A comparative study on resilience level between WHO health promoting schools and other schools among a Chinese population

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SUMMARY

The WHO health promoting school (HPS) approach covers key areas including school-based programmes improving students’ psychological health, but there have been few studies evaluating the resilience performance of these schools. This study compared the resilience scores between schools within the healthy school award (HSA) scheme (HPS group) and those not (non-HPS group). We conducted a cross-sectional survey of grade-one students (aged 12), all teachers and parents of mainstream secondary schools recruited by stratified random sampling in one large Territory of Hong Kong using validated resilience questionnaires during November–December 2005. Four non-HPS and four HPS secondary schools were recruited, respectively, involving 1408 students, 891 parents and 91 teachers, with similar baseline characteristics. The HPS students were found to have better scores than non-HPS students (average age 12.4 year-old in both groups) in all dimensions with significantly higher scores in ‘Peer Support’ \( p = 0.013 \), ‘Making a Difference’ \( p = 0.011 \), ‘About Me’ \( p = 0.027 \) and ‘Generally Happy’ \( p = 0.011 \). There was no difference in the scores between non-HPS and HPS parents. The HPS teachers reported significantly higher scores in ‘Health Policies’ \( p = 0.023 \), ‘Social Environment’ \( p = 0.049 \), ‘School Community Relations’ \( p = 0.048 \), ‘Personal Skills Building’ \( p = 0.008 \) and ‘Partnership & Health Services’ \( p = 0.047 \). The secondary HPS students and teachers reported significantly higher resilience scores than those of non-HPS. This study shows that the HSA scheme under WHO has the potential to exert positive changes in students and teachers and the concept of HPS is effective in building resilience among major school stakeholders.

Key words: WHO health promoting schools; resilience; adolescents

INTRODUCTION

The health promoting school (HPS) approach has been initiated based on the concepts of the Ottawa Charter of Health Promotion (WHO, 1986) and the latest Bangkok Charter for Health (Smith, 1992) to promote the well-being of school children and adolescents. The HPS concept was first identified by the World Health Organization (WHO) in early 1980s as an effective approach to promote healthy development for students (Nutbeam, 1987; The Bangkok Charter for Health Promotion, 2005). The first territory-wide healthy school award (HSA) scheme was successfully launched in 2001 among a Chinese population modeled on the
WHO Western Pacific Regional Office HPS framework (Lee, 2002). It covers six key areas that were designed to assist schools in addressing particular health issues strategically (WHO, 1996; Lee, 2004; Lee et al., 2004), and each key area consists of a number of components and respective sets of indicators based on extensive literature and documentary reviews which are relevant, adaptable and achievable with a contextualization specific to Asia Pacific countries (Centre for Disease Control and Prevention, 2002; Pattenden, 1998; Piette et al., 2000; St Leger, 2000).

To facilitate schools in adopting the HPS framework in Hong Kong, the Centre for Health Education and Health Promotion, Chinese University of Hong Kong provided training for school teachers and staffs in the form of workshops and seminars on the concepts and implementation of the scheme. In addition, all schools joining the scheme underwent a thorough baseline assessment on the six key areas with a detailed report provided to schools to identify priorities and to set directions in school health planning and implementation. Besides, a practical guide to HPS was designed and offered to the participant schools with precise and concise blueprint on how to achieve the indicators, followed by continual guidance, support, provision of data management and processing tool, and network building advice for education and professional development of teachers participated in the scheme (Lee et al., 2004).

Two key areas related to psychological health are ‘Community Relationship’ (CR) and ‘Social Environment’ (SE). CR refers to the relationships among schools, parents, governmental departments, regional health services institutions and other community organizations. An HPS approach should encourage family and community involvement in school and build proactive linkage with other schools and communities (WHO, 1996). SE refers to a supportive school social environment which addresses the needs of students, teachers, and other staffs to help them establish a healthy self-image; create an environment that is characterized by mutual care, trust and fraternity; provide appropriate assistance to students with special needs; and create an environment of mutual respect and mutual support to allow school members to establish the values of acceptance and tolerance (Lee et al., 2004). These theoretically help a school to foster a superior environment conducive to better psychological health.

Recent evidence shows that psychological problems have its roots in ‘resilience’ (Luthar, 2006; Luthar and Zelazo, 2003; Masten, 2001; Commonwealth, 2000). Resilience has been defined as the capacity of individuals, schools, families and communities to cope successfully with everyday challenges including life transitions, times of cumulative stress and significant adversity or risk (Rutter, 1993). Resilient children have various strengths which, when coupled with environmental strength (physical and psychological), can be described as protective factors (Stewart et al., 2004). They are recognized by their high self-esteem, internal locus of control, optimism and clear aspiration, achievement and goal orientation, reflectiveness and problem solving capacity, respect for the autonomy of themselves and others, healthy communication patterns and the capacity to seek out mentoring adult relationships (Rutter, 1987; Fuller, 1998). It has also been shown that environments providing low emotional support, lack of availability of attachments and low perceived adequacy of support from parents/caregivers, teachers and other adults and peers are strongly linked to mental illness such as depression (Rutter, 1987; Gore and Eckenrode, 1994; Masten, 1994; Marmot and Wilkinson, 2000). In this context, students in schools adopting an HPS approach should be more resilient given the similarity between the key areas of CR/SE components and the components required of a resilient child. The implementation of HPS should exert its greatest influence on the self-perceived resilience on students, which will then be followed by positive perceptions from teachers and parents.

Students in schools providing a place of enjoyment and peace were reported to have enhanced health and educational outcomes (St Leger, 1999; Forman and O’Malley, 1985; Zins and Ponti, 1985; Centre for Health Education and Health Promotion, 2002). However, resilience is not a formal area assessed in the HPS framework, and critics may argue that the present CR and SE areas have only partial coverage on skills in promoting resilience building among major school stakeholders. Little study has been conducted to examine whether the HPS approach allows a more favorable resilience outcomes among students, parents and teachers in schools. The
present study compared the difference in resilience performance between schools participated in the HSA scheme (thereafter named ‘HPS’) and those that did not (thereafter named ‘non-HPS’). We tested the hypothesis that schools adopting an HPS approach had superior resilience outcomes than non-HPS schools.

**METHODS**

The New Territory West (NTW) region of Hong Kong suffers from the greatest proportion of emotional problems (Lee et al., 2004) and all mainstream schools in this region were eligible participants. This region consists of 210 secondary schools, and was selected since schools in socio-economically underprivileged areas were anticipated to benefit more from the HPS approach. A stratified random sampling was adopted and invitation letters in lots of 10s were sent to all eligible schools, aiming at around four primary and four secondary schools in each of the HPS and non-HPS categories. A cross-sectional survey was administered to the students, teachers and parents of the participant schools in the study period November 2005 to December 2005. Students of secondary grade one (corresponding to age of around 12 year old) were sampled, while all teachers of the participant schools and parents of the participant students were invited into the study.

Each participating student was administered a set of resiliency measures that include the resilience scale modified from the California Health Kids Survey (California Department of Education, 2003). It assesses student’s feeling about social support from adults and peers at home, school and community. There were a total of 55 questions and the result was reported in five dimensions, namely ‘Feeling of connectedness’, ‘Peer support’, ‘Make a difference’, ‘About me’ and ‘Generally happy’.

The parents’ survey using the parents/caregivers support scale comprised items on parents’ perception of school environment, family functioning and social support for family. It consists of 69 questions and results were reported in 13 dimensions (including three sub-dimensions).

The teachers’ survey assessed the performance of schools in its policies, partnership and work connection related to resilience, as well as its social environment and community relationship. It consists of 72 questions and results were reported in 10 dimensions.

All the surveys have been pilot tested and validated for use in Chinese populations, with measures of validity and reliability indicating that these instruments have the sensitivity to examine the complexity of the concept of resilience and the intricacy of working within the multi-faceted world of the school environment (Sun and Stewart, 2007a). The scores are nominal ranging from 1 to 5 (1 = ‘worst’ and 5 = ‘best’). Permission was granted from the Queensland University of Technology for survey administration. Ethical approval was obtained from the Chinese University of Hong Kong and participants were assured of confidentiality, anonymity and the sole purpose of the survey for research. The results, in mean scores, were compared between HPS and non-HPS schools in each dimension of students’, parents’ and teachers’ survey using two-tailed, independent sample t-test, with an assumption of normal distribution. SPSS version 11.5 was used for data entry and analysis, and all p-values <0.05 were regarded as statistically significant.

**RESULTS**

The participant schools included four primary non-HPS and four secondary HPS schools. These involved 1529 students, 891 parents and 91 teachers from the eight schools recruited in the NTW region of Hong Kong. Out of the four HPS secondary schools, three were award winners of the HSA scheme and one belonged to mentorship schools. This mentorship school had already adopted an HPS approach on its own and in addition was committed to advising other schools of the same region in the approach and strategies in building HPS initiatives.

In both groups on average, the students and parents were similar in age (around 12 year old and 42 year old, respectively). Teachers’ work experiences and gender proportions of students, parents and teachers were also comparable in both groups. One hundred and eleven students did not complete their surveys and were excluded. The distribution was shown in Table 1.

**Students’ surveys**

All HPS students reported higher scores than non-HPS students in the five dimensions of
student surveys (Table 2), with a magnitude of difference ranging from 0.08 to 0.11. Four dimensions showed statistical significance, namely ‘Peer support’ \( (p = 0.013) \), ‘Make a difference’ \( (p = 0.011) \), ‘About me’ \( (p = 0.027) \) and ‘Generally happy’ \( (p = 0.011) \).

Parents’ surveys
The HPS parents scored higher than non-HPS parents in the dimensions of ‘Parental involvement’ and ‘Curriculum’, whereas the non-HPS parents had higher scores in other dimensions (Table 3). There exists no statistical significance between HPS and non-HPS parents in each dimension.

Teachers’ survey
HPS teachers had higher scores in all dimensions than non-HPS except ‘Tolerance and diversity’ (Table 4). The magnitude of score differences ranged from 0.08 to 0.30. The dimensions which showed statistical significance include ‘Health policies’ \( (p = 0.023) \), ‘School morale’ \( (p = 0.009) \) and ‘School goals and objectives’ \( (p = 0.022) \).
DISCUSSION

The present study has shown that the HPS approach is effective in strengthening the majority of resilience dimensions as reported by students and teachers in relatively socially disadvantaged schools. It is part of a series of studies conducted among the Asia-Pacific region revealing solid evidence of the positive outcomes in resilience measures among schools implementing an HPS approach.

The WHO HPS approach has been regarded as a most promising framework to address school health (St Leger, 1999). The key concepts of the framework embodies a holistic, whole school approach to personal and community health promotion in which a broad health education curriculum is supported by the deliberate development of the social environment and ethos of the school (Parsons et al., 1996). The two areas of social environment and community relationship in HPS have extensive coverage on helping schools to empower students with these resilience attributes. These include creating an environment of friendliness, care and trust; establishing an environment of values and mutual respect; and promoting the development of students’ skills in leadership, communication, inter-personal relationship which includes self-esteem. Therefore it is likely that the implementation of the HPS framework could set a strong foundation for schools to enhance students’ psychological health and skills to combat adversities and cope with everyday challenges.

On the other hand, the HPS framework has not completely dedicated to resilience building as its specific objective, and the teachers’ survey revealed that the HPS schools had less encouraging results in areas not given a relatively heavy weighting in the HPS approach, namely skills to allow strengthening the feeling of trust and safety; proactivity in social context, tolerance and diversity and work connection. These areas are indeed covered by HPS framework but it requires staff expertise, extra time for activity planning and implementation and probably external resources, apart from school commitment.

Parents from HPS have not perceived an overall superior resilience performance of their Schools, and indeed for some of the dimensions the scores were lower, although insignificantly, than parents from non-HPS. This may either indicate that parents have not been completely involved in initiatives related to capacity building in resilience, or there exists difficulties for parents to perceive the positive effect of resilience in schools as reported by students and teachers since it requires personal involvement of parents in school activities to experience the beneficial effects of HPS in nurturing and building up a resilient environment.

Our result is compatible with a recent study examining the relationship between the implementation of HPS and the social capital by a prospective intervention design. It compared schools using HPS approach to promote resilience and non-HPS schools as controls. A significant relationship between HPS indicators and social capitals was found, implying social capital embedded in the HPS structure is effective in

Table 4: Resilience scores of teachers (means ± 95% CI)

<table>
<thead>
<tr>
<th></th>
<th>Non-HPS</th>
<th>HPS</th>
<th>Change in means</th>
<th>2-tailed t-value</th>
<th>df</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health policies</td>
<td>3.66 (3.56, 3.76)</td>
<td>3.92 (3.75, 4.09)</td>
<td>+0.26</td>
<td>2.31</td>
<td>120</td>
<td>0.023</td>
</tr>
<tr>
<td>Physical environment</td>
<td>3.40 (3.29, 3.51)</td>
<td>3.63 (3.38, 3.88)</td>
<td>+0.23</td>
<td>1.72</td>
<td>122</td>
<td>0.087</td>
</tr>
<tr>
<td>Social environment</td>
<td>3.39 (3.30, 3.48)</td>
<td>3.58 (3.42, 3.74)</td>
<td>+0.19</td>
<td>1.99</td>
<td>120</td>
<td>0.049</td>
</tr>
<tr>
<td>School-community relations</td>
<td>3.21 (3.11, 3.31)</td>
<td>3.45 (3.20, 3.70)</td>
<td>+0.24</td>
<td>2.00</td>
<td>121</td>
<td>0.048</td>
</tr>
<tr>
<td>Personal skills building</td>
<td>3.08 (2.98, 3.18)</td>
<td>3.38 (3.20, 3.56)</td>
<td>+0.30</td>
<td>2.70</td>
<td>119</td>
<td>0.008</td>
</tr>
<tr>
<td>Partnership and health services</td>
<td>2.98 (2.88, 3.08)</td>
<td>3.22 (2.99, 3.45)</td>
<td>+0.24</td>
<td>2.01</td>
<td>119</td>
<td>0.047</td>
</tr>
<tr>
<td>Feeling of trust and safety</td>
<td>3.49 (3.37, 3.61)</td>
<td>3.58 (3.31, 3.85)</td>
<td>+0.09</td>
<td>0.59</td>
<td>121</td>
<td>0.55</td>
</tr>
<tr>
<td>Proactivity in social context</td>
<td>3.37 (3.28, 3.46)</td>
<td>3.45 (3.25, 3.65)</td>
<td>+0.08</td>
<td>0.77</td>
<td>120</td>
<td>0.44</td>
</tr>
<tr>
<td>Tolerance and diversity</td>
<td>3.24 (3.10, 3.38)</td>
<td>3.15 (2.91, 3.39)</td>
<td>-0.09</td>
<td>0.60</td>
<td>121</td>
<td>0.55</td>
</tr>
<tr>
<td>Work connection</td>
<td>3.26 (3.13, 3.39)</td>
<td>3.49 (3.29, 3.69)</td>
<td>+0.23</td>
<td>1.68</td>
<td>116</td>
<td>0.095</td>
</tr>
</tbody>
</table>

HPS, health promoting schools.
capacity building (Sun and Stewart, 2007b). The present study therefore further supports the HPS approach in its strengths to promote protective factors essential for resilience building by a collaborative school-community relation and positive school climates.

This study is subject to a few limitations. We adopted a cross-sectional approach where differences between HPS and non-HPS schools in resilience scales may be attributed to other influencing factors, and it demonstrates association rather than causal relationship. However it is likely that the difference between the two groups were due to HPS approach since stratified random sampling was used and the baseline characteristics of school children were reported to be similar. Also some schools in the HPS category may have just adopted the HPS approach for a short period and adequate time is needed to build a holistic, school-based social environment and community relationship. On the other hand, since three schools out of four in the HPS category have been granted an HSA under the HPS scheme, they might be considered as schools having superior performance than average HPS.

It is important to recognize the importance of family members to build up resilience among schoolchildren at an early stage, especially in adolescence. At present parents could be more heavily involved in the existing networks, like Parents–Teachers Associations (PTA) in many secondary schools to discuss school policies and future activities and matters related to home-school collaborative initiatives, and issues of enhancing student resilience could be further strengthened and brought up as an important school objective and agenda.

Future challenges and perspectives

Further resilience intervention programs could be implemented on top of the existing six key areas of the WHO framework (WHO, 1996) using a collaborative approach with relevant professional and academic bodies. These further building blocks may include interactive workshops and seminars for parents and teachers to introduce the concept and implementation of resilience building among major school stakeholders, as well as actual curriculum and school activity planning with school teachers and management personnel before the commencement of the academic calendar.

It is suggested that we could build on the success of HPS and establish, implement and evaluate more resilience-enhancing activities tailor-made to the unique local environment among schools in the HSA scheme, making the HPS initiatives more successful in capacity building in other key areas. Support from health and educational authorities are needed to accomplish these objectives, in addition to encouraging more non-HPS schools to adopt the HPS approach. Further studies could be targeted on evaluating the feasibility and effectiveness of these resilience-related interventional programs among HPS at local and community levels.

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