. 
Considering the international literature integratively, SFBT has been supported as a culturally competent psychosocial intervention approach for clients’ internalizing disorders.

It has also showed great potential for various healthcare settings, and we encourage researchers to further investigate this topic with a larger and more representative sample.
Limitation and future improvement:

1. Larger sample size;
2. More representative sample;
3. Post-treatment follow up;
4. Cross cultural comparison study;
THANK YOU