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# EMPOWERING EMOTIONS: A MOBILE SOLUTION FOR CHINESE PARENTS OF CHILDREN WITH SPECIAL EDUCATIONAL NEEDS

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# IF YOU ARE THE MOTHER IN THE STORY ...

- How would you feel about this?
- Ah Yu is 35 years old this year. She has been married for eight years and has always longed to become pregnant, dreaming of a happy family life with her husband and child. Just over two years ago, Ah Yu finally gave birth to her daughter, Jing Jing. Now, as Jing Jing approaches her third birthday, Ah Yu is starting to prepare for kindergarten admission interviews.
- Lately, Ah Yu has noticed that Jing Jing seems quieter than other children her age and almost never makes eye contact with anyone. Even now, Jing Jing cannot express herself using simple sentences. Instead, she simply pulls her parents' hands to indicate what she wants. Ah Yu thought perhaps Jing Jing was just shy, or maybe the domestic helper didn't talk to her enough.
- It wasn't until a recent kindergarten interview that a teacher noticed Jing Jing was different from her peers and recommended that Ah Yu take her to see a doctor for an assessment. At first, Ah Yu thought the school was just making excuses not to admit Jing Jing. But when the doctor diagnosed Jing Jing with moderate autism and language developmental delay, Ah Yu was stunned. Her body stiffened, she became speechless, and then burst into tears, overwhelmed by the thought: "Why is it my daughter? Is it because I was older when I got pregnant that she has health problems? How could she survive in the future school years?"

# BACKGROUND

## Increase in the number or SEN students (2018-2024)

Integrated Education									
Number of Students with Special Educational Needs (SEN) in Public Sector Ordinary Primary and Secondary Schools from the 2018/19 to 2023/24 school years - categorised by School Level and SEN Type									
School Level	SEN Type	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24		
Primary	Intellectual Disability	760	810	930	990	1 090	1 170		
	Autism Spectrum Disorder	5 690	6 400	6 880	6 930	6 850	6 970		
	Attention Deficit / Hyperactivity Disorder	5 110	5 500	6 030	5 830	5 750	5 670		
	Mental Illness	60	70	130	130	160	170		
	Specific Learning Difficulties	10 370	11 200	11 220	11 590	12 190	12 920		
	Physical Disability	110	110	130	110	100	80		
	Visual Impairment	40	30	40	30	40	40		
	Hearing Impairment	360	390	380	370	350	360		
	Speech and Language Impairment	2 510	2 810	2 910	3 330	3 380	3 650		
	<b>Total</b>	<b>25 010</b>	<b>27 320</b>	<b>28 650</b>	<b>29 310</b>	<b>29 910</b>	<b>31 030</b>		
Secondary	Intellectual Disability	830	790	780	790	800	850		
	Autism Spectrum Disorder	3 840	4 410	4 990	5 460	5 840	6 310		
	Attention Deficit / Hyperactivity Disorder	6 780	7 660	8 550	9 000	9 290	9 650		
	Mental Illness	310	500	660	780	1 010	1 110		
	Specific Learning Difficulties	11 430	11 480	12 010	12 450	12 950	14 040		
	Physical Disability	150	140	140	150	150	130		
	Visual Impairment	60	60	60	60	50	50		
	Hearing Impairment	310	310	270	270	260	290		
	Speech and Language Impairment	360	510	530	620	700	760		
	<b>Total</b>	<b>24 070</b>	<b>25 860</b>	<b>27 990</b>	<b>29 580</b>	<b>31 050</b>	<b>33 190</b>		

Sources : Special Education Division, Education Bureau

# BACKGROUND

- Disruptive behaviours (Hastings, 2002; Neely-Barnes et al., 2011).
- Emotional outburst (Hastings, 2002; Neely-Barnes et al., 2011).
- Challenge in study and school routines (Wang et al., 2024)
- Difficulties in obtaining rehabilitation services (Caicedo, 2014).
- Interpersonal difficulties
- Chinese parents' concern for “face” (referring to having honour and respect in Chinese context) and social identity can easily induce internalisation of feelings of shame once parents feel they have been stigmatised by society (Mak & Chen, 2006; Mak & Kwok, 2010).

# MENTAL HEALTH NEEDS OF PARENTS

- A recent systematic review of 19 studies from 11 countries reported 31% of parents of children with SEN experienced elevated depressive and anxiety symptoms (Scherer et al., 2019).
- One previous study found a 14.9% point prevalence of depression in Chinese parents of children with Autism Spectrum Disorder (ASD) in Hong Kong (Yu et al., 2016).
- In one of our current study on parental stress :
  - 32.2% of parents reported moderate levels of depression
  - 15.5% reported moderately severe to severe levels of depression
- This percentage of parents with depressive symptoms is higher than that found in some overseas studies, as well as studies conducted in Taiwan (23%) (Chou et al., 2021) and mainland China (18.8%) (Chen et al., 2024).
- The alarming figures highlight the significant mental health needs of parents of children with SEN in Hong Kong.



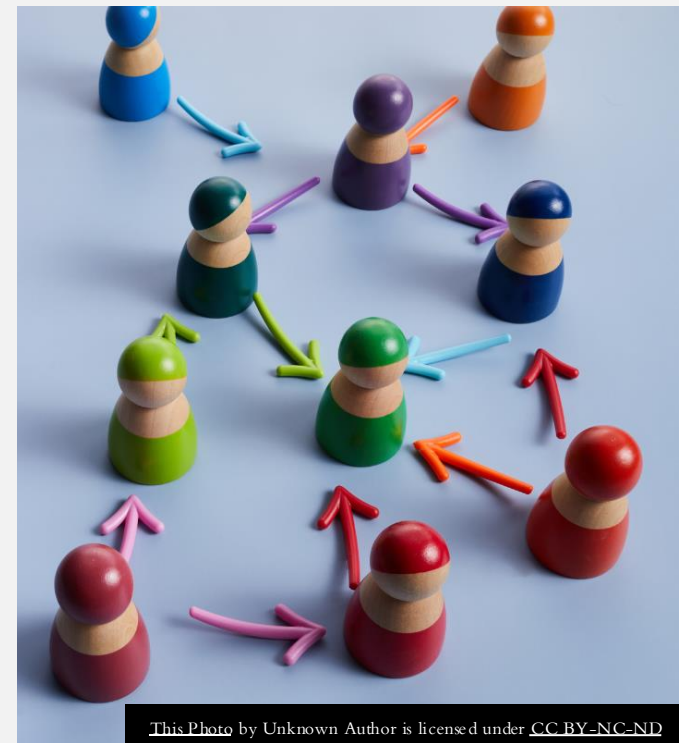
# MENTAL HEALTH NEEDS OF PARENTS

- Mental health issues can lead to negative parenting behaviours and strained relationships with children, resulting in a vicious cycle with potentially severe consequences for children during adulthood (Deaulth, 2010).
- **Low help-seeking for mental health problems and barriers among parents of children with SEN**
- Help-seeking for these problems by parents is extremely low due to the culture of self-reliance, lack of treatment resources, public stigma and self-stigma, time constraints, and overreliance on informal support networks (Mak & Kwok, 2010).



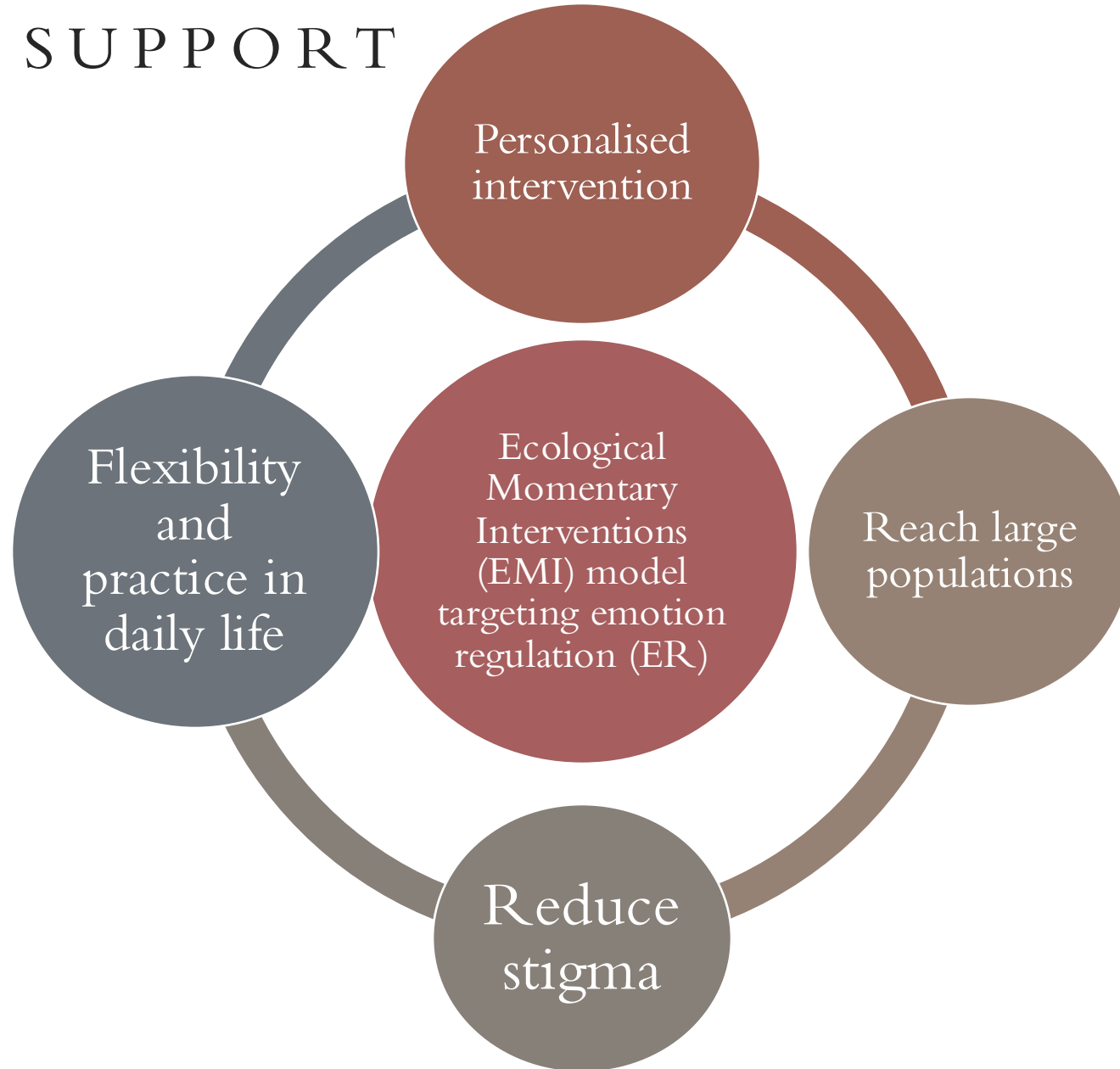
# RESEARCH GAP

- Current treatment model to support parents of children with SEN (Sohmaran & Shorey, 2019):
  - Behavioural management training
  - Parenting skills training
  - Psychoeducation
  - Mindfulness and ACT
- Existing studies include the following limitations:
  - (1) inconsistent findings on improving parental stress, anxiety and depression, and most studies achieved small to medium effect sizes only;
  - (2) most studies were based on a single treatment approach (cognitive-behavioural therapy, mindfulness, psychoeducation);
  - (3) there is a lack of emphasis in emotion regulation given its strong transdiagnostic role to psychopathology;
  - (4) given the potential benefits of telehealth intervention for parents/caregivers, there is very few evidence-based EMI model in Hong Kong.



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# OUR SOLUTIONS-MOMENTARY ER SUPPORT



- Furthermore, the recent development of EMI with wearable sensors can enhance the detection of daily crises and serve as momentary therapeutic recommendations or instructions when critical problems arise (Keonard et al., 2018).

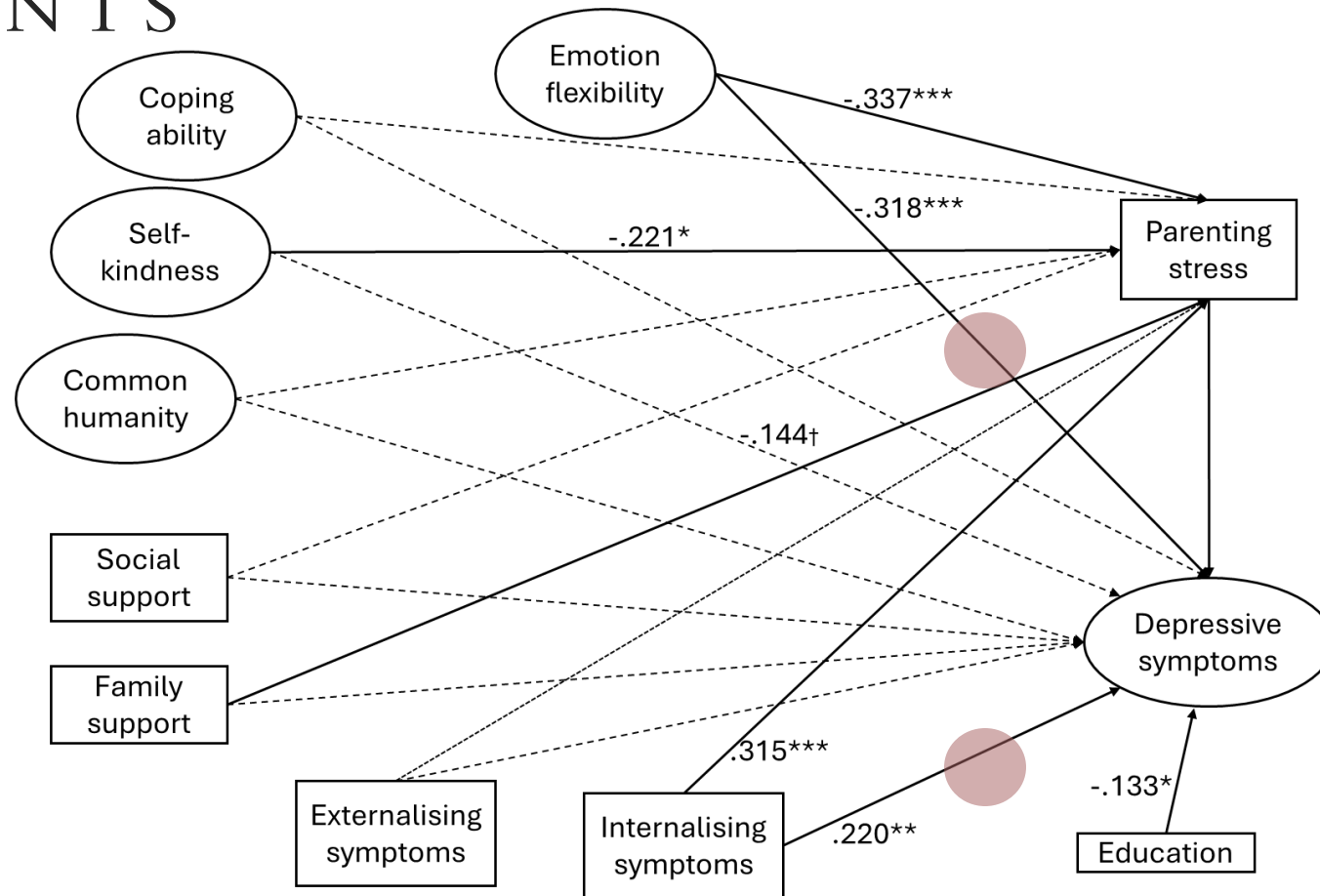




# OUR SOLUTIONS-MOMENTARY ER SUPPORT

- *Emotion regulation (ER) is a transdiagnostic mechanism for parental mental health*
- ER – the processes by which an individual monitors, evaluates, and changes emotional responses – may be a key target for psychological treatments.
- Meta-analytic studies showed **medium to large** effect sizes of ER and psychopathology (Aldao et al., 2010; Cavicchioli et al., 2023), **moderate** effect sizes of ER and parenting behaviours, and children's emotion regulation, internalising and externalising symptoms (Zimmer-Gembeck et al., 2022).
- Sloan et al. (2017) reviewed over 60 treatment studies for depression, anxiety, substance use, and eating disorders and found that ER was an underlying process that may contribute to changes in symptoms of multiple forms of psychopathology following treatment.

# ER AND DEPRESSION AMONG CHINESE PARENTS



**Figure 1**

*Structural equation modelling of the proposed model*

*Notes. For the simplicity of the figure, only significant paths are marked with estimated coefficients. Dashed lines are insignificant paths.  $^\dagger p < .1$ ,  $^* p < .05$ ,  $^{**} p < .01$ ,  $^{***} p < .001$*

# EMOTION REGULATION AND DEPRESSION AMONG CHINESE PARENTS

Emotion regulation and emotion flexibility alleviate both parenting stress and depression of parents of children with special educational needs.

Self-blame, rumination, catastrophizing, positive reappraisal, sharing positive emotions are significant influential emotion regulation strategies, totally accounting for 42.0% of depression among 293 Chinese parents of children with neurodevelopmental disorders.

Variables	Step 1	Step 2	Step 3
Demographic information			
Age	-.031	-.001	-.006
Child's age	.031	.066	.070
Total monthly household income	-.027	-.054	-.070
Gender	.267***	.116*	.104†
Child's gender	-.161**	-.053	-.049
Marital status	-.005	.008	.009
Employment status	-.155*	-.108†	-.104†
Cognitive Emotion Regulation			
Self-blame		.185**	.187**
Acceptance		-.087	-.063
Rumination		.256***	.261***
Positive refocusing		-.037	-.025
Refocus on planning		-.019	-.020
Positive reappraisal		-.171*	-.141†
Putting into perspective		.028	.032
Catastrophizing		.264***	.239***
Blaming others		.146*	.122†
Prosocial			-.251*
Perspective			.188†
Sooth			-.013
Social mod			.007
Adjusted R square	.094	.399	.420
R square change	.094	.305	.021
F change	3.914***	14.369***	2.278†

## KEY DESIGN

- Tailored to parents' situational needs
- Effective emotion regulation strategies focused, which is a very critical transdiagnostic component
- Multicomponent therapeutic approach, which serve the potential to better enhance emotion regulation.
- Localisation and cultural adaptation, of western therapeutic approach. For example, cognitive behavioural skills training
- Paired with smartwatch to better cater to parents' stress and emotional outburst



sensor-aid detection



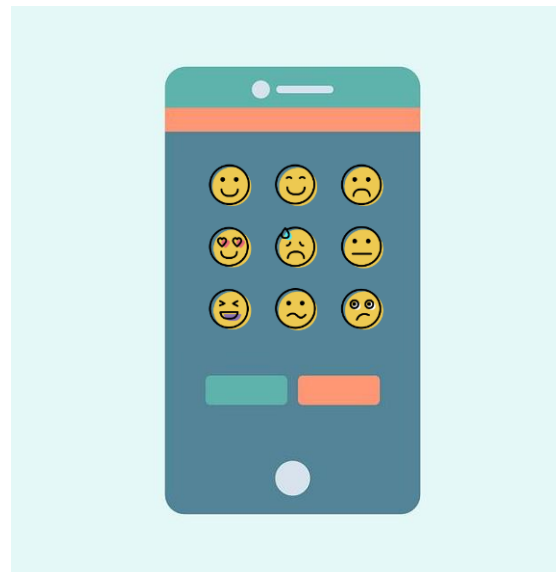
time-based push-in



on-demand

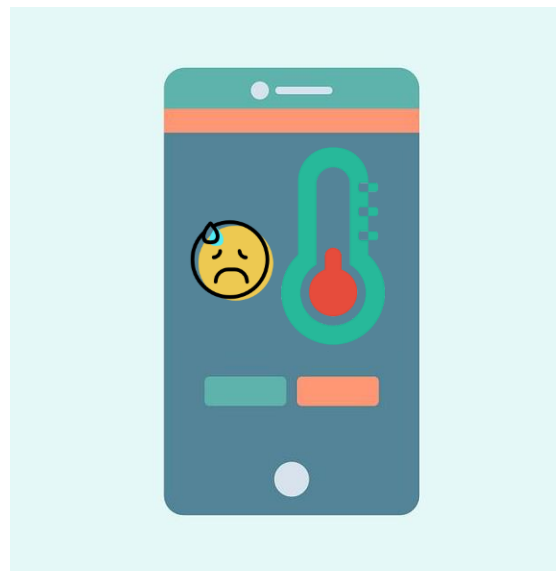


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depression, anxiety/worry, anger, stress/helpless,  
disappointment, guilt, and loneliness

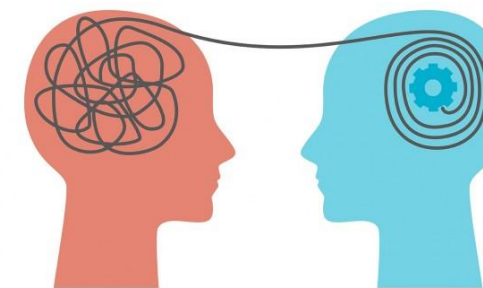
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Level of emotion/stress



CBT



DBT



Mindfulness



# THREE-LEVEL DESIGN STRUCTURE



## First level:

Psychoeducation about cognitive behavioural concepts and principles in understanding negative emotions

What is CBT?

What is situational analysis?

What is depression, anxiety, stress, guilt etc.?



## Second level:

Emotion-based modules with different cognitive behavioural skills learning and training

Start with a story

Cognitive behavioural theory in understanding emotions (mood check, dysfunctional response pattern analysis)

Coping skills: five-steps skills, STOP skills, mindfulness practice etc.



## Third level:

Emotion regulation skills toolkit  
Sharing and communication platform

# MOBILE APPLICATION



The user interface



General introduction of the application



General introduction of CBT

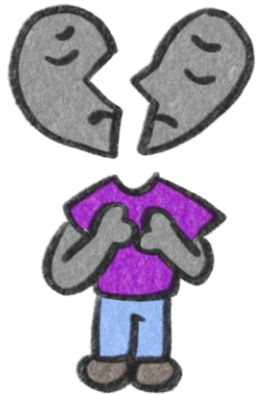


Emotional assessment

認知行為治療  
Cognitive-behavioral Therapy  
( CBT )

# EMOTIONS' MODULES

Guilt



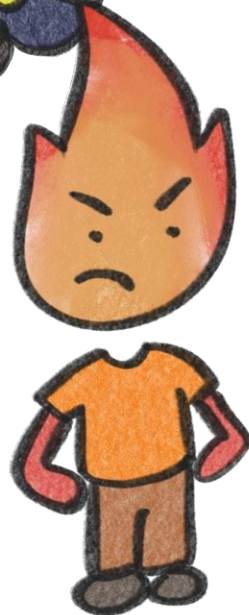
Loneliness



Disappointment



Depression



Anger



Stress



Anxiety





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A story of a parent

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故事



晶晶，我哋去食漢堡包好唔好呀？  
Jing Jing, would you like to have a hamburger?

亞玉今年35歲，結婚8年，一直很想懷孕，並憧憬孩子出生後一家三口快快樂樂過著幸福的生活。兩年多前亞玉終於懷孕，生了女兒晶晶。現在晶晶快三歲，要開始準備幼稚園入學面試，亞玉有留意到晶晶似乎比同年齡的孩子安靜且幾乎沒有與人有眼神交流，而且到現在仍然不能用簡單句子來表達自己，凡事都只拉著爸媽的手來指示她要的東西，亞玉以為晶晶是害羞及工人姐姐沒有多跟她對話才這樣，還擔心她面試表現不好沒有學校願意收她。直至最近面試一家幼稚園時，一位老師察覺晶晶與同齡小孩有差異，建議亞玉帶晶晶去見醫生作評估。起初亞玉還以為學校以此為借口不想錄取晶晶才這麼說，結果醫生

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Introduction of the emotion

↓

什麼是抑鬱？



但係...  
However...

若果強烈負面情緒維持一段好長時間  
However, if intense negative emotions process for longer duration.

抑鬱是一種情緒，往往受外在環境、個人性格及生活經驗所影響。一般情緒困擾會是暫時性，過渡一段短時間後，低落情緒便... 展開更多

生理方面

睡覺失調、食慾失調、經常疲倦、沒精打采、難於集中精神

情緒方面

傷心難過

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Situational analysis

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身心思維分析

每當面對一些情況/困難，我們難免會出現一些情緒、行為、思維及身體反應，就亞玉的例子來作分析，可以看到以下反應。

說不出話來

嚎啕大哭

為什麼是自己女兒

身體反應

醫務所取報告

21:57

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Thought trap

↓

思想陷阱



抑鬱症 Depression =

「抑鬱症係永久性痼疾，無辦法醫治」  
"depression is a permanent illness that cannot be cured"

坊間對於抑鬱症亦有很多迷思或誤解。如「抑鬱只有情緒低落，不需要醫治」、「抑鬱症是永久性的疾病，無法醫治」、「抑鬱症只會在弱者身上發生，強者是不會患上抑鬱的」等標籤化的想法，若能及早處理，可避免情況惡化。認知行為治療被界定為其中一種有效治療及預防抑鬱症的治療方法。現在就透過以下故事分享了解抑鬱如何影響故事主人翁亞玉。

III

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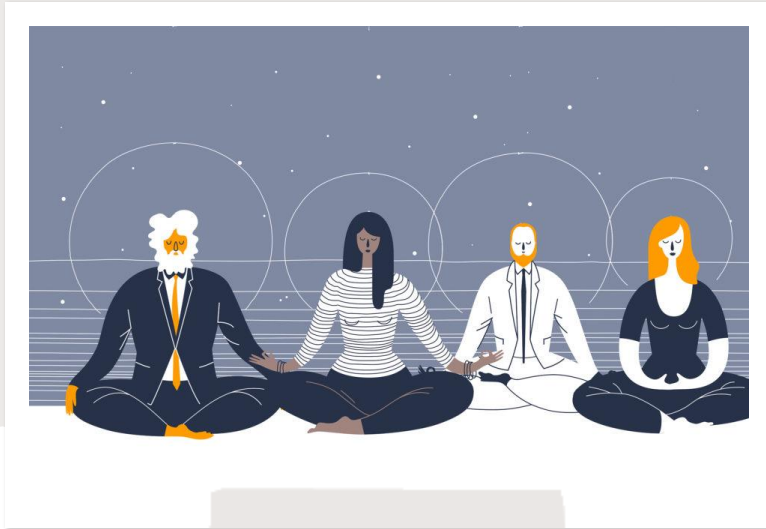
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# DYSFUNCTIONAL CYCLE



# MINDFULNESS AND RELAXATION



- Address each emotion:
- Anger: meditation and mindfulness.
- Stress: meditation and breathing exercises.
- Anxiety: mindful stretching.
- Disappointment and loneliness: self-compassion mindfulness practices.
- Guilt: loving-kindness meditation and self-compassion.

# COPING STRATEGIES

## 常留意身體警告訊號

Be aware of bodily  
warning signals



心跳加速、手心出汗

A racing heart, sweaty palms

肌肉緊繃、面部漲紅

Muscle tightness, Facial flushing

發抖、頭痛

Trembling, Headache

## 常自我反問

Disputing



問自己這是想法還是事實

Ask if it's a thought or a fact

最壞結果真會發生嗎？

Will the worst outcome really happen

一次失誤能說明永遠做不好嗎？

Does one mistake mean I'll never do it well

## 常喚停負面思想

Negative thought stopping

提醒自己冷靜下來

Remind yourself to calm down

深呼吸、飲水

Breathe, drink water

倒數 10 個數

Count down from ten

## 常分散注意力

Distraction

聽音樂或散步

Listen to music or walk

吃點零食

Have a snack

刷會劇

Watch TV



## 常備金句

Repository of inspiring

慢慢嚟，會過去㗎

Take it slow—it will pass

穩住，我得㗎

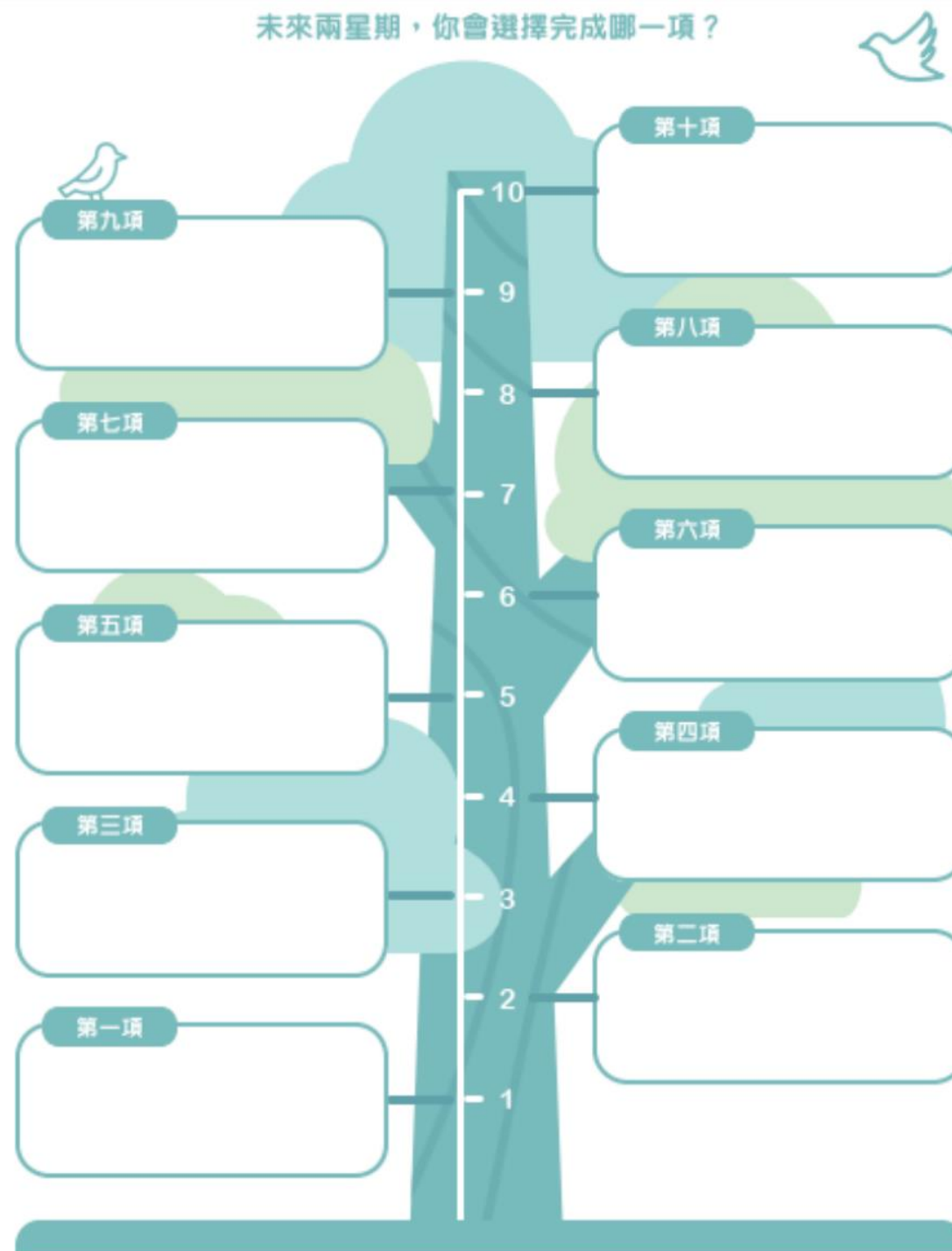
Stay steady, I've got this

我比情緒更強大

I'm stronger than my emotions



- Activity ruler:  
encourages parents to engage in more me-time.
- Builds a more balanced lifestyle.
- The application will store all completed activities and motivate parents to continue engaging.
- An embedded sharing platform will allow parents to share their accomplishments.



20:21 27° 77%

←

選擇你喜愛的放鬆活動

完成

浸泡浴缸浴	<input type="checkbox"/>
計劃週末假期活動	<input type="checkbox"/>
放空15分鐘	<input type="checkbox"/>
做自己喜愛的運動	<input checked="" type="checkbox"/>
外出跑步/散步	<input checked="" type="checkbox"/>
聽自己喜歡的音樂	<input checked="" type="checkbox"/>
聽演唱會	<input type="checkbox"/>
睇戲	<input type="checkbox"/>
睇書/雜誌	<input type="checkbox"/>
上網	<input type="checkbox"/>
打機	<input type="checkbox"/>



# CHALLENGES

- 1. Need a multi-disciplinary team from different areas including social work, psychology, computer science and design engineering.
- 2. Need an affordable amount of money to realize all the animations, interactive designs, app development and so on.
- 3. Takes time to do the trial and error, especially for new technology, such as pairing the app with the smartwatch.



## WAY FORWARD



A randomized controlled trial will be conducted early next year to collect feedback from parents regarding effectiveness and feasibility.



Measured indicators: mental health, emotion regulation, distress tolerance, psychological stress, self-compassion, children's behavioural and emotional symptoms



Feasibility: acceptance, satisfaction, response rate

A hand is resting on a light-colored wooden desk. In the foreground, a large, three-dimensional '@' symbol made of brown cardboard stands upright. The background is softly blurred, showing a white object and a brown box. The overall lighting is warm and natural.

***THANK YOU FOR LISTENING!***

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