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Unveiling the impacts of exposure and social proximity to suicidality on help-seeking behavior among the young generation

Sijia Li [a], Alvin Junus [b,c], Paul Siu Fai Yip [a,d,*]

[a] Department of Social Work and Social Administration, Faculty of Social Sciences, University of Hong Kong, Hong Kong SAR, China
[b] Centre for Urban Mental Health, University of Amsterdam, Amsterdam, Netherlands
[c] Department of Psychiatry, Amsterdam UMC Location AMC, University of Amsterdam, Amsterdam, Netherlands
[d] Hong Kong Jockey Club Center for Suicide Research and Prevention, University of Hong Kong, Hong Kong SAR, China

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ABSTRACT

Each suicide affects a wide circle of individuals and increases in suicide rate imply that a larger share of the population would be exposed to suicidality. This exposure may alter individuals' tendency to seek help when they face distress and is influenced by social proximity. However, limited evidence has clarified the direct and moderating effect of social proximity to suicidality on help-seeking behavior. Data were collected from a population-representative survey conducted in 2021. We recruited 1501 individuals aged 11–35 years with random sampling through mobile phone numbers. Exposure and social proximity to suicidality were measured as independent variables and help-seeking behaviors were outcomes, along with sociodemographics, psychological distress, and mental health risks as covariates. We employed latent class analysis to identify help-seeking behavior patterns and conducted multinomial logistic regressions with a three-way interaction to investigate the direct and moderating effects of social proximity to suicide ideation (SI), self-harm (SH), and suicide attempt (SA) on each help-seeking behavior pattern separately. Each unit increase in social proximity to SH was associated with a 30.9% higher likelihood of seeking help from family, friends, and partners even after controlling for distress and mental health risks. Furthermore, the three-way interaction ($\beta_{123} = 0.041$, 95% CI [0.014, 0.069]) suggested joint moderating effects of social proximity among people who did not rely on family. The effect of social proximity to any single stage of suicidality was amplified only when people were not exposed to the other two stages. Closer social proximity to suicidality could heighten the probability of individuals seeking help from family, friends, and partners regardless of distress level, with SH exposure's effects being stronger than SI's and SA's. Initial exposure to any single stage of suicidality could have a stronger effect than subsequent exposures among individuals who did not rely on family.

1. Introduction

Suicide is a significant health challenge for many societies all over the world and is particularly pressing among the young populace. Suicide is the fourth leading cause of death among individuals aged 15–29 years globally (World Health Organization, 2014), and has been the top cause of death for the same demographic group in advanced Asian Pacific economies such as Hong Kong and Singapore (CSRP, 2024; Samaritans of Singapore, 2023). Research has clearly shown that the young generation (10/11–35 years; Junus et al., 2023) globally and in Hong Kong have been facing higher incidence of psychosocial stressors in recent years (Chen et al., 2024; Fong et al., 2021), which could translate into increased incidence of depressive and anxiety disorders, among others, and thus increased risk of suicide for this demographic group (Solmi et al., 2022; Zhu et al., 2021). The gravity of this problem in Hong Kong and Asia Pacific has been made more salient in the past few years, particularly since the COVID-19 pandemic (Chang et al., 2024).

Evidence suggests that each suicide may affect a wide circle of individuals, with an estimated 135 people being exposed (knowing the person) for every suicide death (Cerel et al., 2019). The high numbers of suicide deaths indicate that many young people would be exposed to various stages of suicidality (Klonsky & May 2015) – from suicidal ideation, self-harm, to suicide attempts, with each successive stage

* Corresponding author. Department of Social Work and Social Administration, Faculty of Social Sciences, University of Hong Kong, The Centennial Campus, The University of Hong Kong, Room 512, The Jockey Club Tower, Pokfulam Road, Hong Kong SAR, China.
E-mail addresses: sijiali@connect.hku.hk (S. Li), a.junus@amsterdamumc.nl (A. Junus), sfpyip@hku.hk (P.S.F. Yip).

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understood to be more severe than its precedent, and the stages being closely linked yet distinct. Suicidal ideation can be understood as thinking about, considering, or planning suicide (Klonsky et al., 2016); self-harm broadly understood as intentional self-poisoning or injury (Moran et al., 2024), although typically not for suicidal purposes; whereas suicide attempt refers to a self-directed action with an intent to die as a result of the action (Klonsky et al., 2016). Within Hong Kong's context specifically, the most prevalent methods of attempting suicide are jumping from heights (55%), hanging (20%), and charcoal burning (15%) (Yip et al., 2024). The public has at least some reasonable awareness of these methods' purpose, and thus is presumably able to distinguish them from methods such as self-poisoning and self-mutilation/cutting, which are primarily for self-harm (and not suicidal) purposes.

While exposure to suicidality might lead some to be more determined to avoid attempting suicide (Pitman et al., 2017), there are also studies documenting increased odds of suicidal behaviors after exposure to suicidality (Geoffroy et al., 2021). Some research even suggests that individuals exposed to suicide may have already been at an elevated risk of suicide prior to the exposure (Kline et al., 2022; Wong et al., 2005). This highlights its nuanced effects on a person's suicide risk. Unpacking these nuances would be an integral step towards devising more effective suicide prevention strategies.

Exposure to suicidality may affect a person's suicide risk by acting on its labeling in the exposed person's mind (Ludwig et al., 2022). For example, it may spur the exposed person to be more inclined to view suicide as a tangible solution to their problems, thereby altering their response to psychological distress (defined as a state of emotional suffering when encountering stressful life events; Drapeau et al., 2012). These changes may be made salient in, e.g., reduced willingness of a person to seek help, which can be seen as a natural coping mechanism that buffers against the impact of an episode of psychological distress (Cohen and Wills, 1985). Pitman et al. (2017) reported that some of the young generation were less inclined to seek help for their emotional problems or psychological distress following exposure to suicidality, whereas other researchers have documented contrasting results (Begley et al., 2003; Gould et al., 2018; Mok et al., 2021).

Nevertheless, exposure to different stages of suicidality could impact a person's help-seeking behaviors to different extents (Hill et al., 2020). Various stages of suicidality imply that exposed individuals may encounter different manifestations of suicide risk, leading to varied perceptions of the severity of suicidality (Cerel et al., 2017). Consequently, this can evoke diverse emotional and cognitive responses (Da Silva et al., 2018; Scocco et al., 2012), ultimately resulting in changes in help-seeking behavior tendencies. However, most studies in extant literature have not sufficiently investigated these distinctions (Hill et al., 2020). Hence, the impact of exposure to various stages of suicidality on an individual's help-seeking behavior in response to psychological distress remains largely unknown.

Furthermore, the impact of exposure to each stage of suicidality might additionally depend on the exposed person's social proximity to suicidality (i.e., social relationship closeness or strength between the suicidal and exposed persons) according to the Circles of Vulnerability Model (Hawton et al., 2015). Exposed individuals who had closer relationships with suicidal individuals might end up having increased vulnerability (Haw et al., 2013). For example, a recent systematic review by Hill et al. (2020) found that exposure to SA had a more pronounced impact on individuals when the person who attempted suicide was a relative, rather than a friend or acquaintance. Moreover, the stages of suicidality are frequently interconnected and not experienced independently (Raffagnato et al., 2022). In other words, individuals may be exposed to multiple stages of suicidality simultaneously, suggesting that social proximity to different stages may have a joint moderating effect. Yet, prior research had rarely explored the direct and moderating effect of social proximity to various stages of suicidality.

This study therefore aimed to answer two closely related research questions: 1) *How does social proximity to suicidal ideation (SI), self-harm (SH), and suicide attempt (SA) directly alter a person's help-seeking behaviors?* 2) *How are the impacts on help-seeking behaviors from exposure to SI, SH, and SA moderated by social proximity to various stages of suicidality?* We hypothesized that exposure to SI, SH, and SA would have distinct effects on the young generation's help-seeking behavior and that closer social proximity would increase the magnitude of each of their effects.

1.1. The present study

This study aimed to ascertain the direct and moderating effects of social proximity to SI, SH, and SA on the young generation's help-seeking behaviors. It utilized survey responses from a population-representative random sample of individuals aged 11–35 years. Individuals within this demographic group are in crucial transitional periods involving numerous challenges and pressures (Ogden and Hagen, 2019), and global megatrends and societal changes over the past two decades have harmed the mental health of these vulnerable groups (McGorry et al., 2024), making them face a heightened risk of suicide. Moreover, consistent with what has been observed globally (Radez et al., 2021), the propensity of the young generation in Hong Kong to seek help when facing psychological distress is notably low (Tai, 2023). Therefore, there is an urgent necessity to comprehend the impact of social proximity to suicidality on help-seeking behavior to promote such behavior for the prevention of suicide. Underlying help-seeking behavior typologies or patterns among study participants were first identified based on support channels that they tapped. Regressions were conducted to examine associations between social proximity to each of SI, SH, and SA and individuals' odds of engaging in different help-seeking behavior patterns (direct effects), and how exposures' effects varied with social proximity to suicidality (moderating effects).

Unpacking these complex relationships could yield novel insights into the "second-degree" effects of an individual's suicidality – specifically how it may influence the young generation's pathway from distress to suicidality. These insights may in turn equip mental healthcare practitioners with practical guidelines on how to better serve individuals who have had prior encounters with suicidal persons in their social circle.

2. Method

2.1. Participants and procedures

The present study employed a cross-sectional survey design and was carried out in Hong Kong. This research formed part of a cross-institutional initiative led by the Center for Suicide Research and Prevention (CSRP) at the University of Hong Kong (HKU), aimed at addressing suicide among individuals 11–35 years old in Hong Kong. Data collection for the survey took place from 2nd August to December 17, 2021, involving a sample of 1501 individuals 11–35 years old from Hong Kong with a satisfactory response rate of 68.9% (Draugalis et al., 2008).

The participants were randomly sampled through their mobile phone numbers published by the Office of the Communications Authority (OFCA), ensuring an age distribution that closely resembled that of the young population in Hong Kong. The surveys were conducted and administered in Cantonese by the Social Science Research Centre at the University of Hong Kong without setting incentives. Respondents aged between 11 and 35 years who lived in Hong Kong and understood Cantonese could thus be included in the survey. Informed consent was sought and obtained from all participants before their participation in the study. Consent from parents or legal guardians for under-aged participants was deemed not required by the committee as the endorsed study was assessed to pose minimal potential harm to under-aged participants. They were provided with detailed information about the survey's objectives (to gain an in-depth understanding of the general well-

being of the young generations), estimated duration (approximately 10 minutes), strict confidentiality measures for their data, and their freedom to withdraw from the study at any time. Special attention was given to crafting survey questions that carried no risk and minimized potential stress for the participants. Following survey completion, contact information for emotional support hotlines and services was provided to encourage any distressed respondents to seek immediate support.

All procedures and protocols implemented in this study adhered to the ethical standards outlined in the Declaration of Helsinki (World Medical Association, 2013) and received approval from the Human Research Ethics Committee for Non-Clinical Faculties of the University of Hong Kong, with the reference number EA1709039.

2.2. Measures

Sociodemographics. The sociodemographic information of the participants was collected, including age, gender, occupation status, education level, and living arrangement. Age and gender were continuous and binary variables respectively, while the rest were categorical variables. Specifically, occupation status was categorized as full-time job, full-time student, part-time job/student, unemployed, and refused to answer. Education level encompassed post-secondary & above, secondary or primary & below, along with living arrangement composed of living alone, living with family, friends, or others.

Psychological distress. The psychological distress of participants was measured by self-rating the extent of distress experienced in eight domains of their lives over the past four weeks. These items were generated from literature review and expert evaluation, having been employed in multiple research contexts (Fong et al., 2021; Junus et al., 2023). These domains encompassed academic, employment, financial, social (relating to colleagues, friends, and classmates), physical well-being, emotional well-being, family relationships, and relationships with a partner or spouse. The rating scale ranged from 1 ("not at all") to 5 ("very serious"), with the option of selecting "not applicable." For each participant, items with "not applicable" responses were excluded, and the remaining values were averaged to determine their overall self-rated distress as a continuous variable. The Cronbach's α was 0.80 in the present sample, indicating good internal consistency (Taber, 2018).

Mental health risks. Four single binary-response questions asked participants whether they had considered suicide, injured themselves intentionally or attempted suicide in recent 12 months, and been diagnosed with any of major depressive disorder (MDD), schizophrenia, social phobia, or avoidant personality disorder.

Exposure and social proximity to suicidality. Exposure and social proximity to suicidality among the participants was assessed through a two-step process to encode exposure to suicidal ideation (SI), self-harm (SH), and suicide attempt (SA) and also relationship closeness (i.e., social proximity) between the exposed person and the suicidal person. Initially, participants were requested to indicate whether they personally knew anyone who considered killing themselves (SI), intentional self-poisoning or injury regardless of apparent purpose (SH), and attempted suicide before (SA). All three questions were presented in a binary format, offering response options of "no" and "yes". If participants responded with "no", their corresponding exposure level to the respective form of suicidality was assigned a value of 0. Otherwise, they were subsequently asked to assess the level of closeness they felt towards the person involved. Responses were in a Likert-scale format, ranging from 1 ("barely know them") to 5 ("very close"). Social proximity to SI, SH, and SA (referred to as SI proximity, SH proximity, and SA proximity in the following paragraphs) thus ranged from 0 to 5, with higher values indicating closer relationship or social proximity between the participant and the suicidal person. The overall internal consistency was acceptable (Cronbach's $\alpha = 0.83$) in the study sample.

Help-seeking behaviors. The help-seeking behaviors of participants were evaluated by investigating their utilization of ten sources of support within the previous four weeks to cope with psychological distress. These sources included: (i) family members; (ii) friends, classmates, or colleagues; (iii) spouse or partner; (iv) teachers or tutors; (v) free hotline support; (vi) healthcare professionals; (vii) social workers or counselors; (viii) religious services; (ix) online friends whom they had not met in person; and (x) online social services. Each source of support had binary response options.

2.3. Analysis

2.3.1. Characterizing individuals based on their patterns of help-seeking

Firstly, we calculated the descriptive statistics of the study population. Given that individuals might engage in specific help-seeking behavior patterns (i.e., tapping specific sets of support channels) (Junus and Yip, 2022; Magaard et al., 2017), it warranted us to approach the posed research questions from this perspective. Hence, we conducted a latent class analysis (LCA), a person-centered clustering approach, on participants' utilization of the ten sources of support to identify their help-seeking behavior patterns and classify the participants accordingly. Here, the ten potential support channels were conceptualized as observed variables or markers of help-seeking behavior. Covariances among these observed variables were assumed to be explained by unobserved or latent discrete groups (McCutcheon, 1987), which would account for the underlying help-seeking behavior patterns or typologies in the sample population. This analysis was performed using the poLCA package (Linzer and Lewis, 2011) in R (version 4.2).

The LCA commenced with a one-class model and iteratively advanced, systematically augmenting the number of classes up to six. This stepwise process aimed to identify the optimal number of classes for characterizing the help-seeking behavior patterns. At each step, the model was evaluated using five model-fit parameters widely recognized as reliable in LCA with categorical outcomes: the Akaike information criterion (AIC; Stoica and Selen, 2004), Bayesian information criterion (BIC; Schwarz, 1978), sample size-adjusted BIC (SABIC; Sclove, 1987), the Lo-Mendell-Rubin (LMR) likelihood ratio test (Lo et al., 2001), and the bootstrap likelihood ratio test (BLR; McLachlan, 1987). Additionally, the interpretability of each class was considered (Collins and Lanza, 2009). Convergence of each model iteration was ensured before evaluation.

An optimal model that would be used for subsequent steps of analyses was determined based on several criteria: the model would have approximately the lowest AIC, BIC, and SABIC values, significant p-values (<0.05) for the LMR and BLR tests, and an intuitive interpretation of help-seeking behaviors for each latent class. The number of latent classes in this model signified the distinct help-seeking behavior patterns within the study population, with each individual assigned to a single class. Descriptive statistics were computed for each help-seeking behavior pattern, and ANOVA and chi-square tests were utilized to identify potential differences in sociodemographics and distress among the latent classes. Effect sizes of between-class differences were quantified using η^2 and Cramer's V.

2.3.2. Evaluating impact of social proximity to suicidality on individuals' help-seeking

We then proceeded to investigate the impacts of SI proximity, SA proximity and SH proximity on distinct clusters of individuals. Associations between sociodemographics, distress, mental health risks, social proximity to suicidality, and each help-seeking behavior pattern (latent class membership) were first examined with mixed correlation analyses. Specifically, the Pearson correlation coefficient was calculated to measure correlation between two continuous variables; the Point-Biserial correlation coefficient assessed correlation between a continuous variable and a binary variable, while the Phi coefficient quantified correlation between two binary variables.

Finally, multinomial logistic regressions with interaction terms were conducted to examine the effects of social proximity to different forms of suicidality and their potential interactions on specific help-seeking behavior patterns. Certain variables underwent reclassification due to sparse responses within specific categories. Education level was dichotomized into "below post-secondary" or "post-secondary & above", while living arrangement was dichotomized into "not living with family" or "living with family". Records that contained two "refuse to answer" responses in occupation status and one missing value in mental illness diagnosis (which accounted for less than 1% of the study population) were excluded from the analysis. *DS* were not included in the analysis due to their limited numbers (N = 11). The outcome variable was help-seeking behavior patterns of interest (categorical variable: *NS*, *IS*, and *NIS*). Predictor variables included SI proximity, SA proximity and SH proximity, as well as their interaction terms to denote simultaneous social proximity to various stages of suicidality. In addition to socio-demographic variables, distress and mental health risks were also included as covariates since it is understood to affect help-seeking behaviors (Junus and Yip, 2022; Junus et al., 2023). Eq. (1) represents the regression model. To enhance the interpretability of the interaction effects and ensure the robustness of the model, SI proximity, SA proximity, and SH proximity were mean-centered prior to conducting the analysis. Variance inflation factor (VIF) of social proximity to SI (VIF = 4.13), SH (VIF = 3.48), and SA (VIF = 3.97) were all below 5, suggesting no multicollinearity issue in our regression (Shrestha, 2020).

$$\log(\textit{Odds of specific help-seeking pattern}) = \beta_1\, \textit{SI proximity} + \beta_2\, \textit{SH proximity} + \beta_3\, \textit{SA proximity} + \beta_{12}\, \textit{SI proximity} \times \textit{SH proximity} + \beta_{13}\, \textit{SI proximity} \times \textit{SA proximity} + \beta_{23}\, \textit{SH proximity} \times \textit{SA proximity} + \beta_{123}\, \textit{SI proximity} \times \textit{SH proximity} \times \textit{SA proximity} + \textit{Covariates} + \varepsilon \quad (1)$$

The simple effects test was applied to further examine specific effects (measured as simple odds ratios) of SI, SH, and SA proximity in the case of a statistically significant three-way interaction. Following standard practice, each predictor was classified into 'high' (M + SD) and 'low' (in this case the minimum possible value was 0 because M-SD was <0 for all three predictors; Hayes and Rockwood, 2020). For each focal predictor, the probability of seeking help was further calculated for its low and high proximity, under all combinations of the other two predictors. All these analyses were conducted in R (version 4.2), utilizing the PROCESS package (Hayes, 2017) for simple effects tests.

3. Results

3.1. Descriptive statistics of the study population

A total of 1501 participants met the inclusion criteria and comprised the sample for this study. Descriptive statistics of the study population were presented in Table 1. The study population had a mean age of 26.09 ± 4.01, and the level of distress was reported as 2.06 ± 0.71. The proportion of males (N = 778, 51.83%) and females (N = 723, 48.17%) in the sample was relatively similar. The majority of participants were in a full-time job (N = 1125, 74.95%), had post-secondary education or higher qualifications (N = 1358, 90.47%), were living with their family (N = 1289, 85.88%) and revealed low mental health risks.

3.2. Patterns of help-seeking behaviors

Model-fit parameters and interpretation of each latent class pointed to four underlying patterns of help-seeking behavior among the young generation in Hong Kong (Supplementary Material Table 1). Fig. 1 displayed the estimated prevalence and composition of the four latent classes. We assigned a theme to each latent class based on the distribution of help-seeking channels among their constituents: (i) *Non-seekers (NS)*. Individuals in Class 1 demonstrated minimal to no inclination to seek help when confronted with distress. (ii) *Inner circle seekers (IS)*. Individuals belonging to Class 2 primarily sought help from their typical close ties (inner circle sources such as family, friends, and partners; Antonucci et al., 2014) when faced with distress. (iii) *Non-familial inner circle seekers (NIS)*. Individuals in Class 3 exhibited help-seeking behaviors akin to those observed in *IS* when encountering distress. However, their overall propensity to seek help from their inner circle was slightly lower, particularly with limited reliance on family for support. (iv) *Diverse seekers (DS)*. Individuals classified within Class 4 sought help from inner circle sources (family, partner, friends), as well as professional services, including hotline support, medical professionals, and social workers.

Table 1
Descriptive statistics of the study population.

	N (%)		N (%)
Gender		**Mental health risks**	
Female	723 (48.17%)	Suicidal ideation	151 (10.06%)
Male	778 (51.83%)	Self-harm	61 (4.06%)
Occupation status		Suicide attempts	14 (0.93%)
Full-time job	1125 (74.95%)	Mental illness diagnosis	104 (6.93%)
Full-time student	222 (14.79%)	**Help-seeking behaviors**	
Part-time job/ student	94 (6.26%)	Family	289 (19.25%)
Unemployed	58 (3.86%)	Friends	544 (36.24%)
Refused to answer	2 (0.13%)	Partner	317 (21.12%)
Education level		Teacher	42 (2.80%)
Post-secondary & above	1358 (90.47%)	Free hotline support	4 (0.27%)
Secondary	137 (9.13%)	Medical professionals	28 (1.87%)
Primary & below	3 (0.20%)	Social workers	52 (3.46%)
Living with		Religious services	25 (1.67%)
Family	1289 (85.88%)	Online friends	53 (3.53%)
Friends	90 (6.00%)	Online social services	7 (0.47%)
Alone	112 (7.46%)	**Exposure to suicidality**	
Other	10 (0.67%)	Exposed to suicidal ideation	562 (37.44%)
Age [mean (s.d.)]	260.09 (4.01)	Exposed to self-harm	514 (34.24%)
Distress [mean (s.d.)]	2.06 (0.71)	Exposed to suicide attempts	468 (31.18%)

Descriptive statistics and results of the difference tests examining sociodemographics and distress across individuals of the four patterns were shown in Table 2. *NS* were relatively older (M = 26.34, SD = 4.22), with a higher proportion of males (54.80%), and the lowest levels of distress (M = 1.88, SD = 0.70). Conversely, the *DS* were the youngest (M = 24.91, SD = 3.33) but had the highest levels of distress (M = 2.56, SD = 0.33). Occupation status, education level, and living arrangement across the four patterns were relatively comparable.

3.3. Impact of social proximity to suicidality on help-seeking behavior patterns

In subsequent analyses, individuals who did not seek help, i.e., *NS*, were taken as the reference group and were compared with *IS* and *NIS*. Analyses for *DS* were not conducted due to their limited numbers (*N* = 11). Mixed correlation analyses were conducted separately to explore the associations between variables (Fig. 2). The result preliminarily showed significant positive correlations between social proximity to suicidality and help-seeking behavior patterns, with *IS* tending to be male and *NIS* being younger and with higher distress and more mental health risks.

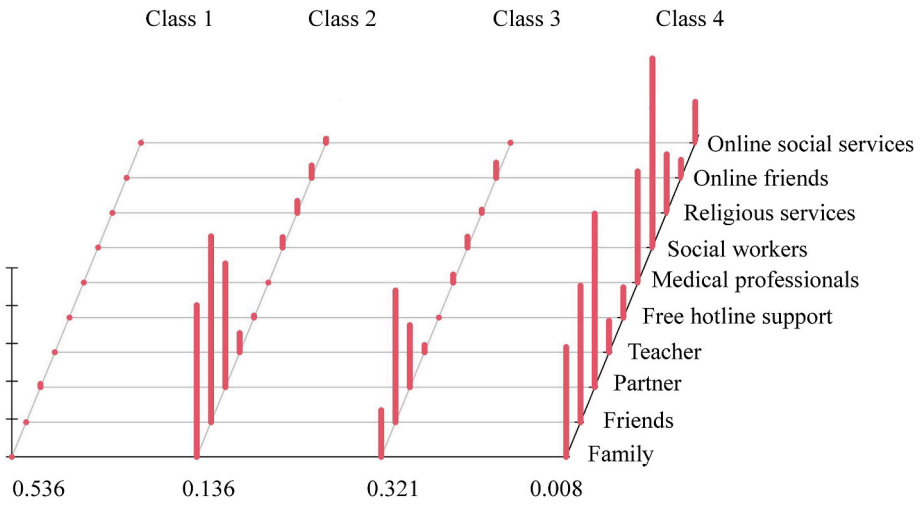

Fig. 1. The optimal model for help-seeking behavior patterns. The estimated size of each class was depicted on the horizontal axis, while the bars represented the help-seeking probabilities from the respective channels.

3.3.1. Effects of social proximity to suicidality on individuals' tendencies to seek help from family, friends, and partner

Table 3 summarized the direct effects of only SI proximity (Model 1), SH proximity (Model 2), SA proximity (Model 3), and the moderating effect of social proximity to all three stages of suicidality (Model 5) on an individual's odds of seeking help from inner-circle sources. There was an increase in the model's goodness of fit (Pseudo-R^2 = 0.144) after incorporating the three-way interaction for social proximity to suicidality. Model 5 indicated that the three-way interaction among SI proximity, SH proximity, and SA proximity had a non-significant effect on the odds of seeking help from inner circles (β_{123} = 0.033, 95% CI [−0.005, 0.070]). After controlling for sociodemographics, distress levels, and mental health risks in Model 2, each unit increase in SH proximity was associated with a 30.9% higher probability of seeking help from inner circles rather than not seeking help (OR = 1.309, 95% CI [1.175, 1.459]). Furthermore, whereas close social proximity to any single stage of suicidality increased the likelihood of the young generation to seek help from inner circles even after controlling for psychological distress (Models 1–3), only SH proximity remained significant when controlling for SI and SA proximity or their interaction terms even at the same distress level (Models 4 and 5). This suggested that closer SH proximity might have a stronger effect on motivating people to seek help from family, friends, and partners.

3.3.2. Effects of social proximity to suicidality on individuals' tendencies to seek help from friends and partner

The effects of separately incorporating SI proximity, SH proximity, SA proximity, and their interaction terms on odds of seeking help from friends and partners (but not family members) were presented in Table 3. Models 1–3 indicated a significant positive association between social proximity to individual forms of suicidality and seeking help from non-familial inner circles, suggesting that close social proximity to each specific form of suicidality increased the likelihood of seeking help from friends and partners. Specifically, each unit increase in SI proximity (OR = 1.133, 95% CI [1.055, 1.217]), SH proximity (OR = 1.165, 95% CI [1.077, 1.260]), and SA proximity (OR = 1.078, 95% CI [0.995, 1.167], marginally significant) were linked to a 13.3%, 16.5%, and 7.8% increased probability of seeking help from friends and partners, respectively. In Model 5, the three-way interaction among SI proximity, SH proximity, and SA proximity was statistically significant (β_{123} = 0.041, 95%CI [0.014, 0.069]). This finding suggested that the influence of social proximity to one form of suicidality on seeking help from friends and partners may be jointly moderated by social proximity to the other two forms of suicidality.

We conducted further simple effects tests to examine conditional effects with visualization in Fig. 3. SI proximity, SH proximity, and SA proximity were employed as focal predictors and independently assessed jointly moderating effects at varying degrees of social proximity to the remaining two forms of suicidality. The results showed that a low degree (equal to zero in our dataset) of SH and SA proximity augmented the association between SI proximity and seeking help from friends and partners only (OR = 1.273, 95%CI [1.120, 1.447]). In a similar vein, the association of SH proximity (OR = 1.393, 95%CI [1.172, 1.657]) or SA proximity (OR = 1.243, 95%CI [0.983, 1.573], marginally significant) with the odds of seeking help from friends and partner was amplified only when social proximity to both other two forms of suicidality was low.

4. Discussion

In this study, we investigated the direct and moderating effects of social proximity to SI, SH, and SA on the young generation's help-seeking behaviors. Drawing upon population-representative survey data, we employed LCA to uncover underlying help-seeking behavior patterns among the young generation. Regression analyses were further applied to explore the associations between social proximity to suicidality and an individual's odds of engaging in specific help-seeking behavior patterns (direct effects), and how exposures' effects varied with social proximity to suicidality (moderating effects). These findings shed light on the complex relationship between varied social proximity to suicidality and subsequent help-seeking behavior.

4.1. Summary of findings

To begin, closer social proximity to any of SI, SH, or SA heightened the individuals' probability of seeking help from family, friends, and partners even at the same distress level and mental health risks. This finding further strengthened previous research suggesting that exposed individuals who had closer relationships with suicidal individuals (i.e., closer social proximity) might end up having increased vulnerability (Haw et al., 2013). Specifically, the impact of exposure to suicidality was found to be stronger when the suicide attempter was a relative rather than a friend or acquaintance, echoing findings of Hill et al. (2020). Furthermore, this result accorded with previous studies, which showed that people developed a more adaptive attitude towards help-seeking behavior (i.e., a higher willingness to seek help) when they became aware of the presence of mild suicidal ideation or behavior among their close social connections (Begley et al., 2003; Gould et al., 2018). What

Table 2
Differences in sociodemographics, distress and mental health risks across four latent classes of help-seeking behavior.

	NS (N = 847, 53.60%)	*IS* (N = 152, 13.60%)	*NIS* (N = 491, 32.10%)	*DS* (N = 11, 0.80%)	
	N (%)	N (%)	N (%)	N (%)	
Age [mean (s.d.)]	26.34 (4.22)	25.95 (3.56)	25.73 (3.73)	24.91 (3.33)	F (3,1497) = 2.807, p = 0.038[a], η^2 = 0.075
Gender					
Female	383 (45.20%)	91 (59.90%)	242 (49.30%)	7 (63.60%)	$\chi^2(3)$ = 12.587, p = 0.006[b]
Male	464 (54.80%)	61 (40.10%)	249 (50.70%)	4 (36.40%)	*Cramer's* V = 0.092
Occupation status					
Full-time job	634 (74.90%)	113 (74.30%)	371 (75.60%)	7 (63.60%)	$\chi^2(12)$ = 9.934, p = 0.622
Full-time student	124 (14.60%)	24 (15.80%)	71 (14.50%)	3 (27.30%)	*Cramer's* V = 0.047
Part-time job/student	52 (6.10%)	8 (5.30%)	34 (6.90%)	0 (0.00%)	
Unemployed	37 (4.40%)	6 (3.90%)	14 (2.90%)	1 (9.10%)	
Refused to answer	–	1 (0.70%)	1 (0.20%)	–	
Education level					
Post-secondary & above	755 (89.10%)	142 (93.40%)	451 (91.90%)	10 (90.90%)	$\chi^2(9)$ = 8.579, p = 0.477
Secondary	88 (10.40%)	9 (5.90%)	39 (7.90%)	1 (9.10%)	*Cramer's* V = 0.044
Primary & below	3 (0.40%)	–	–	–	
Refused to answer	1 (0.10%)	1 (0.70%)	1 (0.20%)	–	
Living with					
Family	721 (85.10%)	132 (86.80%)	428 (87.20%)	8 (72.70%)	$\chi^2(3)$ = 4.670, p = 0.862
Friends	51 (6.00%)	9 (5.90%)	29 (5.90%)	1 (9.10%)	*Cramer's* V = 0.032
Alone	70 (8.30%)	10 (6.60%)	30 (6.10%)	2 (18.20%)	
Other	5 (0.60%)	1 (0.70%)	4 (0.80%)	–	
Distress [mean (s.d.)]	1.88 (0.70)	2.22 (0.64)	2.29 (0.68)	2.56 (0.33)	F (3,1497) = 42.113, p < 0.001[c], η^2 = 0.279
Mental health risks					
Suicidal ideation	51 (3.40%)	22 (1.47%)	73 (4.86%)	5 (0.33%)	$\chi^2(3)$ = 46.316, p < 0.001[c] *Cramer's* V = 0.176
Self-harm	15 (1.00%)	7 (0.47%)	36 (2.40%)	3 (0.20%)	$\chi^2(3)$ = 40.184, p < 0.001[c] *Cramer's* V = 0.164
Suicide attempts	7 (0.47%)	0 (0)	7 (0.47%)	0 (0)	$\chi^2(3)$ = 2.929, p = 0.403 *Cramer's* V = 0.044
Mental illness diagnosis	47 (3.13%)	4 (0.27%)	48 (3.20%)	5 (0.33%)	$\chi^2(3)$ = 38.394, p < 0.001[c] *Cramer's* V = 0.160

[a] $p < 0.05$.
[b] $p < 0.01$.
[c] $p < 0.001$.

was observed for the study population might lend support to the self-categorization theory, claiming that recognizing the presence of suicidal tendencies among close acquaintances would prompt individuals to view seeking help for mental illness as behavior that conforms to group norms (Kearns et al., 2015), decreasing the stigmatization associated with help-seeking behavior (Ben-Zeev et al., 2012). This stigma reduction might motivate individuals to adopt a more proactive attitude towards help-seeking (Calear et al., 2014; Reynders et al., 2016), thereby fostering a greater willingness to seek help when experiencing distress.

In addition, it was intriguing to observe that social proximity to SH exhibited a more pronounced effect on individuals' odds of seeking help compared to that of SI exposure and SA exposure, which confirmed our first hypothesis. This appears to indicate that individuals who rely on family, friends and partners or exclusively rely on friends and partners may attribute different labels to various stages of suicidality, thereby potentially altering their response to psychological distress to varying degrees. Researchers suggested that young people commonly perceived self-harm behavior as impulsive and preventable within the realm of their capabilities (Doyle, 2017), whereas suicidal ideation tended to be persistent, and suicide attempts were premeditated. Thus, when people become aware of the presence of self-harm in their close relationships, it may engender a certain level of personal growth such as improvement in mental health literacy, consequently fostering a heightened internal motivation to seek help when confronted with distressing circumstances (Bilello et al., 2024). Further research would be warranted to explore the replicability of this phenomenon and to determine the underlying mechanisms that contribute to its occurrence.

Furthermore, among those who do not rely on their family, the effect of exposure to any single stage of suicidality was magnified along with social proximity only when that person was not exposed to the other two stages, which supported our second hypothesis. This similar underlying mechanism was observed for SI, SH, and SA exposure. It implied that one's suicidality, regardless of its stage, might be a proximal factor for the exposed person. Moreover, in the absence of exposure to the other two forms, the stronger impact of close social proximity to a single form of suicidality emphasized that the quantity of exposure to suicidality, rather than the specific form, would effectively facilitate individuals' help-seeking tendencies. Begley et al. (2003) documented similar findings, indicating a higher probability of seeking help when individuals were aware of a single suicide death, while the tendencies to seek help remained unchanged or even decreased when they knew of multiple suicides.

The phenomenon observed here was aligned with the mere exposure effect, which posited that repetitive presentation of stimuli would result in decreased sensitivity to those stimuli (Zajonc, 2001). In the case of individuals exposed to suicidality within close relationships, repeated exposure to instances of suicidal behavior may lead to decreased sensitivity or increased tolerance towards such stimuli. Consequently, the impact on their help-seeking behavior may be less prominent. They may develop desensitization or coping mechanisms that diminish the perceived urgency of seeking help. In addition, this finding would also

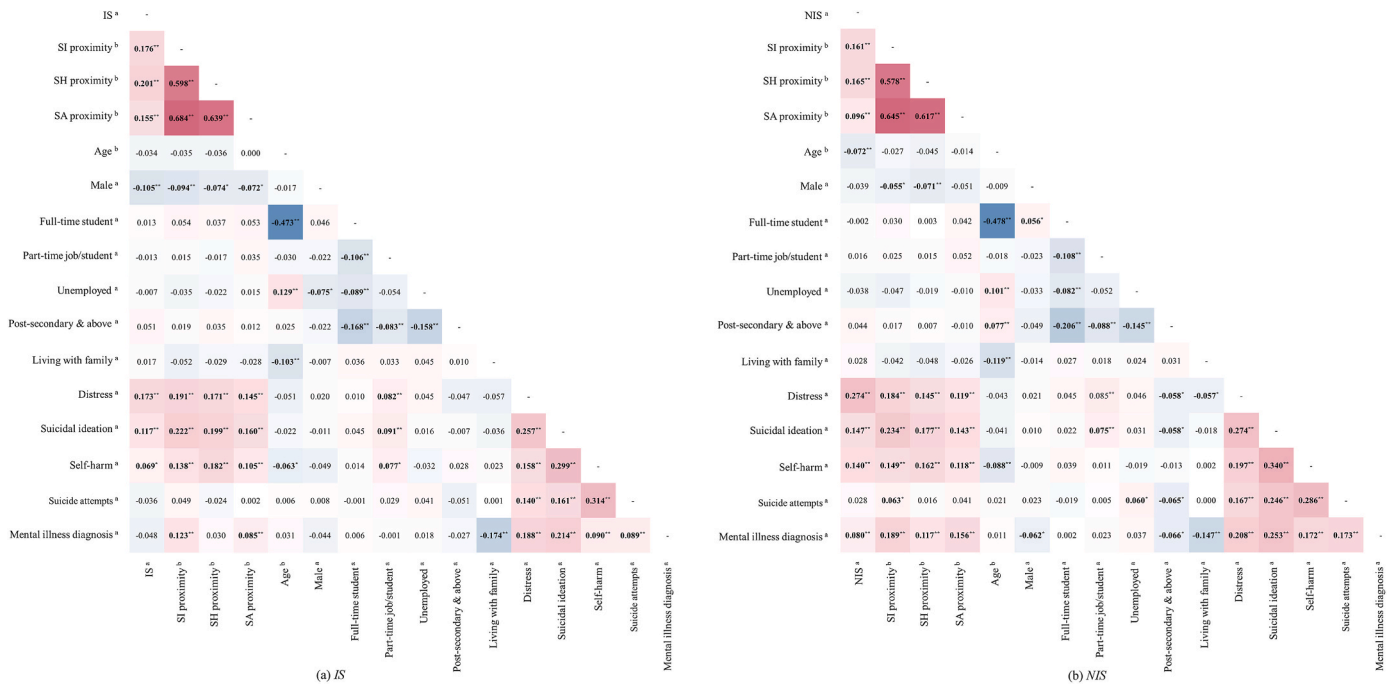

Fig. 2. Correlation matrixes for (a) *IS*; and (b) *NIS*, with *NS* as the reference group. Superscripted "a" referred to binary variables and superscripted "b" referred to continuous variables. Positive and negative correlations were highlighted in red and blue respectively. Color shading indicated the strength of the correlations, with darker shades indicating stronger correlations. Asterisks indicate the statistical significance level, where $*p < 0.05$, $**p < 0.01$, and $***p < 0.001$. (For interpretation of the references to colour in this figure legend, the reader is referred to the Web version of this article.)

lend support to the habituation effect resulting from repeated exposure to suicide (Stein et al., 2018). It suggested that individuals who have been exposed repeatedly to stimuli related to suicide might become habituated to the psychological distress associated with it (Rasmussen et al., 2018). This habituation can contribute to a reluctance to seek help, as the distressing nature of suicide becomes normalized or familiar to them. What is interesting is that this underlying mechanism may not be applicable to those who seek help from families. Our findings indicated that the impact of social proximity to any form of suicidality on help-seeking behavior within those who seek help from families remains unaltered by social proximity to the other two forms of suicidality, suggesting different forms of suicidality exposure on such help-seeking behavior did not demonstrate additive effects. It warrants future investigation into the unique aspects and mechanisms of family support within the context of suicidality exposure to gain a better understanding of individuals' help-seeking behaviors.

Overall, for the population in this study, there appeared to be no evidence that increased suicide risks due to high social proximity to suicidality as reported in extant literature was contributed by changes in exposed individuals' stress-buffering mechanism. Instead, we could observe the opposite effect, where exposed individuals (especially those experiencing initial exposure) were actually more likely to be motivated to buffer against their distress by seeking help from their family, friends, and partners. Nevertheless, while this may apply to the general young population, it may still be warranted to conduct future targeted investigations on specific vulnerable subpopulations such as children, individuals with adverse childhood experiences, and particularly individuals with underlying psychiatric conditions, e.g., substance use and eating disorders, to explore the interplay between their help-seeking tendencies and negative coping strategies.

4.2. Study implications

To the best of our knowledge, this is the first study to delineate the complex associations between exposure to suicidality and help-seeking behavior and examine the moderating effect of social proximity. To be more specific, it broadens the concept of suicidality exposure by considering various forms of exposure from a horizontal perspective, as well as the proximity to a specific form of suicidality exposure from a vertical viewpoint. By integrating different classifications of help-seeking behavior patterns, the study offers a more profound and detailed characterization of the heterogeneous associations between exposure to suicidality and help-seeking behaviors.

Second, the wide implementation of family and peer-based suicide prevention programs is crucial to effectively address subsequent help-seeking behaviors that occur after exposure to suicidality. The study findings indicate that family and friends are often the first contact points for distressed individuals. Providing mental health first aid courses to the community at large would be beneficial for early identification rather than simply relying on professional intervention only. Consequently, this approach may better tap community resources in creating more opportunities for effective early intervention, and thereby mitigate risks of escalation to more severe suicidal behaviors at the population level.

Third, addressing the initial exposure would potentially be crucial in maintaining motivation among individuals to engage with mental health providers. Our study highlights that individuals demonstrate an elevated tendency to seek help upon initial exposure to any form of suicidality within close relationships. However, subsequent exposure to suicidality has the potential to suppress the likelihood of further increasing seeking help. We may sustain a heightened willingness to seek help among these distressed individuals. Stakeholders should prioritize the initial exposure of individuals when they seek help, aiming to foster a positive experience that increases the probability of future help-seeking (Rickwood et al., 2005). The young generation typically demonstrates a significant need for help, yet they are often unwilling to seek help (Radez et al., 2021), thereby creating a service gap of unmet needs in this demographic (Islam et al., 2022). Implementing targeted strategies that address the initial exposure of individuals seeking help can contribute to mitigating the service gap.

Finally, we also noted a significant underutilization of formal sources (e.g., healthcare professionals) in the help-seeking behavior patterns

Table 3
Multinomial logistic regression with three-way interaction for *IS* and *NIS*.

	Model 1	Model 2	Model 3	Model 4	Model 5
IS* vs. *NS					
(Intercept)	−3.749[c]	−3.821[c]	−3.636[c]	−3.817[c]	−3.938[c]
	(0.935)	(0.941)	(0.935)	(0.943)	(0.948)
Social proximity to suicidality					
SI proximity	**0.218**[c]			0.104	**0.254**[b]
	(0.052)			(0.072)	(0.098)
SH proximity		**0.269**[c]		**0.187**[a]	**0.415**[c]
		(0.055)		(0.074)	(0.123)
SA proximity			**0.220**[c]	0.030	0.132
			(0.055)	(0.081)	(0.194)
Interaction effect					
SI proximity × SH proximity					**−0.126**[a]
					(0.050)
SI proximity × SA proximity					−0.053
					(0.057)
SH proximity × SA proximity					−0.075
					(0.072)
SI proximity × SH proximity × SA proximity					0.033
					(0.019)
Wald test: total effect ($\beta_{12} + \beta_{13} + \beta_{23} + \beta_{123}$)					6.090
Covariates					
Age	−0.013	−0.011	−0.015	−0.012	−0.011
	(0.027)	(0.027)	(0.027)	(0.027)	(0.027)
Male	Ref.	Ref.	Ref.	Ref.	Ref.
Female	**−0.603**[b]	**−0.594**[b]	**−0.610**[c]	**−0.586**[b]	**−0.589**[b]
	(0.185)	(0.186)	(0.185)	(0.186)	(0.187)
Full-time job	Ref.	Ref.	Ref.	Ref.	Ref.
Full-time student	0.017	0.041	−0.035	0.004	0.021
	(0.293)	(0.294)	(0.294)	(0.296)	(0.298)
Part-time job/student	−0.368	−0.356	−0.414	−0.359	−0.392
	(0.414)	(0.416)	(0.412)	(0.417)	(0.419)
Unemployed	0.018	−0.036	−0.128	−0.020	−0.042
	(0.476)	(0.477)	(0.479)	(0.480)	(0.482)
Below post-secondary	Ref.	Ref.	Ref.	Ref.	Ref.
Post-secondary & above	0.743	0.749	0.747	0.729	0.705
	(0.388)	(0.389)	(0.388)	(0.389)	(0.391)
Not living with family	Ref.	Ref.	Ref.	Ref.	Ref.
Living with family	0.250	0.233	0.199	0.243	0.245
	(0.278)	(0.277)	(0.276)	(0.278)	(0.279)
Distress	**0.729**[c]	**0.728**[c]	**0.745**[c]	**0.712**[c]	**0.720**[c]
	(0.138)	(0.138)	(0.137)	(0.139)	(0.139)
No suicidal ideation	Ref.	Ref.	Ref.	Ref.	Ref.
Suicidal ideation	0.567	**0.615**[a]	**0.687**[a]	0.544	0.545
	(0.314)	(0.314)	(0.309)	(0.317)	(0.318)
No self-harm	Ref.	Ref.	Ref.	Ref.	Ref.
Self-harm	0.513	0.391	0.521	0.424	0.560
	(0.532)	(0.535)	(0.529)	(0.536)	(0.538)
No suicide attempts	Ref.	Ref.	Ref.	Ref.	Ref.
Suicide attempts	**−12.852**[c]	**−12.574**[c]	**−12.983**[c]	**−12.717**[c]	**−12.610**[c]
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
No mental illness diagnosis	Ref.	Ref.	Ref.	Ref.	Ref.
Mental illness diagnosis	**−1.450**[b]	**−1.379**[a]	**−1.447**[b]	**−1.450**[b]	**−1.494**[b]
	(0.551)	(0.551)	(0.553)	(0.553)	(0.554)
NIS* vs. *NS					
(Intercept)	−1.926[b]	−1.978[b]	−1.861[b]	−2.017[c]	−2.146[c]
	(0.604)	(0.605)	(0.601)	(0.607)	(0.613)
Social proximity to suicidality					
SI proximity	**0.125**[c]			**0.105**[a]	**0.238**[c]
	(0.036)			(0.048)	(0.065)
SH proximity		**0.152**[c]		**0.144**[b]	**0.348**[c]
		(0.04)		(0.052)	(0.089)
SA proximity			0.075	−0.088	0.225
			(0.041)	(0.058)	(0.122)
Interaction effect					
SI proximity × SH proximity					**−0.098**[b]
					(0.034)
SI proximity × SA proximity					**−0.108**[b]
					(0.039)
SH proximity × SA proximity					**−0.130**[a]
					(0.052)
SI proximity × SH proximity × SA proximity					**0.041**[b]

(*continued on next page*)

Table 3 (*continued*)

	Model 1	Model 2	Model 3	Model 4	Model 5
					(0.014)
Wald test: total effect ($\beta_{12} + \beta_{13} + \beta_{23} + \beta_{123}$)					**16.580**[b]
Covariates					
Age	**−0.038**[a]	**−0.037**[a]	**−0.039**[a]	**−0.036**[a]	**−0.036**[a]
	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)
Male	Ref.	Ref.	Ref.	Ref.	Ref.
Female	−0.178	−0.175	−0.189	−0.171	−0.168
	(0.121)	(0.121)	(0.120)	(0.121)	(0.122)
Full-time job	Ref.	Ref.	Ref.	Ref.	Ref.
Full-time student	−0.274	−0.257	−0.275	−0.245	−0.241
	(0.199)	(0.199)	(0.199)	(0.200)	(0.202)
Part-time job/student	−0.199	−0.179	−0.214	−0.167	−0.192
	(0.253)	(0.254)	(0.252)	(0.255)	(0.257)
Unemployed	−0.453	−0.480	−0.510	−0.427	−0.431
	(0.348)	(0.348)	(0.348)	(0.347)	(0.347)
Below post-secondary	Ref.	Ref.	Ref.	Ref.	Ref.
Post-secondary & above	**0.460**[a]	**0.469**[a]	**0.481**[a]	**0.458**[a]	0.436
	(0.226)	(0.227)	(0.226)	(0.227)	(0.229)
Not living with family	Ref.	Ref.	Ref.	Ref.	Ref.
Living with family	0.297	0.298	0.281	0.310	0.319
	(0.181)	(0.181)	(0.180)	(0.182)	(0.183)
Distress	**0.792**[c]	**0.796**[c]	**0.811**[c]	**0.786**[c]	**0.798**[c]
	(0.092)	(0.092)	(0.092)	(0.092)	(0.093)
No suicidal ideation	Ref.	Ref.	Ref.	Ref.	Ref.
Suicidal ideation	0.335	0.362	0.421	0.304	0.294
	(0.227)	(0.226)	(0.224)	(0.229)	(0.23)
No self-harm	Ref.	Ref.	Ref.	Ref.	Ref.
Self-harm	**0.883**[a]	**0.812**[a]	**0.893**[a]	**0.824**[a]	**0.948**[a]
	(0.364)	(0.365)	(0.363)	(0.366)	(0.37)
No suicide attempts	Ref.	Ref.	Ref.	Ref.	Ref.
Suicide attempts	−1.301	−1.230	**−1.334**[a]	−1.211	−1.219
	(0.665)	(0.671)	(0.667)	(0.668)	(0.669)
No mental illness diagnosis	Ref.	Ref.	Ref.	Ref.	Ref.
Mental illness diagnosis	−0.011	0.030	0.033	0.013	0.000
	(0.247)	(0.246)	(0.247)	(0.247)	(0.250)
Model parameters					
Number of observations	1487	1487	1487	1487	1487
−2 Log-likelihood	2566.613	2564.900	2575.908	2559.214	2539.939
Model χ^2	**165.23**[c]	**166.94**[c]	**155.93**[c]	**172.63**[c]	**191.90**[c]
Pseudo-R^2	0.125	0.126	0.118	0.130	0.144

Notes: Robust standard errors in parentheses. *NS* was the reference group.
[a] $p < 0.05$.
[b] $p < 0.01$.
[c] $p < 0.001$.

exhibited by young generations. This observation aligns with prior research, indicating a reluctance among young individuals to seek support from formal sources during times of distress (Radez et al., 2021). Recent research findings have revealed that the mode of service may constitute a noteworthy obstacle to help-seeking among young generations (Yip et al., 2020). Professionals should tailor effective intervention programs accordingly. For instance, the utilization of social media and online emotional support platforms could be effective in engaging vulnerable youths (Yip et al., 2024).

4.3. Limitations

These findings must be considered in light of the following limitations. Firstly, it should be noted that the responses obtained from participants through self-report questionnaires may inevitably be influenced by recall bias and social desirability effects. While the impacts of these factors might be relatively minor, it is still necessary to exercise caution. Secondly, the utilization of a cross-sectional design in this study restricts the ability to establish causal relationships between variables. Therefore, our research findings primarily indicate an association between different instances of exposure to suicidality and specific help-seeking behavior patterns. Thirdly, questions in the survey did not clearly delineate between self-harm and suicide attempts. However, descriptive statistics in Table 1 showed that study participants were able to differentiate these two concepts based on their own subjective terms, as not all individuals who came across self-harm believed they had encountered suicide attempts. Fourthly, due to the limited representation of diverse seekers (*DS*) in the study, i.e., individuals who sought help from diverse channels when experiencing distress, it was not feasible to further investigate the specific relationship between social proximity to suicidality among diverse seekers. It would be desirable for future investigations to include a larger sample of individuals who exhibit a propensity for seeking help from multiple sources. In addition, future studies should further explore the differences in the manifestation of this influence among adolescents and young adults, which was not investigated in our study due to the restricted sample size of adolescents. This will facilitate a more comprehensive understanding of the impact of how social proximity to suicidality affects different help-seeking behavior patterns within different age groups. Finally, the findings of this study may offer insights into the influence of social proximity to suicidality on help-seeking behaviors within the Asian Pacific context. Caution should be exercised in generalizing these findings to other contexts as help-seeking behaviors can be shaped by diverse cultural contexts (Guo et al., 2015).

5. Conclusion

In this study, we explored the direct and moderating effects of social

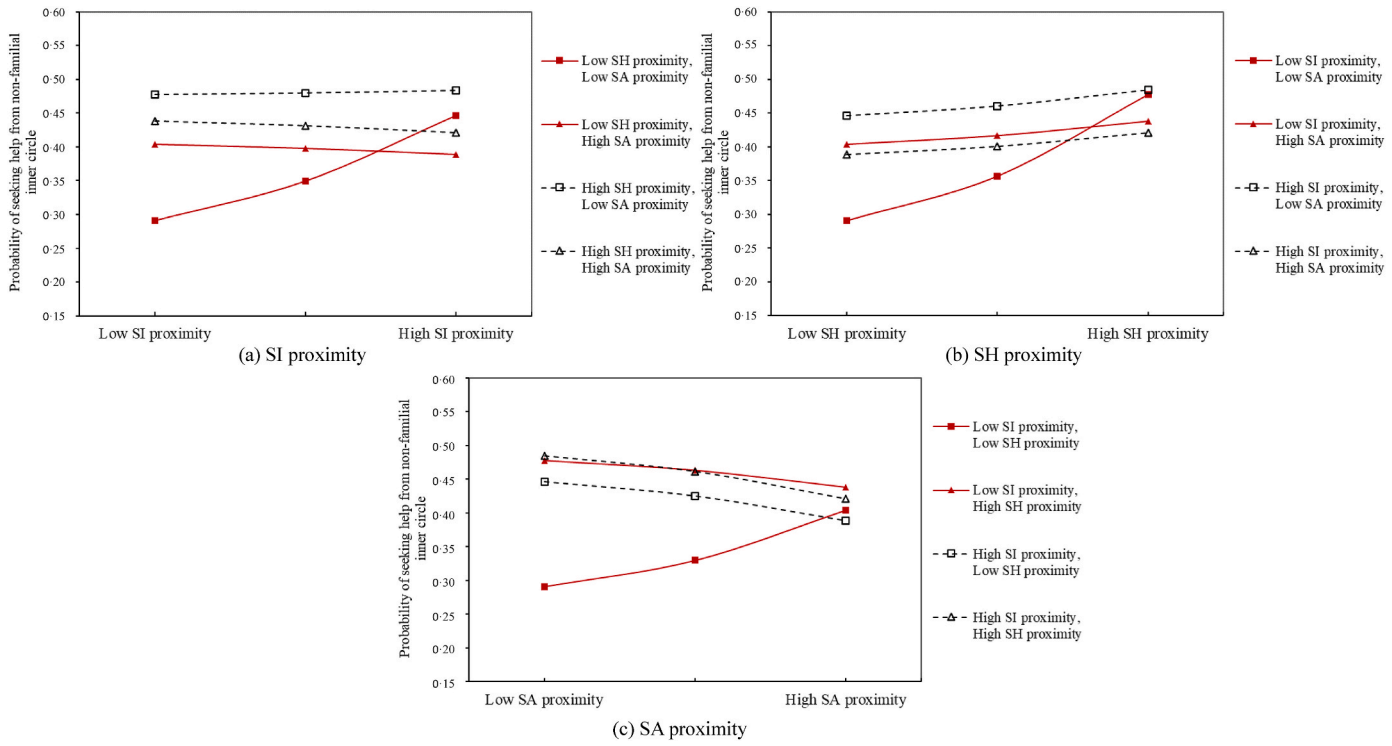

Fig. 3. Simple effects test for three-way interaction. (a) SI proximity: conditional effects of the SI proximity at values of SH proximity and SA proximity; (b) SH proximity: conditional effects of the SH proximity at values of SI proximity and SA proximity; (c) SA proximity: conditional effects of SA proximity at values of SI proximity and SH proximity. The horizontal axis represented the levels of the focal predictor, while the vertical axis depicted the probability of seeking help from the non-familial inner circle. For social proximity to each form of suicidality, the low proximity group was characterized by the minimum (equal to zero in our dataset), while the high proximity group was defined by M + SD.

proximity to SI, SH, and SA on the young generation's help-seeking behaviors. The results revealed that closer social proximity to suicidality amplified one's odds of seeking help from family, friends, and partners even after controlling for distress and mental health risks, with the effect of SH exposure exhibiting a more pronounced effect compared to that of SI exposure and SA exposure. Furthermore, initial exposure to any single stage of suicidality could have a stronger effect along with social proximity than subsequent exposures among those who did not rely on families. This is the first study that provides substantial empirical evidence to elucidate the complex relationship between exposure to suicidality and help-seeking behavior and examines the moderating effect of social proximity. Findings further suggest that addressing the initial exposure to suicidality for young individuals may help maintain their heightened willingness to seek help when experiencing distress, which has the potential to narrow down the service gap for unmet mental health needs among the young generation.

CRediT authorship contribution statement

Sijia Li: Writing – review & editing, Writing – original draft, Visualization, Validation, Methodology, Formal analysis, Conceptualization. **Alvin Junus:** Writing – review & editing, Validation, Methodology, Data curation, Conceptualization. **Paul Siu Fai Yip:** Writing – review & editing, Supervision, Funding acquisition.

Ethics approval

Ethical approval was obtained from the Human Research Ethics Committee for Non-Clinical Faculties of the University of Hong Kong (reference number: EA1709039).

Data availability statement

All data requests should be submitted to the corresponding author for consideration. Access to anonymized data might be granted following this.

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Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.ssmmh.2024.100357.

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