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The associations between coping resources and help-seeking intention in a sample of Chinese first-year medical students: mediation effects of coping strategies



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Abstract

Background Help-seeking is an adaptive coping process encompassing orientation, intention and actual behaviors. Help-seeking intention which promotes help-seeking behavior is a protective factor for mental health. However, the psychological paths for help-seeking intention in first-year medical students, a population vulnerable to mental health challenges, remain elusive. Thus, we aim to explore the associations between coping resources (i.e., perceived social support (PSS) and self-compassion) and formal/informal help-seeking intention, and to further test the mediating role of coping strategies (i.e., active coping and behavioral disengagement) in these relationships.

Methods The sample included 792 Chinese first-year medical students. Validated scale was used to assess PSS. The Self-compassion Scale Short Form (SCS-SF) and the Brief COPE were employed to evaluate self-compassion and coping strategies. Multiple linear regression and structural equation modeling (SEM) analyses were conducted.

Results Multiple regression analyses indicated that PSS, self-compassion, active coping, and behavioral disengagement were significantly associated with formal/informal help-seeking intention. SEM further demonstrated that active coping significantly mediated the relationships between PSS and formal/informal help-seeking intention, as well as the relationships between self-compassion and formal/informal help-seeking intention. Moreover, behavioral disengagement was found to significantly mediate the association between self-compassion and formal help-seeking intention.

Conclusions The present study identified five significant mediation paths, indicating the intricate relationships between coping resources, coping strategies, and help-seeking intention. These findings offer actionable insights for interventions, suggesting that enhancing PSS and fostering self-compassion can promote active coping, reduce

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behavioral disengagement, and ultimately increase both formal and informal help-seeking intention among first-year medical students in China.

Keywords Chinese first-year medical students, Coping resources, Coping strategies, Help-seeking intention

Background

Attending university for the first time is a stressful experience for many freshmen due to several key stressors. First, the transition from adolescence to adulthood involves identity exploration [1] and individuation [2], which may trigger uncertainty and stress as they adapt to new personal and social roles [1]. Second, adjusting to a new environment with changes in living conditions, academic expectations, and social dynamics can challenge their sense of security and increase the pressure to gain social acceptance [1]. Third, medical students, in particular, face heightened academic pressure due to the rigorous curriculum, long study hours, and emotional exhaustion, making them more vulnerable to mental health issues [3–5].

According to the WHO WMH Surveys across 21 countries, the 12-month prevalence of mental disorders was 20.3% among university students, while only 16% of these students had received any treatment [6]. Notably, medical students report a broader range of mental health problems compared to students from other disciplines [7]. Similarly, a meta-analysis found that the pooled prevalence of depression among medical students was 27.2%, while only 15.7% sought professional help [8]. This striking gap between the high prevalence of mental health problems and the relatively low rate of professional helpseeking highlights the pressing need to promote mental health service utilization among university students, particularly in medical students.

Importantly, the level of mental health problems is generally higher in first-year medical students compared to those in later years. For instance, anxiety symptoms were reported by 30.8% of first-year medical students and 9.4% of sixth-year students in the same study [9]. Similarly, Moutinho et al. reported that first-year medical students reported higher anxiety levels than those in later semesters [10]. Alshehri et al. also found that depression (52.9% versus 35.8%) and anxiety (35.6% versus 26.3%) were more prevalent in first-year students than in fifth-year students [11]. Increased mental health needs have been reported since the beginning of medical school in the U.S [12]. However, first-year medical students' help-seeking behaviors are less studied. Only one study reported that 24.9% of Norwegian first-year medical students with mental health problems engaged in mental health-seeking behaviors [13], lower than the 33% of U.S. second- to fourth-year students and 30% of final-year students in Brazil [14, 15]. Notably, mental health-seeking behaviors have not been explored among first-year medical students in China or Asia, even though mental distress is more prevalent in Southeast Asia compared to global data [16]. Given the high stressors and mental health issues in first-year students, promoting help-seeking behavior is crucial.

Help-seeking is an adaptive coping process carried out by individuals who perceive themselves as having personal/psychological/affective needs to pursue help from formal services (e.g., counselors) and informal sources (e.g., families) to deal with their mental health concerns [17, 18]. Help-seeking intention, along with orientation and actual behaviors, is a key part of this help-seeking process [17, 18]. In the present study, we investigated both formal and informal help-seeking intentions. Formal help-seeking intention referred to participants' intention to seek help from psychiatrists or counselors, while informal help-seeking intention pertained to their intention to seek support from peers, friends, or families. The observation of a notably low level of help-seeking behavior among first-year medical students may be attributed to several plausible factors. These factors include worries about stigma [19], feelings of embarrassment [20], a lack of a perceived need for help [21], and a lack of adequate mental health literacy [22]. The modifiable factors influencing help-seeking intention among first-year medical students remain inadequately understood. Investigating these factors, uncovering underlying mechanisms, and designing targeted interventions are essential to promote help-seeking intention and behaviors in this vulnerable population.

Coping resources and help-seeking

Coping resources refer to the personal, interpersonal, social, or environmental factors that individuals utilize to manage stress, adversity, or challenging situations [23]. According to the Stress Coping Theory (SCT), coping resources affect coping strategies and coping responses [24]. In the context of mental health, seeking help can be considered a constructive coping response. Coping resources, such as interpersonal resources (perceived social support in this study) and personal resources (selfcompassion in this study), facilitate problem-solving and coping with harsh situations [25]. Perceived social support from various sources, including parents, friends, and peers, has been consistently identified as a critical factor promoting help-seeking behaviors among young people, including university students and first-year medical students [12]. A systematic review of 22 studies underscored the prominence of perceived social support as one of the

most influential factors driving help-seeking for mental health problems [20]. Moreover, young people often prefer turning to social support when facing mental health challenges [26, 27]. Interpersonal resources like perceived social support not only encourage help-seeking but also serve as protective factors against mental health problems [28, 29]. Accumulating evidence has shown that greater perceived social support is associated with more positive outcomes, such as seeking help [30], highlighting its essential role in fostering help-seeking and promoting mental health in university students [31].

Personal resources are another important type of coping resources, while positive psychology attributes are important sources of personal resources and make people have resilience and control over their condition that can buffer the negative effects of stressors [32]. Selfcompassion is one of the most important personal psychological resources. Self-compassion is conceptualized as an individual's capacity for self-empathy, openness to emotional distress, and the ability to bestow care and kindness upon oneself [33]. Empirical studies have demonstrated the role of self-compassion as a facilitator of help-seeking behavior [33, 34]. Moreover, self-compassion has been shown to be instrumental in promoting self-regulation of health-related behaviors and fostering health-promoting activities, including stress management and help-seeking [35, 36]. Individuals with higher self-compassion exhibited more favorable health-related emotions, enhanced psychological well-being, and an increased likelihood of seeking help when grappling with mental health challenges [37]. These findings suggest that increasing self-compassion is a promising approach to enhance help-seeking intention among first-year medical students.

The role of coping strategies

Coping strategies refer to the cognitive and behavioral efforts employed by individuals to manage the internal and external demands of stressful situations [38]. These strategies aim to regulate emotional distress, solve problems, or adapt to challenging circumstances. Perceived social support and self-compassion represent two active coping resources, which may collectively influence the specific coping strategies [39-41]. As mentioned, the SCT further postulates that coping resources would wield influence over an individual's coping strategies, which, in turn, shape their coping responses [24]. Specifically, research has shown that problem-focused coping significantly mediated the relationship between perceived peer support and the reduction of stigma regarding seeking help for mental health problems among university freshmen [40]. Self-compassion was found to be negatively related to dysfunctional coping strategies and positively related to emotion-focused coping strategies [41], which in turn affected help-seeking behavior among university students [42]. However, little is known about whether such mediation pathways operate similarly among firstyear medical students. To our knowledge, no study has examined the potential mediating role of coping strategies in linking perceived social support and self-compassion to help-seeking intentions in this population. Addressing this gap is important for understanding the mechanisms through which coping resources facilitate mental health help-seeking among first-year medical students.

Current study

Anchored in the current literature review, the following hypotheses were proposed. First, perceived social support and self-compassion would be positively correlated with active coping (Hypothesis 1a), which in turn would be positively correlated with formal/informal help-seeking intention (Hypothesis 1b). Moreover, active coping was expected to mediate the relationships between perceived social support/self-compassion and formal/ informal help-seeking intention (Hypothesis 1c). Second, perceived social support and self-compassion would be negatively correlated with behavioral disengagement (Hypothesis 2a), which in turn would be negatively correlated with formal/informal help-seeking intention (Hypothesis 2b). Furthermore, behavioral disengagement was expected to mediate the associations between perceived social support/self-compassion and formal/informal help-seeking intention (Hypothesis 2c).

Methods

Participants and data collection

A survey was conducted between September and October 2023 in a medical university in Southern China. Participants completed a structured questionnaire that assessed background information, mental health-related resources, coping strategies, and outcomes. This study's background, purposes, and confidentiality were presented on the cover page of the questionnaire. Participants were informed that they retained the freedom to withdraw from the study at any point, with no adverse consequences associated with declining or leaving the questionnaire unfinished. Informed consent was obtained from all participants. This study was approved by the research ethics committee of the corresponding author's affiliated institution (Approval number: YJ-2024-09-01).

The present study was part of a larger project that included 1072 students. Responses with at least 20% of all the items involving missing values and having logical inconsistencies between some item responses were excluded from data analysis (n=11, 1%). Of the remaining 1061 (99%) questionnaires, 792 (73.9%) were completed by first-year medical students. All of these first-year students were aged 18 years or older, and they constituted the final sample of this study.

Measures

Background factors

Background factors were collected, including age, sex, self-reported household income level, and whether living with both parents.

Formal help-seeking intention

Participants were asked, "If you have mental health problems (e.g., anxiety or depressive symptoms), how likely would you seek help from a psychiatrist or a counselor?" The item was rated on a five-point Likert scale (0 = verylow to 5 = very high).

Informal help-seeking intention

It was assessed by two items: "If you have mental health problems (e.g., anxiety or depressive symptoms), how likely would you seek help from parents?" and "If you have mental health problems (e.g., anxiety or depressive symptoms), how likely would you seek help from peers and/or friends?". The items were rated on a five-point Likert scale (0 = very low to 5 = very high).

Perceived social support

Perceived social support was measured with three items assessing perceived emotional support, instrumental support, and affirmation from peers, friends, and families. It has been validated in Chinese students with excellent psychometric properties [43, 44]. A sample item was "When you need substantial help (e.g., to solve difficulties in daily life/studies), your peers, friends, and families would give you adequate support". The scale was rated on a 7-point Likert scale (0 = strongly disagree to 7 = strongly agree). Higher scores indicated higher levels of perceived social support. The Cronbach's alpha was 0.83 in this study.

Self-compassion

Self-compassion was assessed by using the Self-compassion Scale Short Form (SCS-SF) [45]. It has been validated in Chinese nursing students and medical workers with acceptable psychometric properties [46]. A sample item was "When I go through tough times, I give myself the care and love I need". It was rated with a 5-point Likert scale (1 = almost never to 5 = almost always), with higher scores indicating higher levels of self-compassion. The Cronbach's alpha of the scale was 0.80 in this study.

Active coping

Active coping was assessed using the Brief COPE [47], which evaluated the specific coping strategies used by the participants in response to difficulties and dilemmas. The

scale has been validated in Chinese adults with satisfactory psychometric properties [48]. It has 2 items "focus efforts to solve existing difficulties" and "take practical action to improve the current situation" (1 = never to 4 = often). The Cronbach's alpha of the scale was 0.77 in this study.

Behavioral disengagement

Behavioral disengagement was assessed using the Brief COPE [47], which evaluated the specific coping strategies employed by the participants when confronting challenges and quandaries. Previous research conducted in Chinese adults has established satisfactory psychometric properties [48]. It consists of 2 items "give up trying to deal with it" and "give up the attempt to cope" (1 = never to 4 = often). The Cronbach's alpha of the scale was 0.79 in this study.

Statistical analysis

Descriptive statistics were conducted for background factors. Pearson correlation coefficients were derived. Simple linear regressions were performed to examine the associations between background factors and informal/ formal help-seeking intention. Multiple linear regression analyses adjusting for significant background factors were conducted to investigate the associations between each independent variables (i.e., perceived social support, self-compassion, active coping, and behavioral disengagement) and informal/formal help-seeking intention. Structural equation modeling (SEM) was conducted to test the mediation effect of active coping and behavioral disengagement between perceived social support/selfcompassion and informal/formal help-seeking intention, while controlling for significant background factors associated with informal/formal help-seeking intention. The latent variable of perceived social support, self-compassion, active coping, behavioral disengagement, and informal help-seeking intention was constructed based on the original items of the respective scales. The Maximum Likelihood (ML) estimator was used. Satisfactory model fit indices included $\chi^2/df < 3$, Comparative Fit Index $(CFI) \ge 0.90$, Tucker-Lewis Index $(TLI) \ge 0.90$, Root Mean Square Error of Approximation (RMSEA)≤0.08, and Standardized Root Mean Square Residual (SRMR)≤0.08 [49]. SEM analyses were conducted using Mplus 8.3 while all other analyses were conducted using SPSS 26.0. Statistical significance was defined as a two-tailed *p*-value < 0.05.

Results

Descriptive statistics

As shown in Table 1, of the current sample, the mean (SD) age was 18.03 (0.31) years. Slightly over half of the participants were female (n = 449, 56.7%); more than

Table 1 Participants' characteristics

	n	%	
Age	Mean (SD)	18.03 (0.31)	
Sex			
Male	343	43.3	
Female	449	56.7	
Living with both parents			
Yes	669	84.5	
No	123	15.5	
Self-reported household income			
Very poor/poor	121	15.3	
Average	450	56.8	
Good/very good	220	27.8	
Missing data	1	0.1	

one-seventh of the participants reported not living with both parents (n = 123, 15.5%). Regarding household income level, 15.3% reported very low/low level (n = 121), the majority reported an average level (n = 450, 56.8%) and 22.0% reported good/very good level (n = 220).

Pearson correlation between studied variables

The results are shown in Table 2. Perceived social support, self-compassion, active coping, informal help-seeking intention, and formal help-seeking intention were all positively correlated with each other; r ranged from 0.13 to 0.51. In contrast, behavioral disengagement was negatively correlated with perceived social support, self-compassion, active coping, informal help-seeking intention,

Table 2	Pearson	correlations	between	variables
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and formal help-seeking intention; r ranged from -0.10 to -0.20.

Background factors associated with informal/formal helpseeking intention

Self-reported household income ($\beta = 0.24$) was significantly associated with informal help-seeking intention. However, the associations involving age, sex, and living with both parents were statistically non-significant. Females were more likely than males to show formal help-seeking intention ($\beta = 0.12$). Those who self-reported very good/good household income were more willing to seek formal help ($\beta = 0.15$). Age and living with both parents were not significant factors of formal help-seeking intention. Such data are presented in Table 3.

Factors associated with informal/formal help-seeking intention

As presented in Table 4, the multiple linear regression analyses, adjusting for significant background factors, showed that perceived social support ($\beta = 0.52$), selfcompassion ($\beta = 0.11$), and active coping ($\beta = 0.29$) were significantly and positively associated with informal help-seeking intention. Similarly, perceived social support ($\beta = 0.18$), self-compassion ($\beta = 0.20$), and active coping ($\beta = 0.25$) were significantly and positively associated with formal help-seeking intention. In contrast, behavioral disengagement was significantly and negatively

	Mean, SD (range)	1	2	3	4	5	6
1. Perceived social support	16.90, 3.11 (3–21)	1					
2. Self-compassion	5.50, 1.59 (0–8)	0.37***	1				
3. Active coping	6.88, 1.20 (2–8)	0.32***	0.40**	1			
4. Behavioral disengagement	3.66, 1.43 (2-8)	-0.14*	-0.20**	-0.16**	1		
5. Informal help-seeking intention	6.77, 2.02 (2–10)	0.51***	0.13*	0.30***	-0.14**	1	
6. Formal help-seeking intention	3.27, 1.26 (1–5)	0.20***	0.20***	0.26***	-0.10*	0.36***	1

*, *p* < 0.05, **, *p* < 0.01, ***, *p* < 0.001

Table 3	Background	factors of inf	formal/formal	help-seeking	intention

	Informal help-seeking intention			Formal help-seeking intention		
	β	SE	р	β	SE	р
Age	-0.01	0.05	0.886	-0.06	0.31	0.292
Sex						
Male	Reference			Reference		
Female	0.02	0.23	0.765	0.12	0.14	0.032
Self-reported household income						
Very poor/poor	Reference			Reference		
Average	0.13	0.45	0.192	0.11	0.28	0.291
Good/very good	0.24	0.48	0.017	0.15	0.30	0.044
Living with both parents						
Yes	Reference			Reference		
No	-0.09	0.31	0.068	-0.03	0.19	0.556

	Model 1			Model 2		
	Informal help-seeking intention		Formal hel	on		
	β	SE	р	β	SE	р
Perceived social support	0.52	0.03	< 0.001	0.18	0.02	0.001
Self-compassion	0.11	0.07	0.038	0.20	0.04	< 0.001
Active coping	0.29	0.09	< 0.001	0.25	0.06	< 0.001
Behavioral disengagement	-0.15	0.08	0.005	-0.12	0.05	0.027

Table 4 Results of multiple linear regression

Model 1 was adjusted for self-reported household income. Model 2 was adjusted for sex and self-reported household income



Fig. 1 Results of structural equation modeling. Standardized coefficients are reported. *, p < 0.05; **, p < 0.01, ***, p < 0.001. The model was adjusted for sex and self-reported household income. The non-significant paths and covariance between variables are not shown. Five significant mediation pathways generated: (1) perceived social support \rightarrow active coping \rightarrow informal help-seeking intention; (2) perceived social support \rightarrow active coping \rightarrow informal help-seeking intention; (4) self-compassion \rightarrow behavioral disengagement \rightarrow informal help-seeking intention; (5) self-compassion \rightarrow active coping \rightarrow formal help-seeking intention.

associated with informal help-seeking intention (β = -0.15) and formal help-seeking intention (β = -0.12).

Testing mediation mechanisms by SEM

Figure 1 presented the model testing the mediation effects of active coping and behavioral disengagement between perceived social support/self-compassion and informal/formal help-seeking intention. SEM yielded satisfactory model fit indices (χ^2/df = 177.58/72, CFI = 0.98, TLI = 0.97, RMSEA = 0.04, SRMR = 0.07).

In Fig. 1, perceived social support was directly associated with informal help-seeking intention ($\beta = 0.40$, p < 0.001) and formal help-seeking intention ($\beta = 0.08$, p = 0 0.032). Self-compassion was directly associated with formal help-seeking intention ($\beta = 0.16$, p = 0.027) but not directly with informal help-seeking intention ($\beta = 0.02$, p = 0.754). Five significant mediation pathways were found: (1) The significant mediation via active coping between perceived social support and informal help-seeking intention ($\beta = 0.029$, p = 0.043) indicated that perceived social support was positively associated with active coping ($\beta = 0.17$, p = 0.002), which was in turn positively associated with informal help-seeking intention ($\beta = 0.17$, p = 0.007). (2) The significant mediation via active coping between perceived social support and formal help-seeking intention ($\beta = 0.026$, p = 0.018) indicated that perceived social support was positively associated with active coping ($\beta = 0.17$, p = 0.002), which was in turn positively associated with formal help-seeking intention ($\beta = 0.15$, p = 0.035). (3) The significant mediation via active coping between self-compassion and informal help-seeking intention ($\beta = 0.079$, p = 0.011) indicated that self-compassion was positively associated with active coping ($\beta = 0.46$, p < 0.001), which was in turn positively associated with informal help-seeking intention ($\beta = 0.17$, p = 0.007). (4) The significant mediation via active coping between self-compassion and formal help-seeking intention ($\beta = 0.069$, p = 0.041) indicated that self-compassion was positively associated with active coping ($\beta = 0.46$, p < 0.001), which was in turn positively associated with formal help-seeking intention ($\beta = 0.15$, p = 0.035). (5) The significant mediation via behavioral disengagement between self-compassion and informal help-seeking intention ($\beta = 0.032$, p = 0.033) indicated that self-compassion was negatively associated with behavioral disengagement ($\beta = -0.27$, p < 0.001), which was in turn negatively associated with informal help-seeking intention ($\beta = -0.12$, p = 0.038). However, behavioral disengagement failed to mediate the associations between perceived social support and informal/formal help-seeking intention and the association between self-compassion and formal help-seeking intention. The non-significant pathways were not displayed in Fig. 1; however, more comprehensive information, including non-significant paths and covariances, is provided in Supplementary Fig. 1.

Discussion

Our study identified a significant sex difference in formal help-seeking intention, which is similar to earlier studies that documented higher rates of service utilization among females compared to males [50]. This discrepancy may be attributed to females being more inclined to express their emotions openly and seek assistance when required [51]. However, it is noteworthy that no statistically significant sex differences were observed in informal help-seeking intention. This may suggest that females demonstrated varying levels of unexplored factors related to informal help-seeking intention, with higher levels in certain aspects and lower levels in others. Future studies should delve into these nuances for a more comprehensive understanding. The implications drawn from our findings underscore the importance of promoting helpseeking behaviors among both male and female first-year medical students with equal vigor.

This study revealed a potential socio-economic disparity in informal/formal help-seeking intention, wherein participants reporting higher household income levels were more inclined to express help-seeking intention compared to those with lower income levels, despite a lower prevalence of mental distress in higher socio-economic status groups [52], which aligned with findings from prior research studies [53]. The advantages that individuals with elevated socio-economic status enjoyed in terms of access to mental health services were multifaceted. Financial resources not only facilitated the utilization of professional services but also contributed to a heightened awareness of mental health issues within this demographic [22]. This awareness, coupled with the availability of coping resources, painted a comprehensive picture of the support infrastructure that individuals with higher household incomes may possess. Similarly, greater financial means within affluent families lead to an increased availability of coping resources and assistance for them.

We revealed significant correlations between perceived social support, self-compassion, active coping, behavioral disengagement, and informal/formal help-seeking intention. Confirming findings from prior research [35, 54, 55], we found that perceived social support and selfcompassion were positively correlated with active coping, and active coping were positively correlated with formal/ informal help-seeking intentions, supporting the initial hypothesis 1a and hypothesis 1b. Perceived social support and active coping were negatively associated with behavioral disengagement (supporting hypothesis 2a), while behavioral disengagement showed a significant and negative association with formal/informal help-seeking intention among Chinese first-year medical students (supporting hypothesis 2b), which was in line with previous findings [35, 54, 55]. Notably, the effect sizes (β) of multiple regression analyses were comparable. Of particular interest were the stronger associations between perceived social support and informal help-seeking intention, as well as between active coping and formal help-seeking intention. This suggests that perceived social support may play a pivotal role in facilitating informal help-seeking, consistent with existing literature emphasizing its prominence among young individuals seeking help for mental health issues [54]. Moreover, our findings suggested that Chinese first-year medical students who actively engage in coping may harbor a more positive attitude towards seeking professional help, potentially contributing to a reduced stigma surrounding mental health concerns [56]. However, it is crucial to note that further validations are imperative to solidify and extend this interpretation. The relationships uncovered in this study underscore the associations of psychological factors influencing help-seeking intention among Chinese first-year medical students, paving the way for additional research that can enhance our understanding within this population.

This study examined the associations of six variables (i.e., perceived social support, self-compassion, active coping, behavioral disengagement, formal/informal help-seeking intention) using multiple mediation models among Chinese first-year medical students. We found five significant mediation paths between perceived social support/self-compassion and formal/informal help-seeking intention: (1) perceived social support \rightarrow active coping \rightarrow informal help-seeking intention; (2) perceived social support \rightarrow active coping \rightarrow formal help-seeking

intention; (3) self-compassion \rightarrow active coping \rightarrow informal help-seeking intention; (4) self-compassion \rightarrow behavioral disengagement \rightarrow informal help-seeking intention; (5) self-compassion \rightarrow active coping \rightarrow formal help-seeking intention. Consistent with our initial hypothesis 1c, our study unveiled that both perceived social support and self-compassion exerted indirect effects on informal/formal help-seeking intention via active coping. The mediating role via active coping was evident. However, in the SEM model, there was no significant direct effect from self-compassion to informal help-seeking intention. Thus, active coping fully mediated the correlation between self-compassion and informal help-seeking intention. Partially in line with hypothesis 2c, only behavioral disengagement partially mediated between self-compassion and formal help-seeking intention. Such findings are in accordance with the literature [24], which suggests that individuals would assess their coping resources when confronted with stressors. If these coping resources are proved effective in managing stress, individuals are inclined to employ positive coping strategies. Conversely, when coping resources are insufficient, negative coping strategies may be adopted. Importantly, stress and coping processes are inherently flexible and modifiable [57]. High levels of stressors and insufficient coping resources are not inherent characteristics of first-year medical students but derive in part from a lack of adequate coping resources and effective coping strategies, both of which can be modified [57]. Coping processes are relatively flexible responses that are affected by stressor characteristics and available coping resources.

The Hypothesis 2c was partially unsupported, i.e., the mediation of behavioral disengagement between perceived social support/self-compassion and formal help-seeking intention was not supported, as well as the mediation of behavioral disengagement between perceived social support and informal help-seeking intention was also non-significant. There are three possibilities for the unproved hypothesis. First, more variables are introduced in SEM, which potentially reduce the relationship between the two variables by simple correlation analysis [58], i.e., the association between perceived social support/self-compassion and formal/ informal help-seeking. Moreover, SEM can explicitly account for measurement errors, whereas simple correlation analysis generally assumes no measurement error. For example, the observed association may stem from measurement errors by the simple correlation analysis. Once measurement errors are accounted for in SEM, the true relationship may turn out to be non-significant [59]. Furthermore, SEM typically requires a larger sample size than simple correlation analysis to achieve adequate statistical power. If the sample size is insufficient, paths in SEM may appear non-significant even if the simple correlation is significant [60, 61]. Thus, in future study, it is needed to examine whether the non-significance is due to insufficient sample size.

This study advances our understanding of the factors influencing help-seeking intention among Chinese firstyear medical students and offers actionable insights for interventions. First, we identified five distinct mediation pathways involving coping resources (perceived social support and self-compassion), coping strategies (active coping and behavioral disengagement), and formal/ informal help-seeking intention. These findings provide specific, evidence-based mediation mechanisms that enhance the theoretical framework and offer practical insights. Moreover, this study focused on a less underexplored and vulnerable population to mental health challenges, Chinese first-year medical students who face distinct stressors related to academic pressure, emotional challenges, and the transition to university life. Furthermore, our findings offer actionable insights for interventions, suggesting that enhancing perceived social support and fostering self-compassion can promote active coping, reduce behavioral disengagement, and ultimately increase both formal and informal help-seeking intention among first-year medical students in China [62, 63]. These findings not only enrich our understanding of the pathways influencing help-seeking intention but also provide practical solutions for improving help-seeking intention for first-year medical students and even for more populations at similar situations.

Despite its strengths, this study has several limitations. First, the measurement of formal help-seeking intention relied on a single-item 5-point Likert scale. While this approach is common [64, 65], using a validated, theorybased scale in future studies could improve measurement accuracy. Second, the potential for social desirability bias exists, as participants may have overestimated their levels of perceived social support and self-compassion, potentially influencing the accuracy of the findings. Third, the cross-sectional design precludes causal conclusions, highlighting the need for longitudinal and intervention studies to confirm the temporal relationships observed. Fourth, prior help-seeking behaviors were not measured, which could have affected results. Individuals who previously sought help may differ in attitudes, perceived barriers, or readiness to seek help compared to those who have not [66]. This factor was not explicitly controlled and may influence predictors of help-seeking intention. For example, prior help-seekers may exhibit higher levels of awareness or lower stigma, potentially affecting the predictors of help-seeking intention. Moreover, this study assessed help-seeking intention rather than actual behaviors, and there may be often a gap between intention and actions [67]. Future research should explore mechanisms that translate intention into tangible help-seeking behaviors. Similarly, we measured perceived social support rather than actual social support behaviors, which reflects individuals' beliefs about the availability of support rather than the actual utilization of support resources, which can differ in some cases. Lastly, the sample, obtained through convenience sampling from a medical school, introduces potential sampling bias. As such, generalizing findings to other regions of China or globally requires caution. Broader, more representative samples in future studies are recommended to improve generalizability.

Besides, readers should be mindful that this study focused only on two types of coping resources (perceived social support and self-compassion). There are various other unexplored coping resources, such as peer relationships [68] and self-esteem [69], which warrant attention in future investigations. Similarly, the examination of coping strategies in this study centered on active coping and behavioral disengagement, recognizing the importance of the former while acknowledging that individuals may employ a spectrum of positive and/or negative coping strategies, including emotional-focused coping and positive reframing [70]. Moreover, individuals experiencing mental health challenges were found to be more predisposed to endorse avoidance as a coping strategy, underscoring the complexity and diversity in coping responses [71]. Future investigations in this domain should extend their purview to consider the mediation effects involving additional negative and/or positive coping strategies, recognizing the multifaceted nature of coping processes and their implications for mental health outcomes.

Conclusions

The present study revealed significant associations between perceived social support, self-compassion, active coping, behavioral disengagement and informal/ formal help-seeking intention among Chinese first-year medical students. We found multiple mediation effects of active coping and behavioral disengagement on the pathways from perceived social support/self-compassion to informal/formal help-seeking intention. These findings have practical implications. Interventions to improve help-seeking intention by fortifying coping resources, promoting active coping strategies, and mitigating the utilization of behavioral disengagement are warranted. Longitudinal and intervention studies that encompass a broader spectrum of coping resources and strategies are imperative to confirm the current findings.

Abbreviations

SCT	Stress Coping Theory
SEM	Structural Equation Modeling
CFI	Comparative Fit Index
TLI	Tucker-Lewis Index
RMSEA	Root Mean Square Error of Approximation
SRMR	Standardized Root Mean Square Residual

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SPSS Statistical package for social sciences

- SD Standard deviation
- SE Standard error

Supplementary Information

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Supplementary Material 1

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Author contributions

HL, SX, SP, XZ, WS(Song), and, YW conceived of the study. HL, SX, and YW participated in the design. HL, SX, YZ, WC, ZJ, and JT conducted the investigation and collected the data. HL and YT performed the statistical analysis. HL, SX, and YW wrote the original draft. HL, SX, XZ, WS(Sun), WS(Song), and YW wrote, reviewed, and edited the manuscript. All authors read and approved the final manuscript.

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Data availability

The datasets used and/or analyzed during the current study are available from the corresponding author upon reasonable request.

Declarations

Ethics approval and consent to participate

This study was approved by the Ethics Committee of The Affiliated Kangning Hospital of Wenzhou Medical University (Approval number: YJ-2024-09-01). The objectives of the study were explained to all participants and informed consent was obtained from them. They could withdraw anytime, and both refusal and incompletion would bear no consequences. Any personal information disclosed during the data collection was considered confidential and the data was secured anonymously. All methods were carried out in accordance with the declaration of Helsinki.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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