Application of AI in Online Text-based Counselling for Youth with Mental Distress

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Project Manager
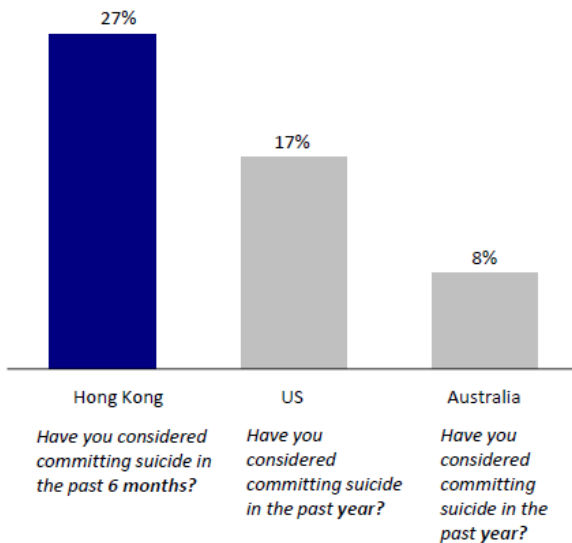**Jockey Club Online Youth**
Emotional Support - Open Up

How Open Up began…

In 2016, a series of student suicide tragedies in HK had raised awareness and urged the community for actions.

School Year	Primary &Secondary	Tertiary
2015 - 2016	22	16
2016 – 2017	17	15

% of adolescents (11-17) who considered committing suicide*
Percentage of total surveyed; n= 1,685 (HK)

27%

17%

8%

Hong Kong

Have you considered committing suicide in the past 6 months?

US

Have you considered committing suicide in the past year?

Australia

Have you considered committing suicide in the past year?

* Survey by the Paediatric Society and Paediatric Foundation, Mar–Apr 2016

◆ The proportion of youth seeking help through traditional hotlines had been declining.


Percentage of youth help-seeker (aged 20 or below) among all SBHK hotline cases in 2014
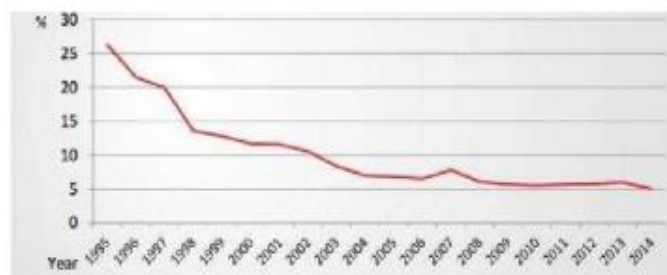
Source: Samaritan Befrienders Hong Kong Press Conference, March 2016 as reported by inmediahk.net

◆ Privacy is the main reason: 54% of youth aged 12-30 (N=390) choose NOT to seek help as they "don't want others to find out"; and 30% said there is no one they trust
◆ 29% of youth (N=389) preferred text-based conversation for emotional crisis issues as it is easier for them to express feelings and allows them to have bigger control over the conversation

Source: HKJCCT / IPSOS quantitative survey (total n = 727), 2016

Cuson Lo   009   C孔

選嘉   路邊攤   溫水劇場

Daryl Cheung   洋子   K先生
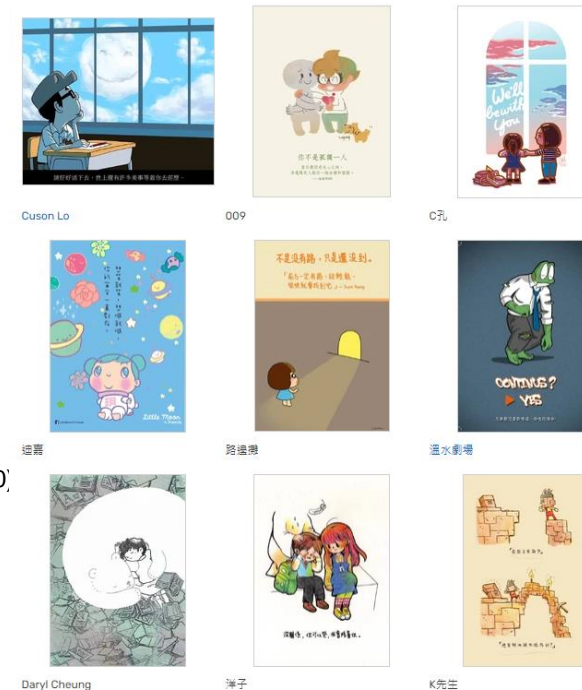
What is Open Up?

Jockey Club Online Youth Emotional Support - Open Up

捐助機構　Funded by

香港賽馬會慈善信託基金
The Hong Kong Jockey Club Charities Trust

主辦機構

BGCA
香港小童群益會
The Boys' & Girls' Clubs Association of Hong Kong

香港明愛
Caritas
HONG KONG

HONG KONG CHILDREN & YOUTH SERVICES

香港青少年服務處

HKFYG
香港青年協會
the hongkong federation of youth groups

聖雅各福群會
St. James' Settlement

THE HONG KONG JOCKEY CLUB
Centre for Suicide Research and Prevention
THE UNIVERSITY OF HONG KONG
香港大學香港賽馬會防止自殺研究中心

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Fill the Service Gap
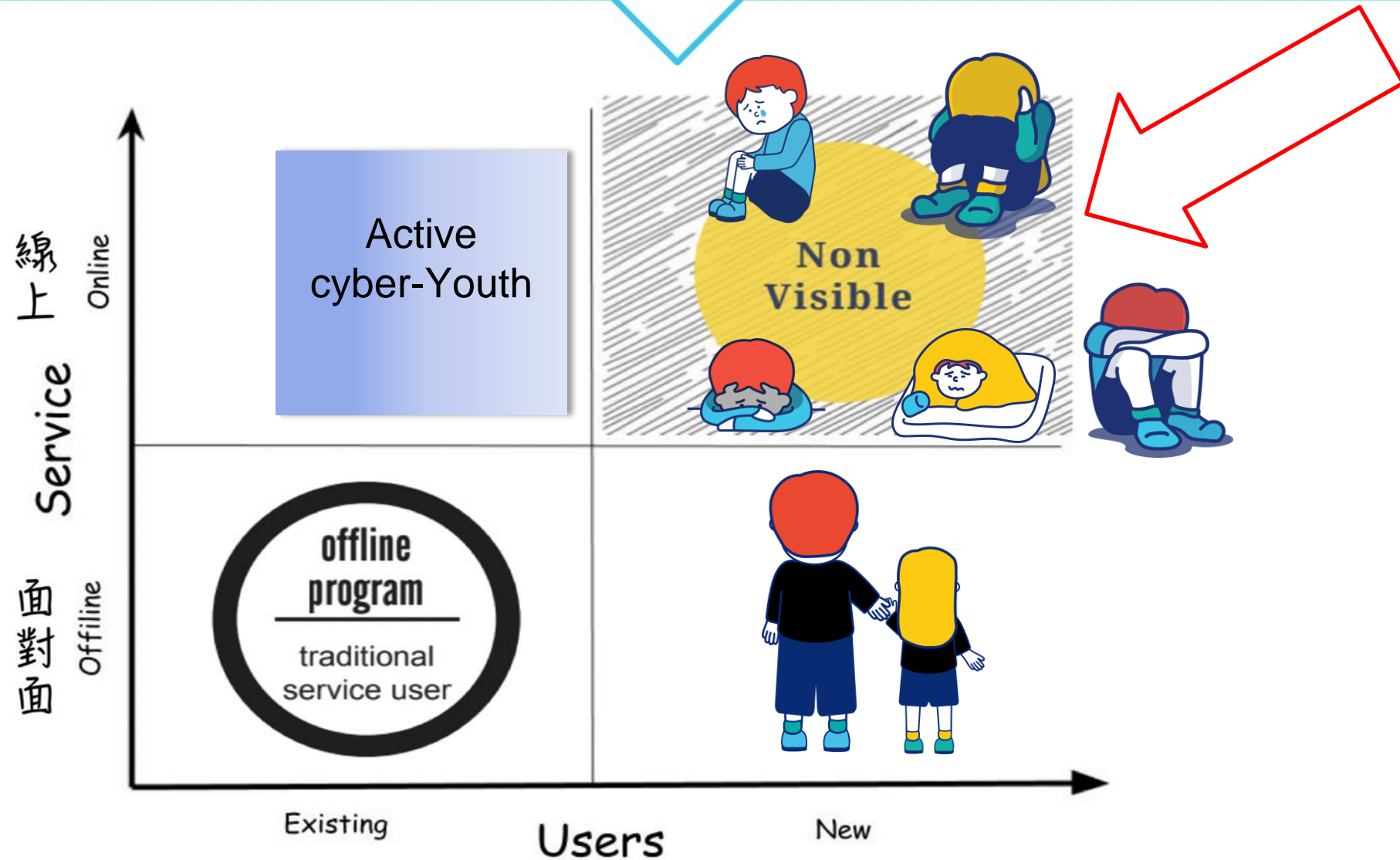
Engage a wider range of youth

Jockey Club Online Youth Emotional Support - Open Up

- 24/7 online text-based emotional support service

- For youth aged 11 – 35

- Free & Anonymous

www.openup.hk

Emotional Support Online Chat Platform

1. Multi-channel Crisis Intervention System (MCCIS)

2. 24/7 Round-the-clock

3. Synchronous - "Real Time" - being responsive and attentive)

4. Text Message

5. Anonymity (Safe environment & sense of security)

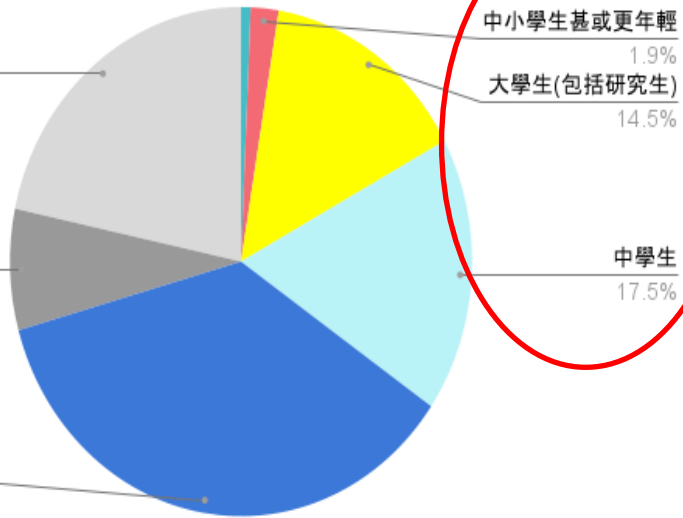6. Autonomy (User-centred and reduce the power discrepancy)

Open 嗌

進入聊天室

你的名字

進入聊天室

容許匿名入線
保密程度提高其安全感

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Chat by risk level and by hour
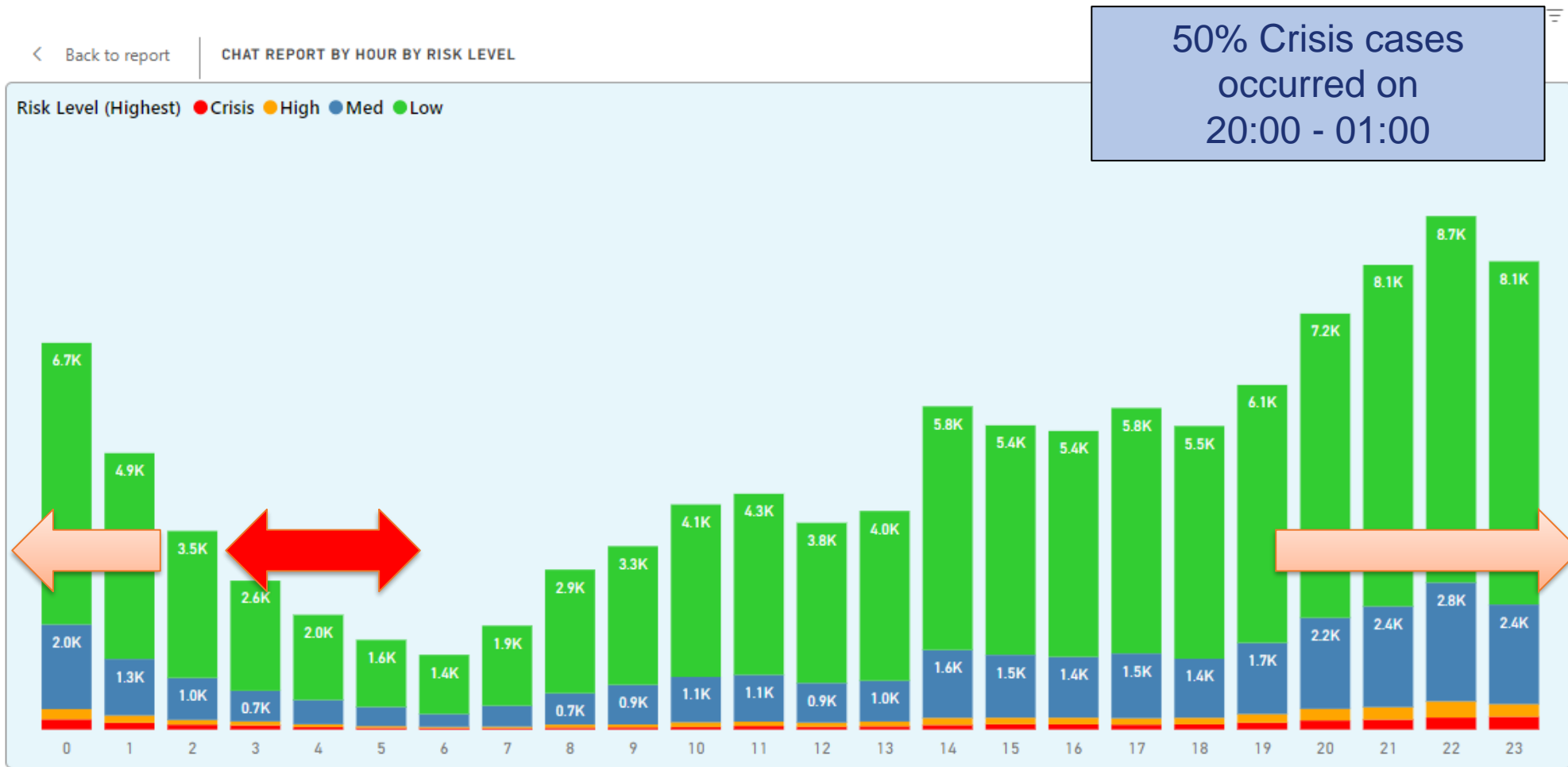
Help-seeker Demographics

使用者類別

不知道
21.7%

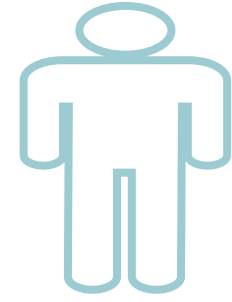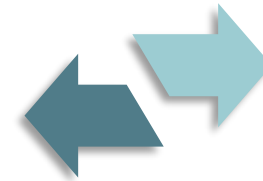中小學生甚或更年輕
1.9%

大學生(包括研究生)
14.5%

37%

中學生
17.5%

中年人及其他
7.7%

非學生的青年人
36.0%

60%

24%

Successfully engaged the Youth

319,791
Incoming Chat accepted TOS

(Among 405,605 incoming calls)

Incoming Chat accepted TOS

Phase I
4312 /month
(1 Oct 2018 – 31 Nov 2020)

Phase II
5934 / month
(1 Dec 2020 – 31 Oct 2023)

+37.6%

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Total 202,031 Valid Chats

Total Valid Chats
Phase I
65,066
(1 Oct 2018 – 31 Nov 2020)

Phase II
136,965
(1 Dec 2020 – 31 Oct 2023)

Unique help-seekers
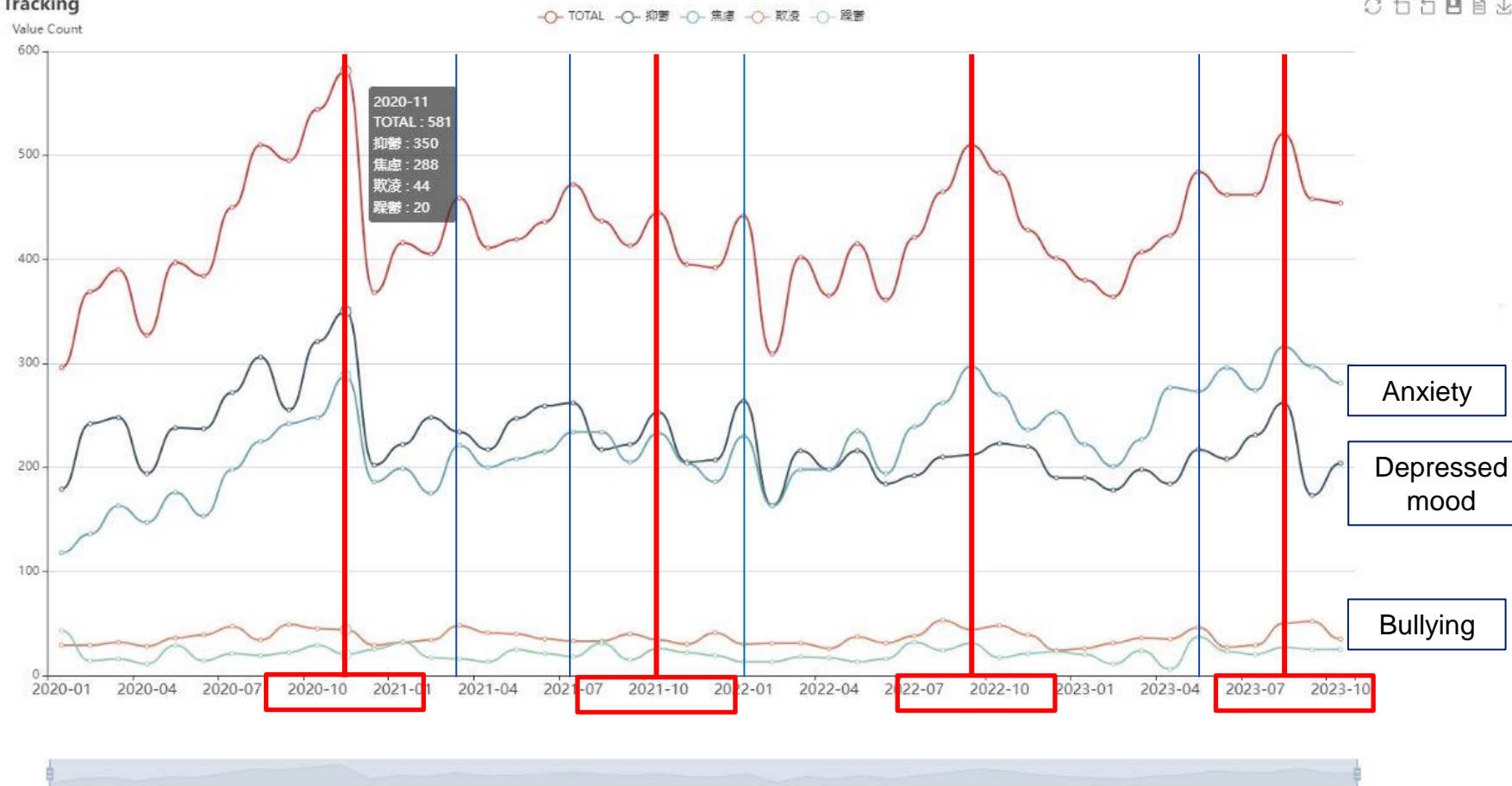**62,775**
(1 Oct 2018 – 30 Sept 2023)

Daily Average
Phase I
82

Phase II
129

Daily 200 incoming calls Served over 120

Phenomenon of Youth Mental Health

Help-seeking behavior in digital generation

Mental health help-seeking

Publicity & Gatekeeping

Capacity Building

IT Infra-structure

Chat Service
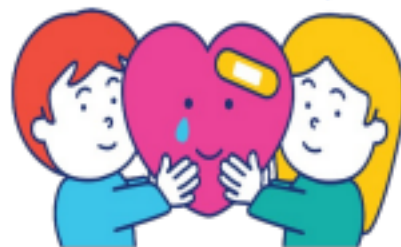
Thematic Service

Connected Care

Help seeker

Co-chat

Open Up counsellor

Staff from referral youth services
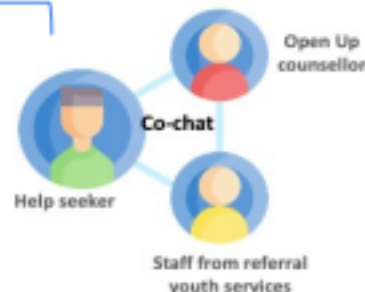
Volunteers Development & Management

助人

自助
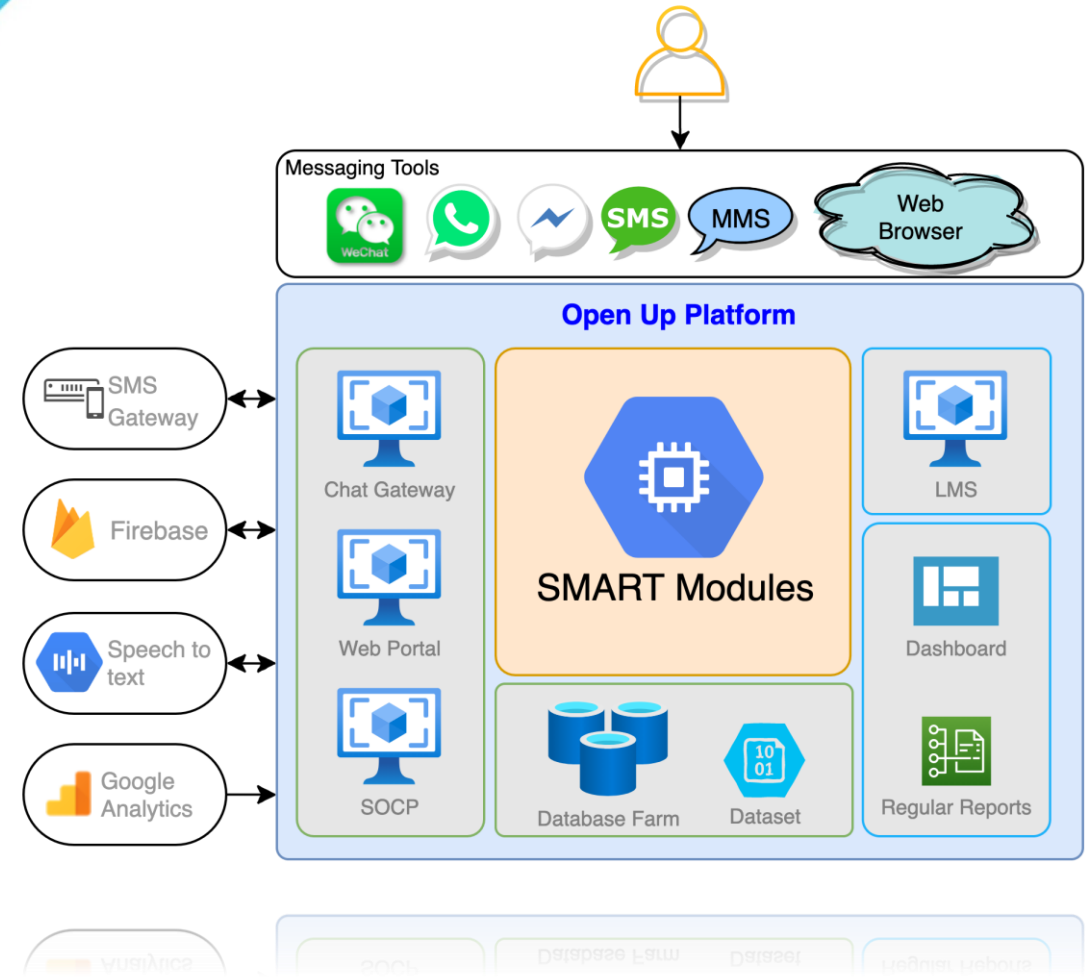
Data Analysis, Evaluation & Knowledge Dissemination

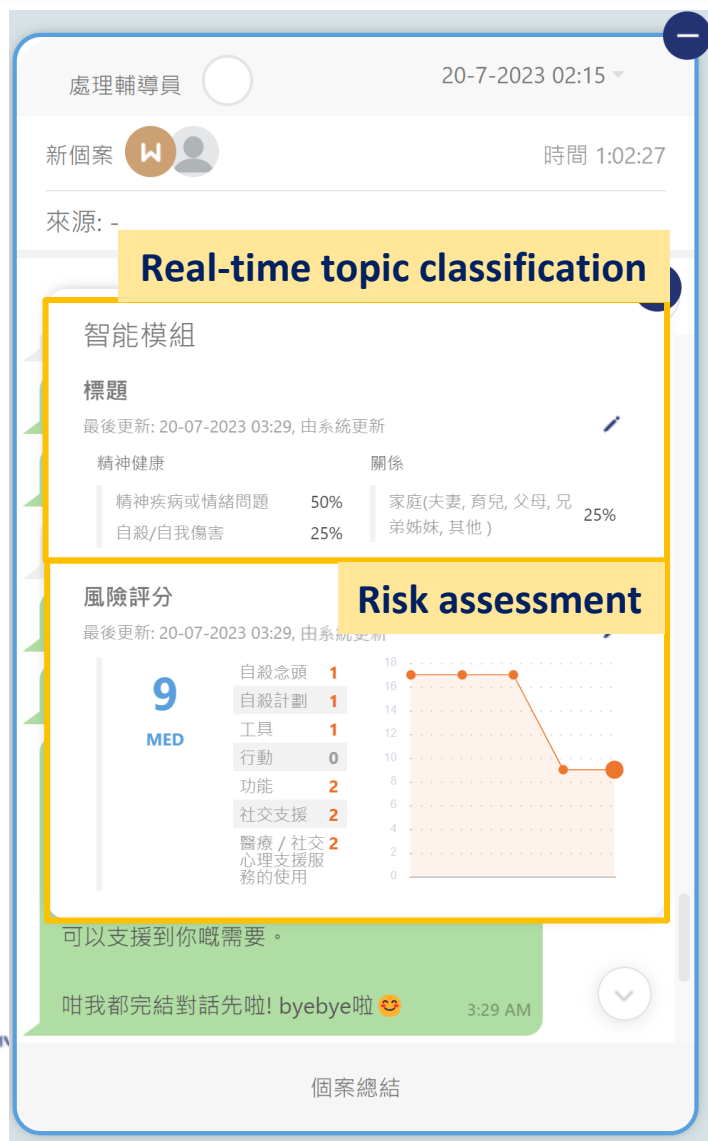# Make Use of Technology in Counselling

Innovative and Creative Applications of AI and Machine Learning

FIVE SMART Modules

1. Identify the **Topic** of each Chat session

2. Evaluate the **Suicide Risk**

3. Provide **Guidelines** and **Reminders**

4. Help-seeker **Segmentation**

5. Facilitate the **Data Analytics**

Real-time topic classification and risk assessment

Smart Module
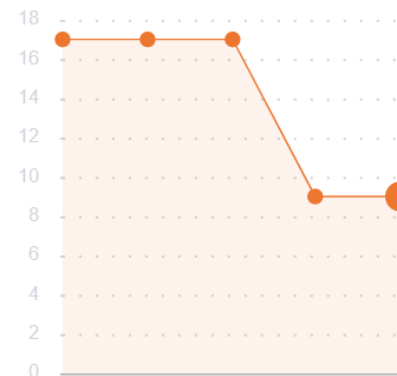
Topic Classification

- Predict the Topic of each chat conversation and their respective percentages.

- The prediction will be continuously updated based on new coming messages

Conversation - part-1

C: 咩事令你迷網吖?
H: 我冇工翻又欠財仔
H: 媽咪又長期病患 又要醫療費用
H: 我可以點做
H: 我真係好辛苦
C: 感覺到你面對媽媽既事好令辛苦..
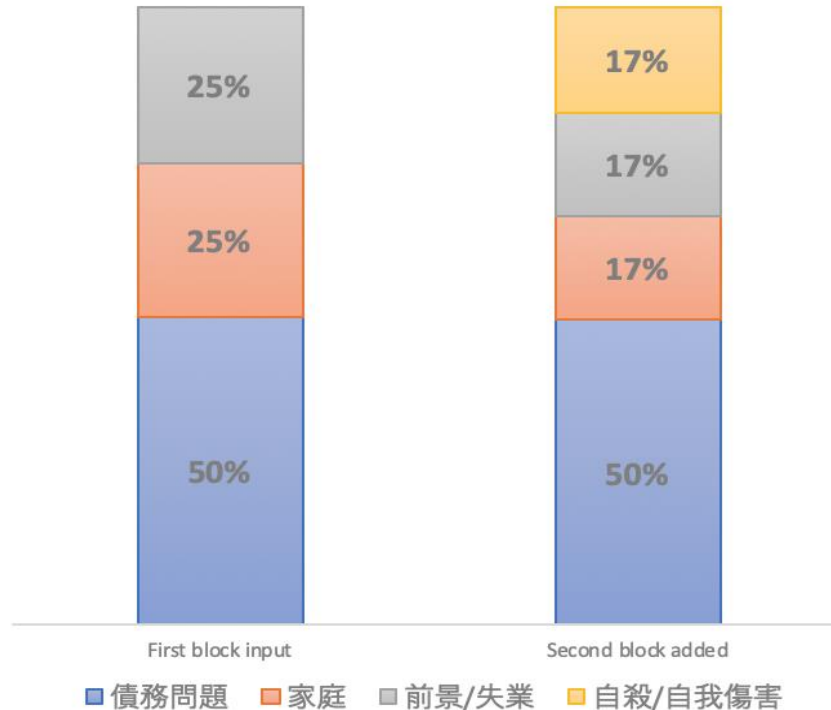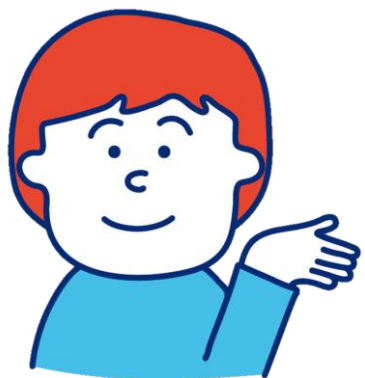H: 係，同還錢比財仔

- 前景/失業25%
- 家庭25%
- 債務問題50%

Conversation - part-2

C: 似乎家中除了你同媽媽外, 仲有咩家人架?
H: 講真我有諗過打人一下 叫個個人報警你坐監 但又怕財仔搞到媽咪
H: 冇
C: 你都好想保護媽媽..
H: 冇啦我 我咩都冇啦
H: 我真係咩都冇，好辛苦
H: 講真我想死，如果我死左財仔會唔會搵媽咪

- 自殺/自我傷害 17%
- 前景/失業 17%
- 家庭17%
- 債務問題 50%

Chart — First block input: 50% 債務問題, 25% 家庭, 25% 前景/失業. Second block added: 50% 債務問題, 17% 家庭, 17% 前景/失業, 17% 自殺/自我傷害

Legend: 債務問題 家庭 前景/失業 自殺/自我傷害

Topic Classification by AI

Mental Health
Anxiety, Depression, PBD, Early Psychosis, Self harm

Relationships
Family, Romantic, Peer

Negative Life
Experiences Divorce, Debt, Abandonment

Work/Career
Work pressure, Unemployment

Study
Public exam, Further studies

Physical Health
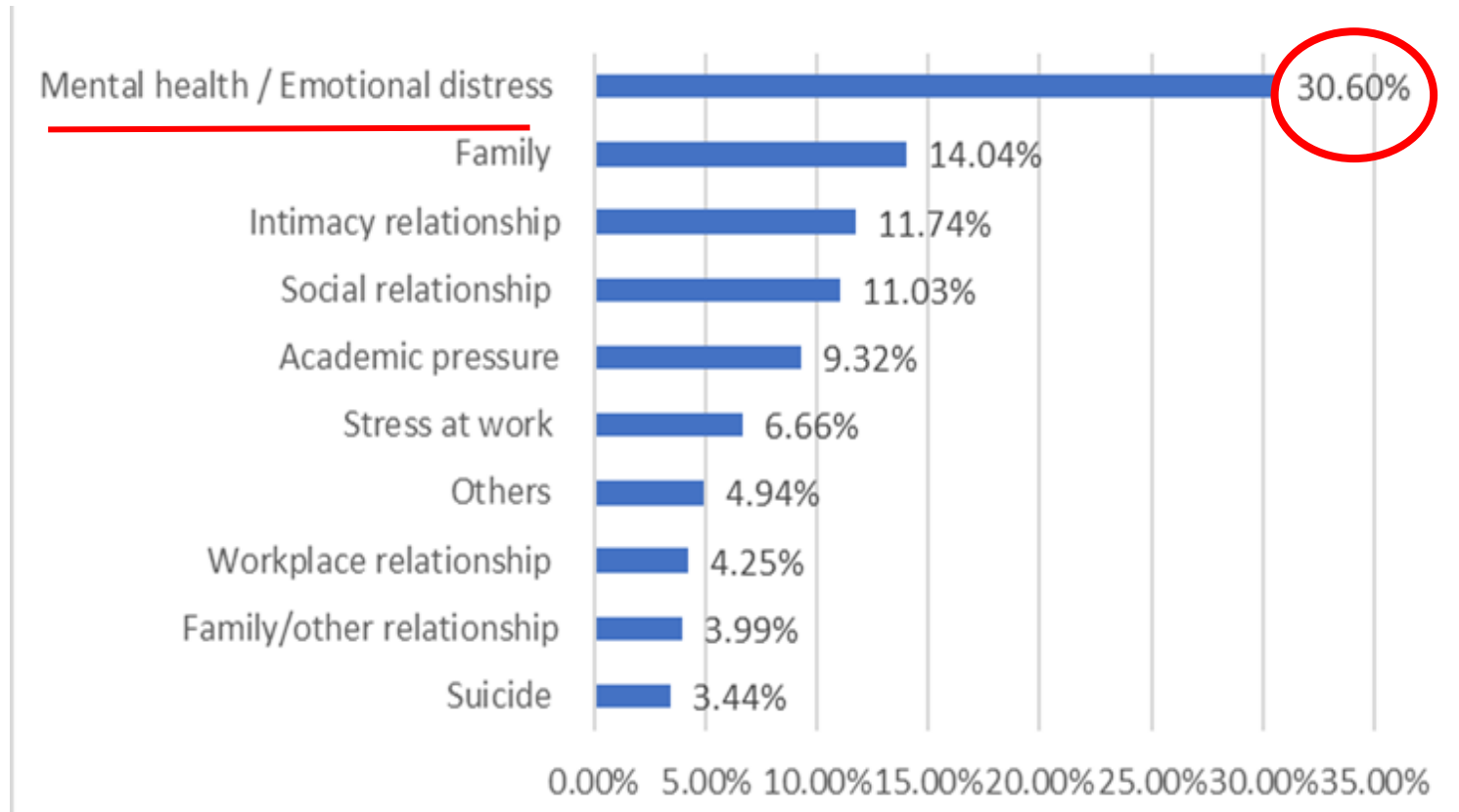Medical issue

Addiction
Drug, Gambling, Sex

Wellbeing
Social skill deficient , Poverty, Physical Disability

Others
Social issues, COVID

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Help-seeker Top 10 concerns

Mental health / Emotional distress — 30.60%
Family — 14.04%
Intimacy relationship — 11.74%
Social relationship — 11.03%
Academic pressure — 9.32%
Stress at work — 6.66%
Others — 4.94%
Workplace relationship — 4.25%
Family/other relationship — 3.99%
Suicide — 3.44%

0.00% 5.00% 10.00% 15.00% 20.00% 25.00% 30.00% 35.00%

(1 Oct 2018 – 31 Nov 2020)

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Risk level assessment by AI

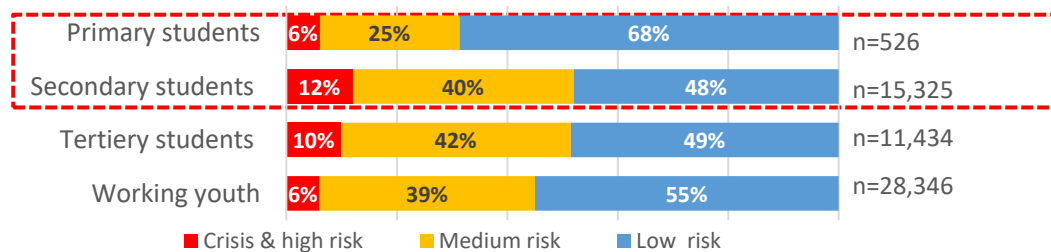**4** : **20** : **76**

Crisis to High : Medium : Low Risk

45% of users are first-time users for similar services

64% did not receive any services from other Youth Services in the past 6 months

✓ Higher proportion of secondary & tertiary student users are in crisis or high risk, indicating the need for more targeted service delivery

Status of youth help-seeker by risk level

	Crisis & high risk	Medium risk	Low risk	
Primary students	6%	25%	68%	n=526
Secondary students	12%	40%	48%	n=15,325
Tertiary students	10%	42%	49%	n=11,434
Working youth	6%	39%	55%	n=28,346

■ Crisis & high risk ■ Medium risk ■ Low risk

✓ Users with *self-harm behaviours, suicidal ideation, bullying experience, and discharged from psychiatric ward* are more likely high risk groups.

✓ Users with developmental challenges are less likely in high risk and could be triaged to other social services. Currently Open UP provides 6-8 scheduled thematic care chat sessions to follow up users' needs.

Help-seeking reasons by risk level

Category	Reason	Crisis and High risk	n
Emotional and mental health needs	Self Harm	29%	n= 898
	Suicide	28%	n= 1,169
	Mental Health	7%	n= 2,612
Specific needs	Bullying	25%	n= 84
	Discharge from psychiatric ward	23%	n= 77
	Addiction	13%	n= 81
	Abuse	13%	n= 71
	Legal	6%	n= 14
	Social issue	3%	n= 59
Developmental needs	Physical Health	6%	n= 92
	Family Relationship	6%	n= 261
	Study	5%	n= 593
	Public exam	4%	n= 593
	Peer relationship	4%	n= 528
	Financial	4%	n= 139
	Unemployed	3%	n= 69
	Intimacy	3%	n= 398
	Colleague relationship	2%	n= 122
	Work Pressure	2%	n= 189

■ Crisis and High risk ■ Medium and low

Practices Reminders

Practices reminders

Smart Module

Recommendation for service referrals and responses

Recommendation for service referrals and responses

Smart Module
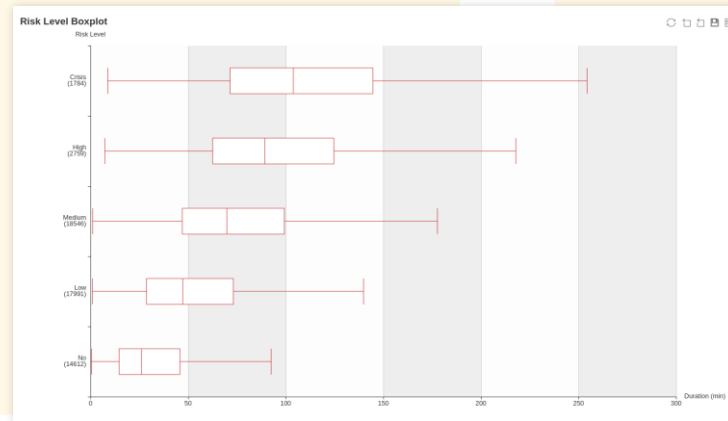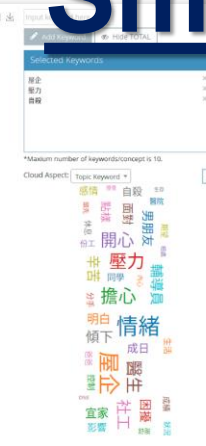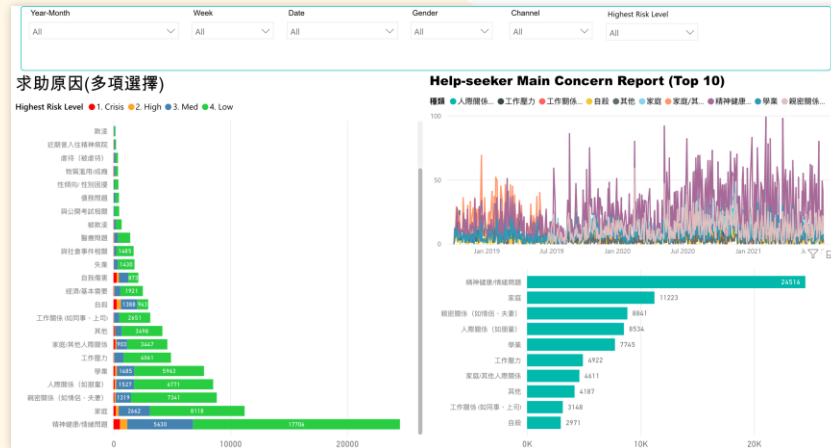
Data Analytics

Smart Module

Service Recommendation - Group Recommendation

- Provide guidance on how to reply the help-seeker

- School social workers will be recommended if school information is detected.

Service Recommendation - Element consideration

- Service recommendation will be given according to different characteristics of help seekers, such as location, age, topic, risk etc...,

- In this case, after "荃灣" appeared in the conversation, ranking of "uTouch" becomes higher.

Dialog
H:有啲同學信我，但個老師都唔肯聽 H:同埋我唔想拖佢哋落水，令到佢哋比老師討厭 H:我唔想再返學 H:唔返 C:☹ C:你幾多年班？ H:中2 C:你住係邊區啊？ H: 荃灣

建議回覆　　　　　　　　　　有用連結

網上青年支援隊 (Cyber Youth Support Teams)

uTouch 網上青年外展服務
https://utouch.hk/　　　　　使用

港島區網上青年支援隊 - 第六點
https://cyberyouth.sjs.org.hk/　　使用

明愛連線 Teen 地 - 網上青年支援隊
https://it.caritas.org.hk/　　　使用

Benefit and Impact

- Provided a comprehensive onboarding journey for volunteers, relief workers and new staffs

- Provided better **support** and **guidance** to counselor by risk assessment module, recommending chat responses and service referrals

- Increased capacity of service and maximized the efficiency

- Gained **service insight** from data analytics

- Developed **data-driven** good practices

Contact Us

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