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THE PRINCIPAL PROGRAMME SECRETARY AT CHINESE YMCA OF HONG KONG

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Background

Prevalence of children' s anxiety in Hong Kong

Anxiety disorders are the most common type of mental health condition among children in Hong Kong, with a prevalence rate of 7% (Food and Health Bureau, 2017). However, the actual number of primary school students experiencing anxiety symptoms is likely underestimated. Recent surveys have revealed alarming figures, with 52% of respondents aged 6 to 24 reporting anxiety symptoms, and up to 27.6% of primary school students exhibiting anxiety (Hong Kong Playground Association, 2023; Gratia Christian College, 2022; City University of Hong Kong, 2019).

Health inequality

The current state of child and adolescent psychiatric services in Hong Kong is highly concerning. The excessive wait times for public hospital treatment, averaging 64 weeks (HK01, 2021), and the prohibitively high costs of private care, ranging from HKD 790 to HKD 3,000 per visit (MindHK, 2022), present significant barriers to accessing essential mental health



support. This health inequality disproportionately affects disadvantaged children and families, who often lack the resources to seek private care or navigate the overburdened public system. The stark contrast between the high demand for these critical services and the limited accessibility highlights the urgent need for the Hong Kong government to prioritize and invest in expanding affordable, high-quality mental health care for its young population.

Social determinants of health

Research has shown that social determinants of health, such as economic stability, education, healthcare access, neighborhood environment, and social and community context, play a crucial role in shaping mental health outcomes, including anxiety (Perez et al., 2022). Factors like family dysfunction, adverse childhood experiences (ACEs), and racism have been statistically associated with all three types of mental health outcomes (Yang et al., 2022). Additionally, evidence suggests that social inequality, particularly in terms of socioeconomic status, can contribute to different mental health outcomes in children with social anxiety (Karlsen et al., 2014). Girlhood is a distinct period of adolescence, as girls face the effects of more ACEs, self-objectification, internalization of academic stress, and predisposition to low socioeconomic status, leading to a lack of resilience to stress (Maggie, 2023). This highlights the need for targeted interventions to address the unique challenges faced by girls in maintaining good mental health.

Alternative to children' s mental wellbeing

Social prescribing for youngsters with mental health concerns



Social prescribing is a holistic approach that connects individuals with non-medical, community-based support to improve their health and wellbeing (Muhl et al., 2023). While social prescribing is intended for all ages, its uptake among children and young people (CYP) has been low, despite promising evidence of its effectiveness (Bradbury et al., 2024).

The COVID-19 pandemic has significantly impacted the physical, mental, and social wellbeing of many CYP, leading to a significant rise in referrals to health and social care services (Jarvis & Mitchell, 2024). If mental health needs are not supported in a timely manner, difficulties can escalate and become more difficult to resolve. Social prescribing can play a crucial role in supporting CYP's mental wellbeing.

Social Prescribing Link Workers (SPLWs)/Social Prescribers are key in supporting CYP by connecting them to community-based opportunities and working in a multi-disciplinary way to ensure their needs are met (Jarvis & Mitchell, 2024). Social prescribing for CYP is holistic, accessible, and easy to understand, offering a person-centered approach where their voices are heard and their needs can be supported in a non-medicalized way (Jarvis & Mitchell, 2024). This can empower CYP, build their confidence, and reduce feelings of isolation, ultimately leading to better engagement with existing services.

Green/Nature-based social prescribing and mental wellness

Green social prescribing (GSP) is a new evidence-based field in medicine defined as the prescriptive, evidence-based use of natural settings and nature-based interventions (Puma, 2019). Its mission is to prevent and improve signs, symptoms, clinical conditions, and well-being, and its vision is to be readily available to every family (Puma, 2019). GSP is



particularly beneficial for CYP with mental health issues, such as anxiety. Spending time in green spaces has been shown to reduce anxiety, depression, and negative behavior in children aged 7 to 12 years old (Madzia et al., 2019). Nature-based health interventions have also demonstrated significant improvements in mental wellbeing, anxiety, stress, and emotional wellbeing (Maund et al., 2019). Exposure to nature can improve anxiety, and research suggests that a nature duration of 20 to 30 minutes, three times per week, is most effective in reducing physiological stress (Sugiyama et al., 2008; Hunter et al., 2019). A wide variety of people with medical conditions, including anxiety, attention-deficit/hyperactivity disorder (ADHD), insomnia, hypertension, and myopia, would benefit from going to natural environment (Puma, 2019).

However, there are barriers and facilitators to implementing social prescribing in child and youth mental health that need to be addressed. Effective supervision, appropriate resources to engage with CYP, and measures to evaluate social prescribing outcomes are some of the key factors that can help embed social prescribing for CYP (Hayes et al., 2023).

In conclusion, social prescribing, particularly nature-based social prescribing, has the potential to significantly improve the mental health and wellbeing of CYP. By addressing the barriers and facilitators, and incorporating the important elements for CYP social prescribing, this approach can provide a holistic, personalized, and effective way to support the mental health needs of children and young people.

The First Green Social Prescribing in Hong Kong

Introduction



“JC InnoPower: Nature4Mind” , funded by the Hong Kong Jockey Club Charities Trust, aims to address the prevalence of anxiety symptoms among primary school students in Hong Kong. By adopting the Social Prescribing model from the United Kingdom, the pilot project seeks to create a healthy community and connect underprivileged children with anxiety-related issues to medical and non-clinical community resources, especially to empower them to work on anxiety in an affordable natural environment, ultimately improving their overall well-being.

The project targets children aged 10-12 who experience mild to moderate anxiety preliminarily assessed with General Anxiety Disorder – 7 tools, along with their families. Finally, a total of 22 children and their 41 parents and family members are eligible to take part in this pilot project.

Significant components

Phase 1 - Health Checks and referrals

The Social Prescribing approach involves a comprehensive process. Family physician of Chinese YMCA of Hong Kong (YMCA) Kei Yau Integrated Medical Centre, conducts health assessments to see if the participating children are suitable for non-medical and community-based services and resources to improve their health, and thus refers the children to Social Prescribing Link Workers (SPLWs)/Social Prescribers from YMCA Integrated Children and Youth Services Centre (ICYSC) for follow-up.

Phase 2 - Personalized health care plans

These SPLWs are trained to assess the needs of the children and their families, co-creating personalized health care plans. They also provide referrals to suitable community resources and services. The training for SPLWs is with reference to the NHS e-learning resources (NHS, 2024) and



tailor-made considering the Hong Kong local context. Some of the training is briefly described as follows :

1. Personalized Care and Support Planning. Capable to work collaboratively with the child and family to identify their unique needs, strengths, and goals, and develop a tailored plan to address their mental wellness
2. Community Engagement. Be adept at connecting the child and family to relevant community-based resources, such as support groups, recreational activities, and mental health services, that align with their preferences and needs.
3. Holistic Approach. Emphasize the importance of addressing the child's mental, physical, and social wellbeing holistically, as these aspects are interconnected and can impact overall wellness.
4. Collaboration and Coordination. Able to coordinate with the child's healthcare providers, educators, and other stakeholders to ensure a cohesive and integrated approach to supporting the child's mental wellness.
5. Monitoring and Evaluation. Regularly monitor the progress of the personalized plan, evaluate its effectiveness, and make adjustments as needed to best support the child and family with the project team.

Phase 3 - Green Social Prescribing

A significant aspect of the project is the implementation of "Green Social Prescribing". Collaborating with the Recreation and Sport Officers at YMCA campsites and Social Workers at YMCA ICYSC, this approach incorporates PERMA (Positive Emotions, Engagement, Relationships, Meaning, and Accomplishment) model, a well-established framework in



positive psychology developed by Seligman (2011), and the emphasizes on nature connection (Five senses, Beauty, Emotions, Meaning and Compassion) and family-based activities involving nature to promote mental well-being. Through engaging in nature-based experiences, such as natural art, watersports, and forest bathing, children and families learn to coexist with anxiety while enhancing their overall mental well-being.

Activities	PERMA	Nature connection	Brief content
Make Natural Art 「感」想「感」作	Positive emotion	Emotions and Beauty	Participants engage in creative activities using natural materials, which allows them to explore their emotions and appreciate the beauty of nature.
Watersports 「自」來水	Engagement (24 Characteristics)	Emotions and Meaning	Participants engage in water-based activities, which can help them develop a sense of emotional awareness and meaning in their connection with nature.
Food Art 食藝再對「焦」	Engagement (Flow)	Five senses and Beauty	Participants create and enjoy healthy, natural foods, promoting mindfulness, sensory exploration, and appreciation for the natural world
Wild Camping 「營」能讚美	Relationships	Emotions and Meaning	Participants camp in nature, fostering positive relationships, mindfulness, and a sense of compassion towards the natural world.
Green Walks 綠癒「行」跡	Engagement (Flow)	Compassion and Meaning	Participants go on guided nature walks, which can promote positive relationships, mindfulness, and a deeper appreciation for the natural



			environment.
Scavenger Hunt 「相」人「成」行	Accomplish- ment	Five senses and Beauty	Participants embark on a nature-based scavenger hunt, allowing them to use their senses to explore and appreciate the natural environment
Fishing and Foraging 「魚」何「思」好	Positive emotion	Five senses and Compassion	Participants engage in activities that connect them to the natural world through their senses and a sense of compassion.
Adventure- Based Tree Climbing 樹立未來	Meaning	Emotions and Meaning	Participants explore and learn about themselves through outdoor experiences, gaining a stronger sense of meaning and purpose.

Outcomes

In response to the rising prevalence of anxiety among children in Hong Kong and the significant health inequities, this project also explores the pilot implementation of a green social prescribing intervention aimed at improving the mental wellness of children with anxiety. By leveraging the social determinants of health and incorporating nature-based activities, this innovative approach aims to provide a holistic and accessible solution to support the mental health of vulnerable children in the community.

Attendance

During the project period from Jun 2023 to Mar 2024, 22 children and their 41 parents and family members actively participated in health check-ups, 13 sessions of Green Social Prescribing activities, and averaged 5 personalized health care plan sessions per family to link them to community resources and services, like play therapy, volunteering, direct cash assistance, etc. 86% of the children (19 out of 22 children) achieve an



over 75% attendance rate. Their parents or family members also achieve an over 90% attendance rate, meaning that parents communicate with each other and at least one of them joins in and accompanies their children.

Design, Data Collection and Analysis

To assess the effectiveness of the pilot project, the use of pre- and post-test assessments with standardized tools is essential. The Generalized Anxiety Disorder-7 (GAD-7) scale can be employed to measure changes in the severity of anxiety symptoms, the PERMA-Profiler can be used to evaluate the child's overall wellbeing across the domains of positive emotions, engagement, relationships, meaning, and accomplishment, and the Connection to Nature Index (CNI) can provide insights into the child's level of connection and affinity with the natural environment (Capaldi et al., 2015; Seligman, 2011).

The results on pre- and post-test indicate significant positive changes in anxiety severity, flourishing, negative emotions, loneliness, and connectedness to nature among the participating children.

Indicators	Outcomes
Anxiety severity	<ul style="list-style-type: none"> ● 81% of them reduced anxiety severity, with an average decrease of 3 points to average 7.4 on the GAD-7 scale. ● Pre GAD-7=10.476, Post GAD-7=7.429, there is a statistically significant difference between the two (=0.004).
Flourishing	<ul style="list-style-type: none"> ● 81% of them increased in PERMA mean scores from average 5.97 to 6.4, reflecting improved well-being and functioning. ● Pre Positive Emotion=5.81, Post Positive Emotion =6.87, there is a statistically significant difference between the two (=0.007). ● Positive emotions, including hope, interest, joy, love, compassion,



	pride, amusement, and gratitude, are integral to individual thriving and can be intentionally cultivated to enhance overall wellbeing (Fredrickson, 2001).
Negative Emotions	<ul style="list-style-type: none"> ● 66.7% of them decreased from average 5.9 to 5.1 score, indicating enhanced emotional well-being.
Loneliness	<ul style="list-style-type: none"> ● 57% of them decreased in loneliness scores from average 6.8 to 5.4, highlighting improved social connections. ● Pre Loneliness=6.81, Post Loneliness=5.38, there is a statistically significant difference between the two (=0.022).
Connection to Nature	<ul style="list-style-type: none"> ● 71.4% of them increased in connectedness to nature scores from average 2.4 to 2.8, emphasizing the positive impact of engaging with the natural environment.

The pilot green social prescribing program for children with anxiety demonstrated promising results, especially the anxiety level. Participants reported reduced anxiety, improved mood, and a greater sense of well-being. The incorporation of PERMA and nature connection elements appeared to be effective in addressing the mental health needs of the participants.

The pre-test assessments will establish a baseline, while the post-test evaluations will gauge the effectiveness of the interventions and inform future refinements to the program. The project team also learned valuable lessons from this pilot program. Adapting the activities to the specific needs and preferences of the participants was crucial for engagement and effectiveness. Additionally, the importance of building a strong support network and involving families in the process was highlighted.



Conclusion

Recognizing social determinants of health

Social prescribing can help children with anxiety by addressing the social determinants of health that contribute to their well-being. By connecting children to community resources, such as recreational activities, support groups, and nature-based experiences, social prescribing tackles factors like poverty, family functioning, personal experiences. This holistic approach recognizes that anxiety is influenced by various social factors, and by addressing these determinants, social prescribing promotes positive mental health outcomes for children, empowering them to manage their anxiety and improve their overall well-being.

Addressing local health inequalities

The project addresses health inequalities in Hong Kong. Low-income families face challenges in accessing adequate mental health resources due to long waiting times and financial constraints. Through our initiative, we bridge this gap by connecting underprivileged children and their families with vital community resources and support systems. By doing so, we aim to reduce disparities in accessing quality care and improve the overall mental health outcomes of these children.

Transferable Green Social Prescribing

The pilot green social prescribing program for children with anxiety in Hong Kong demonstrates the potential of this approach to improve mental wellness. By incorporating PERMA and nature connection elements, the program was able to address the unique needs of the participants and foster positive outcomes. As the field of green social prescribing continues to evolve, this pilot program offers valuable insights and a promising



model for future initiatives targeting the mental health of children and young people.

The project's success lies in its transferable elements – positive psychology is now an important education in primary school and the natural environment is around the community. By adopting the Social Prescribing model and integrating nature-based experiences, the initiative addresses the social determinants of health contributing to anxiety. This holistic approach can be implemented in different countries and health, care, and community systems, providing a framework for promoting mental health and well-being among children and young people.

"JC InnoPower: Nature4Mind" effectively addresses anxiety symptoms among primary school students in Hong Kong. By implementing the Social Prescribing model and incorporating nature-based experiences, our initiative improves well-being and reduces economic and healthcare burdens associated with anxiety. These are achievements in fostering community and social connections while tackling health inequalities.



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