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# Stress and Coping Strategies of Hong Kong University Students During the COVID-19 Pandemic: A Qualitative Study

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**Abstract**

The COVID-19 pandemic had brought significant challenges to university students in China, including the Hong Kong Special Administrative Region. To understand the stress and coping strategies of university students during the pandemic, we conducted focus group interviews with 56 Hong Kong university students from late December 2022 to mid-January 2023. Thematic analysis using a deductive data analytic approach based on the Transactional Theory of Stress and Coping was applied to form concepts on coping strategies. Findings revealed four major challenges faced by Hong Kong university students, which were the accumulation of negative emotions, health-related anxiety and constant change in pandemic-related policies, conflict with family members, and challenges in online learning, academic and career development. When coping these challenges, students applied: (1) seeking social support, emphasizing the positive and tension-reduction to manage their negative emotions; (2) problem-focused coping and emphasizing the positive to deal with health-related anxiety and stress arising from the constant change in pandemic-related policies; (3) seeking social support, tension-reduction, distancing/detachment and self-isolation/keep to self to handle conflict with family members; (4) seeking social support, problem-focused coping, emphasizing the positive and distancing/detachment to cope with challenges in online learning, and academic and career development. Besides, comparing students with different background, the findings showed that more students with a high level of self-perceived resilience employed emphasizing the positive as a coping strategy; while more students with financial difficulties applied tension-reduction coping strategies. The current study contributes to the stress and coping literature by illustrating Hong Kong young people's stress and coping strategies during the COVID-19 pandemic. The study also supports the Transactional Theory of Stress and Coping and extends the discussion to various coping theories.

**Keywords:** coping; university students; COVID-19 pandemic; qualitative; thematic analysis

## 1. Introduction

The COVID-19 pandemic has significantly influenced individuals' lives and well-being. In Hong Kong, the first COVID-19 infection case was reported in January 2020. Since then, the city has experienced five waves of the pandemic. The number of daily reported infection cases was the highest in March 2022. By the end of January 2023, there were more than 1.22 million positive nucleic acid test reported cases and 1.88 million positive rapid antigen test reported cases [1]. Hong Kong university students experienced various challenges in the pandemic. Many of the activities related to their university studies needed to be postponed, including graduation ceremonies and study exchanges, which may lead to the loss of social life and deteriorated mental well-being. Besides, online learning posted significant challenges for university students. Studies showed that online learning caused emotional distress in students through the lack of feedback and clarity in course

arrangement [7], difficulties in teacher-student and student-student interactions [8], and technical problems in online assessment [9].

Studies conducted during the pandemic highlighted the substantial influence of various pandemic-related challenges on Hong Kong university students' mental well-being. Shek et al. [2] revealed that there was a high percentage of university students having moderate or above levels of depression, anxiety, and stress (depression: 40.0%, anxiety: 50.7%, stress: 22.2%). Lai et al. [3] also found that 39.4% Hong Kong university students had anxiety symptoms, while 32.6% had depression symptoms during the pandemic. However, a review of literature shows that most studies on young people are epidemiological studies on mental health problems but research on their coping strategies are limited. In Hong Kong, a few researchers investigated the use of coping strategies by university students during the pandemic. Chan et al. [16] found that 81.2% healthcare students used approach-based coping strategies, but more than a quarter nursing students employed avoidance-based coping strategies during the pandemic. The application of approach-based coping strategies was associated with better psychological well-being. Analyzing university students in Hong Kong and Mainland China collectively, Cheng et al. [17] found that wishful thinking and empathetic responding predicted students' compliance with the social distancing and personal hygiene measures. The mixed method study by Lai et al. [3] showed that Hong Kong university students' most favored source and way of support were peer support and phone contacts; while updated university guidelines were the most useful university support.

Besides, while some studies investigated how university students coped with the challenges related to pandemic-related precautionary measures, travel restriction, fear of infection or online learning challenges, relatively few studies examined their coping with financial difficulties. Patias et al. [12] studied Brazilian undergraduate students during the pandemic and found that low family income was associated with more depression, anxiety, and stress symptoms and the use of positive reevaluation strategy. Focusing on low-income university students in New York, Rudenstine et al. [13] found that both trauma-focused coping (finding meaning in trauma or stressor) and forward-focused coping (planning for the future) moderated the association of COVID-19-related stress with anxiety. In Hong Kong, the loss of part-time jobs because of the pandemic may affect university students' financial stability [4]. Studies showed that individual and family financial difficulties, unemployment and living alone correlated significantly with mental distress in Hong Kong university students [5]; while positive family functioning and Chinese cultural beliefs of adversity were protective factors of students' mental health problems [6].

Moreover, limited studies focused on the challenges and coping strategies of international college students during the pandemic. Lai et al. [14] found that international students who stayed in the country where they attended universities experienced more mental distress than did students who returned to their home country. Resilience, positive thinking, and physical exercise significantly predicted better mental health in international college students. Besides, Xia and Duan [15] examined Chinese college students studying in different foreign countries and found that active coping and making self-adjustment were preferred by these students to cope with stress during the pandemic. Identification with Chinese culture beliefs also helped these students to apply positive strategies to cope with the challenges. In Hong Kong, Mainland Chinese students constitute a significant percentage of overall undergraduate students. Interestingly, Shek et al. [10] found that local students in Hong Kong suffered from more depressive symptoms than did international students because of the cumulative stresses from social unrest and COVID-19 and the small living space in Hong Kong, which created challenges for students during home confinement. Wang et al. [11] highlighted that language barriers and potentially conflicting political beliefs created additional challenges for local and international university students in Hong Kong to build good relationship with each other.

Promoting resilience is one of the positive youth development constructs proposed by Catalano et al. [18], and resilience is defined as "an individual's capacity for adapting to change and to stressful events in healthy and flexible ways" [18] (p.102). So, resilient individuals are people who coped well during difficult times. Studies revealed that university students with more resilience or positive

attitudes were more likely to employ the coping strategy of reinterpretation [19] and adaptive coping strategies that include positive thinking [20]. The current study further investigated how Hong Kong university students' resilient quality was related to their coping attitude and behaviors during the pandemic. Besides, resilient university students' coping was also compared with Mainland Chinese students, and students with financial difficulties.

Although numerous studies were conducted, most research focused on the mental problems of young people during the pandemic, while their coping strategies were not sufficiently investigated. Besides, there were some quantitative studies on the coping strategies of Hong Kong young people during the pandemic, but there were insufficient qualitative studies on the topic. The current study could fill in this knowledge gap by qualitatively exploring the challenges and coping strategies of Hong Kong university students. Also, we compared the coping strategies of resilient students, students with financial difficulties and Mainland Chinese students studying in Hong Kong, who were not given much attention in the literature. The current study applied deductive analytic approach [21,22] to examine the coping strategies used during the pandemic. The application of the Transactional Theory of Stress and Coping provided a theoretical foundation for the exploration of specific coping attitude and behaviors. The following research questions were explored:

1. How did Hong Kong university students cope with the stress and challenges during the COVID-19 pandemic?

2. What were the differences in coping strategies among students with high level of self-perceived resilience, students with financial difficulties, Mainland Chinese students studying in Hong Kong?

## 2. Theoretical Framework

Coping is defined as the "constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" [23] (p.141). In the Transactional Theory of Stress and Coping, coping is comprised of four key component processes: 1) primary appraisal, 2) secondary appraisal, 3) coping, and 4) adaptational outcomes. The 68-item Ways of Coping Checklist (WCCL) was developed through in-depth literature review and self-derived theoretical framework by the researchers [24]. Items in the WCCL were originally divided into either problem-focused or emotion-focused coping. Problem-focused coping refers to the cognitive efforts in problem-solving and behavioral strategies for handling the cause of problems; while emotion-focused coping refers to the cognitive and behavioral efforts aimed at reducing negative emotions [25]. Subsequent study conducted by Folkman and Lazarus [26] studied undergraduate students' coping when facing exams and revised the original WCCL into eight scales using factor analysis, including one problem-focused scale, six emotion-focused scales (i.e., wishful thinking, emphasizing the positive, tension-reduction, self-blame, distancing, self-isolation), and one mixed problem- and emotion-focused scale (i.e., seeking social support). Items in these scales describe the cognitive and behavioral strategies individuals apply to manage stressful situations. The current study used these items to identify research participants' coping strategies. This analytic approach aligns with the arguments by researchers on stress and coping. For example, Skinner et al. [27] proposed that coping instances make up ways of coping, family of coping and adaptive process; while Compas et al. [28] suggested that there are three levels of coping (domains, factors, and strategies). The current study focused on the "strategies" level by analyzing research participants' thoughts and actions related to the coping of stress under the pandemic. The eight Ways of Coping Scales guided the analytic process.

In addition to problem-focused coping and emotion-focused coping, other coping dimensions were proposed by researchers. One of the most widely used instruments is the Brief COPE Inventory [29], which was developed based on the WCCL and the model of behavioral self-regulation [30]. It consists of 14 scales that have theoretical relevance or empirical importance. These coping strategies are classified as adaptive or maladaptive based on Meyer's [31] categorization. Besides, some literature divided coping strategies into avoidant (e.g., social withdrawal), negative (e.g., self-

criticism) and active (e.g., problem solving) coping strategies in the Kidcope scale [32,33]; while other researchers categorized coping into either active (i.e., responding actively to setbacks) or passive coping (i.e., responding passively to setbacks) in the Simplified Coping Style Questionnaire (SCSQ) [34], which was developed based on the cultural background of the Chinese community. Additionally, Endler and Parker [35] constructed the Multidimensional Coping Inventory (MCI) that highlights three coping styles, including task-oriented (e.g., adjust my priorities), emotion-oriented (e.g., daydream about a better time or place), avoidance-oriented coping (e.g., see a movie). Also, Roth and Cohen [36] suggested that approach and avoidance are two concepts that are the fundamental modes of stress-coping. They represent the cognitive and emotional activities that are directed toward or away from threat. Based on this concept, Finset et al. [37] further proposed the Brief Approach/Avoidance Coping Questionnaire (BACQ). Furthermore, primary control or secondary control coping refer to individuals attempting to gain control by either changing the environment according to their own desire (i.e., primary control coping) or changing themselves based on the environmental factors (i.e., secondary control coping) [38]. The above examples show that coping strategies could be grouped into subtypes of different coping dimensions based on factor analysis or conceptual analysis [39]. However, there are continuous debates and confusion over the underlying structure and subtypes of coping responses [40]. The current study could fill in this knowledge gap by analyzing the research findings based on the Transactional Theory of Stress and Coping and extending the discussion to various coping theories.

The Transactional Model of Stress and Coping is regarded as one of the classical theories on coping. Many existing research was stimulated by the WCCL [41]. Distinguishing coping into emotion-focused and problem-focused is an approach commonly adopted by researchers on coping [42,43]. During the COVID-19 pandemic, studies have applied the Transactional Theory of Stress and Coping to study individual's coping strategies. Elkayal et al. [44] applied WCCL to examine coping strategies used by the general population in Egypt during the pandemic. The study found that people with more severe mental distress adopted more ways of coping, and most of the people applied emotion-focused coping strategies to adapt to the situation under the pandemic. Li and Peng [45] also utilized the problem-focused coping (including cognitive and behavioral coping) and emotion-focused coping concepts to study Chinese college students' coping strategies during the pandemic, and found high prevalence of cognitive coping, behavioral coping, and social support, but low prevalence of emotional-focused coping and anxiety in students. These studies demonstrated the applicability of the Transactional Theory of Stress and Coping in examining coping related to the COVID-19 pandemic. Furthermore, the eight coping scales proposed by Folkman and Lazarus [26] were chosen in the current study instead of the eight scales derived by Folkman et al. [46] because the former was developed based on a study on university students, which aligns with the sample population in the current study.

Coping categories are the building blocks of coping research because they reflect the scope and substance of the field. However, one of the significant problems of constructing coping category by factor analyses is the lack of clarity in category definitions [27]. Indeed, the eight scales of coping strategies were not defined by Folkman and Lazarus [26]. The current study defined these eight scales by referencing the items in each scale and the definitions stated in another study conducted by Folkman et al. [46]. First, "distancing/detachment" denotes efforts made to detach oneself from the stressful situation. Second, "emphasizing the positive" refers to efforts made to create a positive outlook or positive meaning by focusing on personal growth. Third, "self-isolation/keep to self" describes efforts made to self-regulate feelings and actions. Fourth, "seeking social support" refers to efforts made to seek informational, tangible, emotional, and religious support. Fifth, "wishful thinking" describes cognitive efforts based on fantasies or wishes to escape or avoid the stressful situation. Sixth, "problem-focused coping" refers to the deliberate efforts made to alter the stressful situation and the analytic approach made to solve the problem. Seventh, "tension-reduction" describes the behavioral efforts based on tension reduction to reduce the stressful feeling. Eighth, "self-blame" refers to blaming oneself for the problem and trying to put things right.

This study employed deductive analytic approach to investigate university students' coping strategies during the pandemic. The eight Ways of Coping scales, which were developed based on the Transactional Theory of Stress and Coping, were used to formulate codes and themes of coping strategies. There are several justifications for the use of deductive approach in qualitative data analysis. First, instead of identifying themes emerging from the data, the deductive qualitative analysis provides a more direct way to operationalize theory [21]. Second, a well-articulated theoretical framework can help to generate a more systematic picture of the findings. Although coping categories are the building blocks of coping research, there is a lack of consensus on the core coping categories in the literature, creating challenges for comparing and accumulating results and knowledge for further research [27]. The utilization of an existing theory in the current study could resolve this issue by analyzing empirical data systematically [47]. Third, deductive analytic approach can help to bridge the findings with existing theories and empirical findings. According to Boyatzis [48], one of the reasons for using theory-driven thematic coding is to replicate, extend, or refute previous theories or findings. So, the application of theory-driven thematic analysis in the current study could extend or refute the Transactional Theory of Stress and Coping.

## 3. Materials and Methods

### 3.1. Research Design

The current study applied thematic analysis in the qualitative data analysis [49]. The study was underpinned by ontological relativism and epistemological post-positivism. This philosophical orientation stresses that there are multiple ways to understand reality, and knowledge is constructed based on continuous testing and revision [50,51]. Analytic process in thematic analysis could balance descriptive analysis, which summarizes trends or patterns in the data, and interpretive analysis, which provides subjective analysis [22]. In the current study, the post-positivist paradigm places more emphasis on the descriptions of objective reality. Besides, researchers support the reliability of thematic analysis in deductive research because of the structured nature and theory-testing application of both post-positivist paradigm and deductive analytic approach [52]. Researchers' subjectivity is also highlighted as a resource in thematic analysis [49]. In the current study, the authors' reflexivity statements are presented in Appendix A.1.

### 3.2. Sampling and Procedures

From 29 December 2022 to 13 January 2023, students from one large-scale research university in Hong Kong were sampled through purposeful sampling for focus group interviews [5,6]. The focus group interviews were conducted when Hong Kong was beginning to return to normal. A few local public universities had already returned to face-to-face teaching and learning mode starting from September 2022. From 29 December 2022, nucleic acid testing and social distance measures were cancelled for people entering Hong Kong. Therefore, when students were interviewed in the current study, they were at the final stage of the pandemic and were starting to return to normal life. Compared with other countries or regions, Hong Kong kept the preventive measures for a relatively longer period. For example, the United States updated guidance on mask wearing based on risk in February 2022 and cancelled the order requiring negative COVID-19 test results before boarding a flight to the United States in June 2022 [53]; while Hong Kong rescinded similar preventive measures only in March 2023 and December 2022, respectively. Besides, in Mainland China, the major shift in zero-COVID policy in early December 2022 and a national omicron outbreak afterwards had significant influence on the economic and social lives of local residents [54], which may have affected the mental health of Mainland Chinese students studying in Hong Kong. Therefore, the current study could contribute to the literature by investigating the challenges and coping strategies of university students at this unique location and timepoint.

All the participants were Year 2 to 4 undergraduate students of the university, with age ranged from 19 to 25. Written consent to data collection and recording of the interviews was sought from the

participants before the interviews. Students' voluntary participation, protection of their identity and data storage security were explained in the consent form. Students were assigned a code before the interview and they were acknowledged by the code number throughout the interview to protect their personal identity. Financial incentives were offered to students. A short questionnaire was sent to the consented students and they were divided into different categories according to their responses. Based on an extensive literature review, the following three categories were chosen as the focus of the current study, which were not thoroughly examined in the literature. These three categories were: (1) students with financial difficulties, (2) students from Mainland China, and (3) students with a high level of self-perceived resilience (i.e., students who coped well). Around 20 students were recruited for each category, and each category of students were conveniently divided into three to four focus groups. It resulted in 56 participants divided into 10 focus groups. Table 1 shows the three categories, related questions asked before the focus group interviews, the participant codes, and the number of participants in each category. Given the application of theoretical framework, high sample specificity, and high quality of dialogue between the interviewers and the participants, this sample size offers sufficient information power [55].

Because of the social distancing measures in Hong Kong, the focus group interviews were conducted via Zoom. These interviews were video-recorded using the built-in function in Zoom. Each interview was moderated by an experienced researcher and a research assistant. The moderators followed a semi-structured interview guide to conduct the interviews (Appendix A.2.). During the interview, each student took turn to answer the moderators' interview questions. The moderators asked follow-up questions based on students' answers. The research assistants jotted down brief notes during the interviews for later analysis.

**Table 1.** The three categories, related questions asked before the focus group interviews, participant codes and number of participants in each category.

| Categories | Related Questions Asked Before the Focus Group Interviews | Participant Codes (Number of Participants) |
|---|---|---|
| Students with financial difficulties | Did you or your family face financial difficulties during the pandemic? | F-A-2, F-A-3, F-A-4, F-A-6, F-B-1, F-B-2, F-B-4, F-B-6, F-B-7, F-B-8, F-C-1, F-C-2, F-C-3, F-C-4, F-C-5, F-C-6, F-C-7, F-C-8, F-C-9 ($n = 19$) |
| Students who coped well | Despite the difficulties I have faced during the pandemic, I consider myself to have coped well. Do you agree with this statement? | C-A-1, C-A-2, C-A-4, C-A-5, C-A-6, C-A-7, C-B-1, C-B-2, C-B-3, C-B-4, C-B-5, C-B-6, C-B-7, C-C-1, C-C-2, C-C-3, C-C-4, C-C-5, C-C-6, C-D-1, C-D-2, C-D-4 ($n = 22$) |
| Mainland Chinese students studying in Hong Kong | Are you a local, mainland, or international student? | M-A-1, M-A-2, M-A-3, M-A-5, M-A-6, M-A-7, M-A-8, M-B-4, M-B-5, M-B-6, M-B-8, M-B-9, M-C-4, M-C-5, M-C-7 ($n = 15$) |
| Total number of participants | | 56 |

*3.3. Data Analysis*

Thematic analytic method was employed to analyze the focus group interview data. Thematic analysis is frequently used in social science and psychology qualitative research to identify themes or patterns in qualitative data based on the research questions [56]. Braun and Clarke [49] categorized thematic analysis into "coding reliability", "codebook" and "reflexive" approaches. The current study adopted the "codebook" approach, which was guided by a pre-determined theoretical framework or codebook. Besides, researchers discussed different approaches to deductive qualitative research, and the template approach applies codebook template to structural analysis [57,58]. It could facilitate theory testing and refinement by systematically and empirically examining pre-existing theories. The deductive approach to qualitative research can bridge research findings with existing

theories and empirical findings. It enables researchers to engage with previous theories, build upon other researches, and develop a body of knowledge in the field [59]. The findings from the current study would test the Transactional Theory of Stress and Coping, which has been widely used in the coping literature. Coping categories are the building blocks of coping research [27]. The discussion and accumulation of results could facilitate further explanatory research and intervention on coping.

The current study employed the guidelines outlined by Fife and Gossner [21] and Naeem et al. [22] on deductive qualitative research. First, research questions were developed and guiding theory was chosen. Second, the theory was operationalized using related scales. Third, research participants were sampled through purposive sampling. Fourth, after the focus group interviews, the brief notes written by the research assistants and the verbatim transcription of the interviews were used for data analysis. The research assistants transcribed the audio recordings into text, and translated Chinese transcripts into English. The authors double-checked the accuracy of the transcriptions, familiarized themselves with the data, and selected representative quotations from the transcriptions. Fifth, the authors selected keywords and performed coding of the transcriptions through deductive analytic approach using the NVivo 15 software. Deductive research adopted pre-existing theories to generate and categorize keywords and codes and develop themes from data. Revision of the codes was undertaken during the coding process based on regular discussion between the authors. Sixth, themes were developed by grouping codes in meaningful ways which represent the data. The last step involves conceptualization of the keywords, codes, and themes [22], interpretation of evidence, and propose confirmations and revisions of the guiding theory [21].

*3.4. Rigor and Trustworthiness*

The current study uphold the principles of qualitative research proposed by Shek et al. [60], including stating the philosophical base of the study, justifying the sample size, outlining the data collection procedure, highlighting the subjectivity and potential biases of the researchers through presenting their reflexivity statements, conducting inter-rater reliability test to assess interpretation stability across researchers, ensuring high auditability of the study by clearly explaining the decision trail concerning the study and providing additional illustrative quotes for each theme, checking alternative explanation of the findings and negative cases, and documenting the limitation of the study. Besides, the "codebook" approach to thematic analysis sits between "coding reliability" and "reflexive" approaches, which adopts the philosophy of "reflexive" approach and applies the structured approach to coding at the same time [61]. Moreover, for qualitative research on psychology, the importance of methodological integrity is stressed [62,63]. It was achieved by examining the coherent function of subject fidelity and goal achievement utility in the study design, data collection, and data analysis.

## 4. Results

Data analysis based on the eight Ways of Coping Scales revealed that the participants used problem-focused coping ($n = 24$), emotion-focused coping ($n = 46$), and mixed problem- and emotion-focused coping ($n = 29$) to cope with the stress during the pandemic. With reference to the eight scales in the Ways of Coping Scales, seeking social support ($n = 29$), problem-focused coping ($n = 24$) and emphasizing the positive ($n = 22$) were most frequently applied by the research participants, followed by tension-reduction ($n = 17$), distancing/detachment ($n = 6$), and self-isolation/keep to self ($n = 3$). No participants applied wishful thinking and self-blame to cope with the stress during the pandemic. Inter-rater reliability was conducted to ensure stability of interpretations across the researchers. 20 quotations from the interviews were randomly selected and presented to two independent researchers. They were invited to re-code these quotations. The results revealed a satisfactory inter-rater reliability (percentage agreement on presence ≥70%) [48]. Table A1 summarizes the use of coping strategies in the eight Ways of Coping Scales by each participant. The following sections discuss the themes derived from the deductive analysis. For additional illustrative quotes for the themes, please see Supplementary Table S1.

*4.1. Seeking Social Support, Emphasizing the Positive and Tension-Reduction to Manage Negative Emotions*

Research participants stressed the significant influence of negative emotions on their mental health during the pandemic, for example, depressed, anxious, frustrated, feared, worried, stressed, angry, annoyed, irritated, hopeless. These negative emotions stemmed from various challenges they faced during the pandemic, including home confinement, travel restriction, and limited social activities. The fast-changing pandemic situation and the increasing number of infected cases in the city also caused significant anxiety in the research participants. This study found that seeking social support, including talking to their family members and friends about their feelings, was an important part of young people's life during the pandemic. It helped them to relieve from the negative feelings they experienced. Besides, students preferred to share their feelings with parents or friends for different reasons. They would talk to their friends to seek reassurance from peers, but they would talk to their parents to seek advice, as the students explained,

> *If I need to relieve stress, I would choose to talk to my friends because I feel that friends are peers, and they may have experienced things that are similar to me. So, I think I may be looking for reassurance from peers. When I share my problems with friends, I feel that they can give me viable suggestions. If I talk to my parents, they may have a perspective from the previous generation, and their views may be different from mine. So, I think that talking to friends helps me to relieve my negative feelings, and it may be better than sharing my feelings with my family members.* (Student with financial difficulties, Group B, F-B-2)

> *When I have some worries, I usually talk to my mom. She would share her experiences and perspectives, which help me solve some problems. When I was struggling with my studies, she told me to put less pressure on myself and to relax a bit.* (Student with financial difficulties, Group B, F-B-6)

Besides, students could only have limited face-to-face interactions with friends during the pandemic. They felt isolated, which had caused significant mental distress. So, research participants relied on video calls and phone calls with friends and family members. This communication channel was especially important for Mainland Chinese students studying in Hong Kong, who had family members and friends staying in Mainland China, as a student described,

> *I just feel that family and friends are very important in the process. Because I was basically alone in the quarantine, chatting with my family and friends was the only way to mitigate my anxiety in the loop of assignments and online lessons.* (Mainland Chinese student, Group B, M-B-9)

Besides, students were confined to their home during the pandemic, which had significantly changed their living habits. This had negatively influenced the physical and mental health of some students. For students who had mental illness before the pandemic, the pandemic had further deteriorated their mental health, and some of them needed to seek for professional help, as a student stated,

> *I think the change of living habits has really destroyed my motivation. I think the influence still exists now. During the lockdown, I watched videos all the time, so my abilities to think deeply and concentrate for a long time need to be reconstructed. My way of thinking is really disordered now. I have gone for mental health consultation continuously during the pandemic. Because of my previous mental illness and my situation during the pandemic, my mom advised me to go for consultation. I have gone for consultation for two to three months.* (Mainland Chinese student, Group A, M-A-8)

Another strategy applied by the research participants to release negative emotions was emphasizing the positive by doing something creative. They adjusted their mindset and did something interesting to cheer themselves up. For example, although students' travel plans were cancelled due to the pandemic, they found ways to discover interesting places to visit in Hong Kong, as a student said,

*Although the pandemic restricted my exchange plans, I still managed to discover new aspects of Hong Kong and looked for other joys in life with an open mind. Even though my original plans did not come true, I tried to find new opportunities and fun. Even though I could not travel, I still discovered interesting local things. I learned to take different approaches during the pandemic and still explored the world.* (Student who coped well, Group B, C-B-2)

Besides, the home confinement during the pandemic had caused loneliness in young people. When students needed to undergo a 14-day home quarantine due to COVID-19 infection, they experienced more negative emotions and the loss of connection with the nature. The research participants tried to find interesting things to do at home, such as "developing hobbies such as reading, crafting, and cooking" (Student who coped well, Group A, C-A-4). These activities enabled them to release their negative emotions, such as loneliness and depression, and cheer themselves up. Participants also tried to improve their mood at home by "taking care of [their own] appearance" (Student with financial difficulties, Group C, F-C-8) and "tidying the house" (Student with financial difficulties, Group C, F-C-9). These self-care activities allowed them to maintain a healthy living habit during the pandemic.

Moreover, because of prolonged stay at home, young people may have a lack of physical exercise, which would deteriorate their physical and mental well-being. Students also worried that poor physical well-being may increase their risk of getting COVID-19 infection, which could negatively affect their academic performance. Various tension-reduction strategies were employed by research participants to resolve related stress, for example, doing physical exercise and getting away from the problems for a while. Research participants stated the effectiveness of doing physical exercise to reduce their negative emotions, as a student explained, "I began to do sports and I felt really good after doing physical exercise. It could reduce stress" (Student with financial difficulties, Group A, F-A-2). Besides, going to the nature could help students to reduce the feeling of being trapped at home during online learning, as a student stated,

*My way to relieve stress is to go to the nature and breathe fresh air. As I said before, I feel very stuffy at home, even if my family members stay with me, I don't feel good. Sometimes I go hiking with my friends or family members. The most frequent place I visit is a place called 'Tai Long Wan' in 'Chai Wan', where we could hike for two to three hours and eat and play in the water all day.* (Student with financial difficulties, Group C, F-C-5)

However, because of the health risk related to going out during the pandemic, some research participants would choose to do home workout activities, such as meditation and breathing exercise, which were also effective in reducing their negative emotions, as a student explained,

*It is mainly about stress and anxiety. I tried some breathing exercises. It was an instant stress reduction, and my mood was much calmer. Because I was confined to my home, my options were limited. So, I had to explore things that were available on the Internet, and I came across breathing exercises.* (Student with financial difficulties, Group A, F-A-4)

Also, the study found that most students with personal or family financial difficulties would choose to do physical exercise to release their negative emotions. Out of the eleven students who employed this strategy, ten of them were students with financial difficulties. One of the possible explanations was that students with financial difficulties in Hong Kong usually had smaller living space at home, so physical exercise released the feeling of being trapped at home in these students.

### 4.2. Problem-Focused Coping and Emphasizing the Positive to Deal with Health-Related Anxiety and Stress Arising from the Constant Change in Pandemic-Related Policies

Research participants had a high level of anxiety because of various health risk related to the COVID-19, including feeling worried at the beginning of the pandemic because of the limited understanding of this disease, and being afraid that the elderlies in their families would have serious health risk from the infection. So, problem-focused coping strategies were applied when facing the uncertain risk related to COVID-19 infection and applying effective preventive measures. They tried

to gather more "reliable information sources [related to the virus], prevent being misled by rumors" (Student who coped well, Group B, C-B-7), and be more rational when taking pandemic-related preventive measures. A student said that being rational was important for him to avoid having extreme negative emotion when handling COVID-19 infection risk, as the student described his experience,

> *Sometimes I fell into a deep panic and fear, and it was very immersive. For example, I thought I had contracted COVID-19, and I thought about it all the time. However, in reality, I might not have contracted COVID-19. Moreover, when I coughed, I would ask myself whether I have a fever, and whether I had been to high-risk area. If my chance of being infected was low, I would try not to drown into anxiety.* (Student with financial difficulties, Group C, F-C-8)

Besides, family members contracting COVID-19 had caused significant mental pressure on the research participants, and they would apply emphasizing the positive as a coping strategy. They tried to be more optimistic about the future, as a student described,

> *I was very worried after my family members were diagnosed, and I searched everywhere for home remedies or ways to [help them] recover quickly. However, at the end, I told my family members and myself to wait patiently and we would eventually recover. It was actually not as serious as I imagined.* (Student who coped well, Group C, C-C-4)

Furthermore, the Hong Kong government had implemented various preventive policies to control the spread of the disease and protect the health of the citizens, including the mask order, travel restriction, restricted dine-in hours in restaurants, quarantine measures for infected persons or travelers, and vaccine pass requirement. The constant change in policies created confusion and uncertainty, especially in elderlies, making it challenging for them to adapt and adjust effectively. Young people also found that the preventive policies were complicated, which made them questioned the necessity of these policies. Some policies had instilled fear in the community and led to panic-driven behaviors in citizens (e.g., panic-buying). Young people were also afraid that elderlies in their families would blindly believe in the information presented on the television or on the Internet. To cope with the stress caused by the pandemic-related policies, research participants applied the coping strategy of emphasizing the positive, as a student stated,

> *To handle the information explosion and my negative emotions, I think the most important things are maintaining discernment, adjusting my mindset, and holding on to hope. It is important to adjust my mentality. If I was overwhelmed by too much information, I would take a break and use my judgement to distinguish between useful and harmful information. It is also important to stay hopeful and positive. Even though we have a lot of unfinished business, we can still focus on other aspects, such as learning new skills and preparing for the future.* (Student who coped well, Group B, C-B-6)

Also, the Mainland Chinese government had implemented policies that were different from Hong Kong. At the early to middle stages of the pandemic, the zero-COVID policy had led to very strict preventive measures in Mainland China (e.g., the quarantine measures for travelers). This had significantly affected students who needed to travel between Hong Kong and Mainland China during the pandemic, as stated by a student,

> *At the end of January 2022, many of my friends thought that Hong Kong would have a big outbreak, so they went back home in Mainland China, and they needed to scramble for bus tickets. […] My trip to home was not easy. I went back two times, so I got quarantined four times, and the longest one was 21 days. The nucleic acid test requirement also bothered me.* (Mainland Chinese student, Group A, M-A-5)

To cope with the stress and challenges related to these preventive policies in Mainland China, students also applied the coping strategy of emphasizing the positive, as a student stressed,

> *Our mentality is the most important. Staying clam makes me feel less anxious. I treat the pandemic as a pause in my life. I keep thinking about what I could do to enrich my life at the moment. The*

*things I didn't have time to do before the pandemic are now ready to be done. I don't pay attention to the pandemic, and I don't take it too seriously.* (Mainland Chinese student, Group C, M-C-4)

This study also found that students with high level of self-perceived resilience (i.e., students who coped well) frequently applied the strategy of looking for silver lining and the bright side of things. Out of the nine students who employed this strategy, eight of them were students with high level of self-perceived resilience during the pandemic. They tried to look at the positive side when facing difficulties and believed that the future would be better, as a student stated,

*It is easier for us to adapt to sudden changes and look for opportunities. Instead of dwelling on the negative, we should focus on the positive. We may be upset when events were cancelled, but we should believe that we could go through [the pandemic] together.* (Student who coped well, Group B, C-B-4)

This finding demonstrated the significant relationship between young people's positive reframing of adversity and their adaptive coping and resilient quality during the pandemic.

### 4.3. Seeking Social Support, Tension-Reduction, Distancing/Detachment and Self-Isolation/Keep to Self to Handle Conflict with Family Members

Conflict with family members was prominent among the research participants. Spending more time at home increased their chance of having conflict with family members. Conflict occurred when family members fought for space and resources at home, such as computers and televisions, or when there was a difference in lifestyle among family members. Students also needed to do more housework when staying at home longer, particularly cleaning, and conflict might occur over the distribution of housework among family members. Also, the pandemic may lead to more caring among family members, but excessive care and attention could sometime cause conflict between them. They might quarrel over whether it was safe to go out of the house, getting vaccination, and practicing some preventive measures. The findings showed the importance of peer support for reassurance and providing advice to resolve related problems, as a student stated,

*I would talk to my friends immediately when I have family conflict. My friends would say they undergo the same thing. It made me feel better to know that everyone was going through similar situations. When I talked to my friends, they would share their own experiences on how they resolved conflict with their family members.* (Student with financial difficulties, Group B, F-B-8)

Besides, family members would have more quarrel with each other because of the accumulated negative emotions during the pandemic (e.g., anxiety, worry, blame). They may need a channel to vent, which would lead to more arguments. Sometimes, the situation may become so serious that the students would need to seek professional help to deal with family conflict, as a student described her situation during the pandemic,

*The main problem I faced was the conflict within the family, which led to my psychological imbalance. After seeking help from a counsellor, I found that it has helped me to deal with the difficulties.* (Student who coped well, Group B, C-B-5)

Moreover, family conflict may arise from the family financial difficulties during the pandemic. All members in a family might need to share the financial burden, and young people may need to balance school and work. Family members might quarrel when discussing the financial issue, or they might become impatient or nervous about the financial situation, which may lead to more arguments. The research participants applied the mix of different coping strategies (tension-reduction and seeking social support) to handle the stress arising from family conflict, as a student stated,

*Don't stay at home for too long. Don't spend too much time at home. [Staying at home for too long] can lead to more accumulated negative emotions and more conflict with family members. Going out more often with friends can help to resolve the problems. We should also be tolerant of our family members.* (Student who coped well, Group A, C-A-2)

Some students would apply the coping strategy of distancing/detachment to handle conflict with family members. Although researchers usually regard it as a more passive way of coping, findings from the current study showed that it could be effective for young people to reduce the stress caused by family conflict, as a student described,

*When I was really angry [with my family members], I would relax by listening to music or watching the variety shows that I like. I would put on my headphones and just ignore them. I would not listen to them or I would just pretend I haven't heard anything. That's it.* (Student with financial difficulties, Group B, F-B-7)

Furthermore, although students from Hong Kong had more conflict with family members because of increased contact with them, the story was different for Mainland Chinese students who had not returned home during the pandemic. Some of them had missed their family gathering for a few years because of the college entrance exams and the pandemic. They really missed their family members in Mainland China and would often make calls or send messages to reduce their homesick feeling. Students may also apply the coping strategy of self-isolation/keep to self to handle the negative emotions resulting from homesickness, as a student stated,

*Before the pandemic, I used to ask for help from my mom. However, during the pandemic, I prefer to digest the homesick feeling by myself. I thought that calling my mom would make my homesickness worse. I would handle it by myself and would only call her sometimes.* (Mainland Chinese student, Group C, M-C-5)

Besides, towards the end of 2022, when the Mainland Chinese government lifted the zero-COVID policy, many people were infected with the disease. Mainland Chinese students studying in Hong Kong were worried that their family members and friends in Mainland China would have significant health risk, so they tried to reduce related stress by maintaining close communication, as a student described,

*Recently, because of the outbreak of the pandemic in Mainland China, all my family members were infected, which have caused me great concern. […] I would contact my family members more often and spend less time alone. Now, I try to communicate with people as much as possible and cherish face-to-face meeting opportunities, which can relieve my anxiety.* (Mainland Chinese student, Group B, M-B-4)

*4.4. Seeking Social Support, Problem-Focused Coping, Emphasizing the Positive and Distancing/Detachment to Cope with Challenges in Online Learning, Academic and Career Development*

Problem-focused coping was used by the research participants to resolve online learning challenges. To enhance their physical and mental well-being in online learning, students tried to maintain a normal daily routine. Besides, online learning required different learning skills from students. They might find it difficult to concentrate in online lectures or they did not have a good study environment at home or in their dorm room, so they needed more self-discipline and effective time management. Some students thought that online learning did not provide hands-on practice opportunities for them, so they could not acquire practical skills that are necessary for their professions. Besides, they could not have face-to-face interactions with teachers and other students in online learning. Although students were assigned to break-out rooms during online lectures, they generally did not participate actively in the online discussion. Some of them also found more difficulties asking questions during online lectures, or the professors did not fully utilize the features in the online learning platforms, leading to inefficient learning. Students would apply problem-focused coping by finding different ways to resolve related problems, as a student described,

*There may be times in the learning process when a professor did not follow school policies, such as not videotaping the lectures or not allowing students to view the lecture recordings. Students may complain about the situations, but the department chair may not be able to do anything about it. When facing such difficulty, students were left to find other resources to supplement their learning. For the knowledge we cannot fully comprehend in online lectures, we would need to learn it by*

*ourselves. Overall, my learning process [during the pandemic] was characterized by a variety of challenges that needed to be resolved by taking initiatives myself.* (Student who coped well, Group A, C-A-1)

Many of the research participants also sought support from friends to deal with online learning challenges. As they made friends with colleagues at the university, they could study together and supervise each other. This kind of peer support helped them coped with various challenges in online learning, as a student stated,

*My friends helped me when I was studying at home and cannot concentrate well. When I had a short deadline or needed to submit my project very soon, especially during the exam period, I might invite some friends to join me on Zoom or Teams to study together. When we were bored, we may watch a couple episodes of cartoon together.* (Student with financial difficulties, Group B, F-B-6)

Furthermore, students faced a high level of uncertainty about their academic and career development. Because of the cut of hands-on practice and laboratory exercise for some majors in the university, students felt less prepared for their future academic and career development. Some departments may cut down the content of certain courses, so students may learn less. Some professors would organize open-book instead of close-book exams for students, which may not be effective in assessing students' performance. Also, some students could not attend internship during the pandemic, and their graduation may be delayed. Some students needed to work from home for their internship, which limited their chance to learn more practical skills, communicate with real clients or patients, and ask for help from colleagues. These difficulties during the pandemic had reduced students' confidence in their future academic and career development, as a student stressed,

*Although the Hong Kong and Mainland Chinese governments are not applying strict lockdown measures at the moment, my previous experience has traumatized me. I am not sure how the future will turn out and whether I could complete my 4-year university study. I feel insecure and I am not able to think about my future. I also feel that time flies and I am still confused about my future.* (Mainland Chinese student, Group A, M-A-2)

Additionally, the pandemic had brought a lot of uncertainty to the economy and different industries, which increased students' level of stress about their future career development. Some companies laid off workers in the early to middle stages of the pandemic, which made students considered changing their career goals. However, at the later stages of the pandemic, some industries recovered and some university departments held recruitment talks for students every week, which made students less worried about their future career. The findings showed that university students' career development could be significantly affected by the social and economic environment. Students coped with related stress by applying the coping strategy of emphasizing the positive, which helped them stay motivated even during difficult times, as a student stated,

*The most difficult thing was that, after being diagnosed, I couldn't go to work and felt very anxious. There was no response from my job applications. Fortunately, I found a new job after a while. The most important thing is not to give up and reduce my negative emotions. Then the path for our boat will straighten naturally when it reaches the bridge.* (Student who coped well, Group D, C-D-1)

Besides, when students found that there was no immediate solution to their problems, they would employ the coping strategy of distancing/detachment, which could act as a kind of escape for them, and they would feel better and gain motivation after a short escape from the situation, as a student explained,

*A more passive coping method is to 'let it go'. When I really couldn't stand it, I would let it go. I just did nothing in bed all day. Watching TV dramas may help sometimes. Because I am an introvert, I can charge myself when I am alone. When I let it go, I would force my brain to shut down, and then I am in a state of escape. After a short period of escape, I feel like I can gather some courage and motivation to continue moving forward. Although the situation might be bad at the time, after a short escape, I would be willing to make some changes.* (Mainland Chinese student, Group A, M-A-2)

Furthermore, the pandemic had decreased students' opportunities of having face-to-face social interaction, meeting new friends, and expanding their social circles at the university. Some students started their university life when the pandemic began, so they had only attended online lessons at the university, which made them feel like they did not have a holistic university life. This had negative impact on both students' career and personal development, as a student explained,

*I have met fewer people, but actually, these people perhaps can help me get some very important information. After I get this information, maybe my career planning or post-study planning will become clear. However, since we were all taking online classes in the first two years of the pandemic and I was not very good at socialization, I knew very few people. The information I am getting now is probably limited compared to other students. I could only get some more valuable information until the second year at the university, and I feel that I am already left behind.* (Mainland Chinese student, Group A, M-A-7)

Students tried to resolve this problem by employing problem-focused coping, as a student stated,

*My challenge is the lack of social interaction. I have a slow-to-warm-up temperament, so the solution is to take the initiative to contact my old friends and make new ones. Now that we are starting to recover from the pandemic. I will look for opportunities to meet more people and build social relationships.* (Student who coped well, Group D, C-D-4)

Findings from the current study showed the problems related to online learning, academic and career development faced by university students during the pandemic. Students tried to resolve these problems by applying various coping strategies, including seeking social support, problem-focused coping, emphasizing the positive and distancing/detachment.

## 5. Discussion

The study found that problem-focused coping, emotion-focused coping, and mixed problem- and emotion-focused coping were all used by university students to cope with their stress during the pandemic. Among the eight Ways of Coping scales, seeking social support, problem-focused coping and emphasizing the positive were most frequently applied by the research participants. The literature shows that university students in different countries applied different coping strategies. Investigating Pakistani undergraduate students at the early stage of the pandemic (i.e., May 2020), Bana and Sarfaraz [64] found that the most frequently applied coping strategies were meditation, taking breaks from watching or reading COVID-19-related news, and distracting themselves with other activities. Examining Polish university students in November 2020, Guszkowska and Dąbrowska-Zimakowska [65] found that the most frequently employed coping strategies were accepting the situation, active coping, distracting themselves with other activities, and having physical activity. Surveying Mainland Chinese college students from February to October 2020, Liu et al. [66] found that they employed more active coping style (23.9%) than negative coping style (17.4%). Another study on Mainland Chinese college students in October 2022, which was after the prolonged campus lockdown, found that 62.6% of the students spent their free time surfing the internet, which was regarded as a negative coping strategy [67]. In late 2022 to early 2023, when Mainland China was experiencing the national omicron outbreak, Zhao et al. [68] showed that Mainland Chinese adults' mental health and risk-related information sharing (which was regarded as a form of coping behavior) were better than in the initial phase of the pandemic. These studies showed the significant difference in individuals' choice of coping strategies based on their country of residence and the stages of the pandemic. However, qualitative studies on Hong Kong university students were not found, especially at the later stage of the pandemic, so the current study contributes to the literature by demonstrating their coping attitude and behaviors at this unique location and timepoint.

The current study found that students with a high level of self-perceived resilience employed the coping strategy of emphasizing the positive more frequently than students with financial

difficulties and Mainland Chinese students studying in Hong Kong. Studies conducted during the pandemic also showed the significant relationship between young people's resilient quality and their positive reframing or reappraisal of life challenges during the pandemic. For example, positive and optimistic thoughts had significant influence on Indian university students' resilient quality during the COVID-19 pandemic [69]. Mindfulness, optimism, and resilience were found to moderate the relationship between COVID-19 fear and mental distress in Dutch and Belgian adults [70]. The current study demonstrated the significant relationship between young people's positive reframing of adversity and their adaptive coping and resilient quality during the pandemic.

Another coping strategy, tension-reduction, was most frequently applied by students with financial difficulties. Researchers studied the use of coping strategies by individuals with financial difficulties during the pandemic, but most of the studies were conducted on general adults. Still, mixed results were found: perception of financial threat could lead to more problem-focused coping strategies [71]; a study found that low financial status would lead to low level of confidence in individuals' ability to cope and less application of active coping strategies [72]; while another study on Brazilian undergraduate students with lower family income showed that they were more likely to use positive reevaluation strategy [12]. The current study showed the more frequent use of the tension-reduction coping strategy by university students with financial difficulties during the pandemic, which could be caused by the small living space of students with financial difficulties in Hong Kong.

### 5.1. Coping with Accumulated Negative Emotions

The current study found that university students employed the coping strategies of seeking social support, emphasizing the positive and tension-reduction to manage negative emotions. Peer support and connecting with family and friends through digital devices were especially helpful for Mainland Chinese students studying in Hong Kong. Studies conducted during the pandemic showed the positive benefits of social support to university students' mental health. It could act as a protective factor against mental distress and loneliness [73], and increase their life satisfaction and positive affect [74]. Researchers also found that international university students were more likely to suffer from deteriorated mental health, and there were negative relationships between social support and mental distress [75].

Additionally, the current study showed that, because of the lockdown measures and online learning arrangement, many academic and non-academic activities were cancelled or postponed, so university students were confined to their homes during the pandemic. To cope with the negative emotions resulting from the confinement, participants would entertain themselves with creative activities. The literature shows similar findings: college students would reduce their negative feelings by distracting themselves with creative activities, learning new technical skills [76], employing positive reframing, and maintaining regular daily routines to cope with academic pressure and restricted social encounters [77].

Besides, the current study found that doing physical exercise could release research participants' stress and negative emotions. Going out of the house or going to the nature could reduce the negative emotions related to being trapped at home. Other studies on university students also revealed that physical activities could effectively reduce Chinese college students' negative emotions [78]. Furthermore, researchers revealed the importance of being in nature to individuals' mental health during the pandemic: Chen and Ye [79] found that Chinese university students' time spent in nature or outdoor activities was positively related to their subjective well-being during the pandemic. Findings from the current study aligns with the literature on the effectiveness of physical activities and going to the nature in coping with stress during the pandemic.

### 5.2. Coping with Health-Related Anxiety and Stress Arising from the Constant Change in Pandemic-Related Policies

In the literature, studies also found that young people faced significant stress from the health risk and the pandemic-related policies. A survey on university students in Israel found that 64.4% worried for their family members' health [80]. Another study found that a high percentage of German university students (75-78%) feared someone from their personal network or close to them would get infected with COVID-19 or be severely ill [81]. Besides, a survey on college students in seven countries or regions found that students were concerned about the politics, economy, and misinformation in the society [82]. Examining US undergraduate students from March to May 2020, Stamatis et al. [83] showed that "disruption due to the pandemic" and "limited confidence in the federal government's response" significantly predicted their depression symptoms, after controlling for baseline depression.

The current study found that university students applied problem-focused coping and emphasizing the positive to cope with health-related anxiety and stress arising from the constant change in pandemic-related policies. Results from the current study aligned with findings from the literature. A study showed that understanding the risk of COVID-19, knowledge of prognosis, preventive measures, and wearing face masks protected college students against their COVID-19 fear and mental distress during the pandemic [79]. Another study on Pakistani university students found that students having someone in their personal network infected with COVID-19 employed more acceptance coping [84]. The current study demonstrated the importance of problem-focused coping and emphasizing the positive to university students in Hong Kong to cope with health-related anxiety and the constant change in pandemic-related policies.

### 5.3. Coping with Family Conflict

The literature also shows that, because of spending more time with family members, young people may have more conflict with them. Vu et al. [85] revealed that the social separation policy in Vietnam during the pandemic led to more parent-adolescent conflict. Individuals' responsibilities and privileges at home was one of the issues that caused the disagreements. Another study highlighted that parental conflict was one of the important risk factors to adolescents' adjustment to the pandemic [86].

The current study found that university students applied the coping strategies of seeking social support, tension-reduction, distancing/detachment, and self-isolation/keep to self to reduce related stress. Aligning with the findings from the current study, studies showed that social support and tension-reduction were important for young people to cope with stress resulting from family conflict. Liu et al. [87] examined Chinese college students' family functioning and mental health problems during the outbreak, remission, online study, and school reopening phases in 2020. The study found that family dysfunction and the use of negative coping style deteriorated college students' depression and anxiety; while people with an active coping style could create a positive feedback mechanism between active coping of family issues and better family functioning. Besides, Ojewale [88] examined undergraduate students in Nigeria and found that negative family functioning was significantly associated with depression. Using the social media platform "WhatsApp" and watching television or movies were among the most frequently applied coping methods by the students. Studying Spanish college students during the lockdown, Padrón et al. [89] found that interpersonal conflicts, including intensification of family conflict, caused significant mental distress in students. The study found that positive reframing skills and maintaining daily routines were the most effective coping strategies.

Furthermore, the current study found that some students applied the coping strategy of distancing/detachment to cope with stress related to family conflict. In the literature, studies also found that returning home for quarantine could be challenging for some college students. Examining US college students, Hall and Zygmunt [90] revealed some factors that may predict negative family relationship during home quarantine, including both parents' and students' attitude towards students coming home, students treated less like adults by parents, students' own identity of being an adult and their level of autonomy. Another study by Dotson et al. [91] also studies US college

students and found that many students lived with at least one parent during the sheltering-in-place order. They reported increased conflicts with family members over pandemic-related precautionary measures, and emotional distancing with peers resulting from the loss of affective connections. This had created "developmental mismatch" in young people because emerging adulthood is usually characterized by developing new friendships and romantic relationships independently rather than being restricted in isolated environments with family members. Findings from the current study complemented the existing literature by showing the use of distancing/detachment by young people to cope with stress related to family conflict in this phase of "developmental mismatch".

Besides, the current study revealed the use of the coping strategy, self-isolation/keep to self, by young people to cope with family conflict. In the literature, researchers stated that parent-related loneliness in adolescents is considered a "normal" dimension of loneliness experience that increase their distance from parents [92]; while peer-related loneliness is related to mental distress [93]. During the COVID-19 pandemic, there were limited studies on the positive benefits of self-isolation to young people. So, the current study could fill in this knowledge gap by demonstrating how the pandemic provided an opportunity for university students to gain independence by increasing their distance from their parents.

### 5.4. Coping with Challenges in Online Learning, Academic and Career Development

In the literature, researchers found that young people faced online learning challenges, and significant uncertainty during the pandemic, including the loss of structure and resources in their university lives, interruption in their academic timelines, and negative identification with their role in future career [94]. Studying university students in Israel, Schiff et al. [80] found that 63.2% experienced online learning difficulties. A study on UK university graduates showed that the pandemic had increased graduates' concerns about their job opportunities and employer support. Graduates also worried that the pandemic may harm the labor market and their future career prospect [95]. A study on Italian university students revealed their high levels of uncertainty about employability and career planning during the pandemic [96].

The current study found that research participants applied the coping strategies of seeking social support, problem-focused coping, emphasizing the positive and distancing/detachment to cope with challenges in online learning, academic and career development. First, the coping strategies of distancing/detachment could help individuals to avoid extreme emotions and irrational behavior. Although some studies showed that passive coping was associated with emotional exhaustion and psychological problems in young people during the pandemic [72], other studies revealed its positive influence on individuals. For example, Ménard et al.'s [97] study on Canadian residents revealed that pandemic-related psychological detachment had protective effect on Canadian residents' negative mood. Studying medical students in the US, Kerr et al. [94] also showed that distraction, avoidance and positive reframing could facilitate students' coping and management of uncertainty.

Second, the literature revealed the benefit of seeking peer support and emphasizing the positive as a coping strategy. A study on engineering college students during the pandemic showed that peer support in both remote and in-person settings was important for students in online learning [98]. Besides, examining US university students, Prasath et al. [99] found that optimism, hope, resiliency and adaptive coping strategies could significantly predict their well-being during the pandemic. A study on Spanish university students also revealed that their fear of COVID-19 was inversely related to their use of cognitive restructuring as a coping strategy [100].

Third, for problem-focused coping, studies also showed its prevalence among university students, and its effectiveness in coping with stress related to students' learning and future development. Studying US college students, Von Keyserlingk et al. [101] revealed a significant increase in their level of academic stress amid the pandemic; while students' self-efficacy in self-regulation predicted lower level of stress increases. For uncertainty about future development, researchers investigated the concept of "intolerance of uncertainty" and university graduates' employment anxiety during the pandemic. Chen and Zeng [102] showed that intolerance of

uncertainty positively predicted college graduates' employment anxiety, moderated by career planning, which highlighted the importance of career planning for college graduates to handle uncertainties brought by the pandemic. These studies demonstrated the important role of problem-focused coping in reducing stress related to individuals' learning and future development during the pandemic.

*5.5. Discussion on Coping Theories*

The findings of the current study could support and extend the Transactional Theory of Stress and Coping. In this section, we discuss the research results from the current study with other coping theories proposed by researchers, including the Brief COPE Inventory, Kidcope, Simplified Coping Style Questionnaire (SCSQ), Multidimensional Coping Inventory (MCI), Brief Approach/Avoidance Coping Questionnaire (BACQ), and Responses to Stress Questionnaire (RSQ).

First, for seeking social support, the current study illustrated the importance of this coping strategy for young people to cope with various challenges during the pandemic, including accumulated negative emotions, conflict with family members, and challenges in online learning, academic and career development. Similar to the Transactional Theory of Stress and Coping, this coping dimension is highlighted in various existing theories on coping, including the Brief COPE Inventory (using instrumental support), SCSQ (talk to people and confide your inner troubles), MCI (spend time with a special person), BACQ (talk to people when it gets to be too much), and RSQ (emotional expression). However, this coping strategy could be regarded as maladaptive or passive coping by some researchers. For example, venting is regarded as maladaptive in the Brief COPE Inventory and relying on others to solve the problem is classified as passive coping in SCSQ. The current study also found similar results. For example, when handling family conflict, a research participant thought that talking to friends about the problem "felt like I was escaping reality instead of facing the challenges" (Student who coped well, Group D, C-D-2). But some students thought that talking to friends about feelings could release the accumulated negative emotions. So, future research could further investigate the conducive and undesirable effect of seeking social support to individuals in order to distinguish its adaptive or maladaptive nature.

Second, for emphasizing the positive, the current study showed the importance of this coping strategy for young people to cope with accumulated negative emotions, health-related anxiety, stress arising from the constant change in pandemic-related policies, challenges in online learning, and academic and career development uncertainty. This coping strategy is listed in Brief COPE Inventory (positive reframing), Kidcope (cognitive restructuring), SCSQ (try to see the good side of things), BACQ (something positive could come out of problems), and RSQ (cognitive restructuring and positive thinking). Moreover, under emphasizing the positive, engaging in creative activities is listed, and this coping strategy is highlighted in other coping theories as well, including SCSQ (seek hobbies and actively participate in cultural and sports activities) and MCI (treat myself to a favorite food or snack and see a movie). In the current study, since students' activities were restricted during the pandemic, this coping strategy enabled students to maintain a healthy lifestyle and reduce negative emotions.

Third, for tension-reduction, the current study demonstrated the importance of this coping strategy for young people to release negative emotions and handle family conflict. The Way of Coping Scale includes the engagement in different activities (e.g., getting away, eating, exercising) to reduce the tension resulting from the stressful situation. The concept of distraction is highlighted in various coping theories. It is stated in Kidcope (distraction), SCSQ (get relief through work, study or some other activities), MCI (take time off and get away from the situation), BACQ (put problems behind, concentrate on something else), and RSQ (distraction). However, distraction is regarded as a form of maladaptive (e.g., self-distraction and substance use in the Brief COPE Inventory), passive coping (e.g., trying to rest or take a vacation to temporarily put aside the problem or trouble in SCSQ), or avoidance-oriented coping (e.g., take time off and get away from the situation in MCI) in other coping theories. Previous empirical studies have linked avoidance-oriented coping and passive

coping with physical and mental distress [103,104] and low self-esteem [105]. Further investigation is needed to examine the benefit and harm of applying tension-reduction as a coping strategy. Moreover, under tension-reduction, engaging in physical activities is included, which is also listed in other coping theories, including SCSQ (seek hobbies and actively participate in cultural and sports activities), and BACQ (physical exercise is important). The current study highlighted the effectiveness of physical exercising to young people's mental health during the pandemic.

Fourth, for problem-focused coping, the current study demonstrated the effective application of this strategy by young people to deal with health-related anxiety and constant change in pandemic-related policies, challenges in online learning, and academic and career development uncertainty. The Ways of Coping Scale comprises various forms of problem-solving, including coming up with different solutions to problems, making plans of action, trying not to act too hastily, etc. These coping strategies are highlighted in various coping theories. It is named as active coping and planning in the Brief COPE Inventory, problem solving in Kidcope, active coping (e.g., stand firm and fight for what you want) in SCSQ, task-oriented coping in MCI, active effort to find solution in BACQ, and problem solving in RSQ. This demonstrates the importance of problem-focused coping strategy in individuals' stress-coping.

Fifth, distancing/detachment refers to the acceptance of the situation, trying to forget the problem, and believing that time will make a difference in the Ways of Coping Scale. The current study showed that university students applied this coping strategy to handle conflict with family members, and to cope with challenges in online learning, and academic and career development uncertainty. This coping strategy enabled them to release stress when the problem could not be resolved in the short term. This coping strategy is stressed in other coping theories as well, including the Brief COPE Inventory (acceptance), Kidcope (resignation), SCSQ (believing that time will change the status quo and the only thing to do is to wait), BACQ (try to forget problems), and RSQ (acceptance). However, this coping strategy is regarded as negative coping in the Kidcope and passive coping in SCSQ. Previous empirical studies revealed the harmful effect of negative and passive coping on individual well-being [106] and youth violence [107], so more investigation is needed to further understand the positive and negative effect of this coping strategy.

Sixth, for self-isolation/keep to self, it refers to reframing from sharing feelings and situation with others and avoiding to stay with people in general in the Ways of Coping Scale. The current study demonstrated that this coping strategy could be beneficial to university students to gain independence by increasing their distance from their parents. This coping strategy is included in other coping theories, including BACQ (withdraw from other people), and RSQ (avoidance). However, this coping strategy could be regarded as either positive or negative in the Kidcope (emotional regulation vs. social withdrawal), or either active or passive in SCSQ (try to restrain your disappointment, regret, sadness and anger vs. comforting oneself). This comparison reveals the various dimensions of emotion regulation. It could comprise of suppressing negative feeling, comforting oneself and withdrawing from social interactions. Future research could further investigate or classify these dimensions to facilitate more comprehensive analysis of different coping strategies.

For the remaining two scales (i.e., wishful thinking and self-blame) in the eight Ways of Coping Scales, the current study found no related result. However, they are highlighted in other coping theories, including the Brief COPE Inventory (self-blame), Kidcope (criticizing self and wishful thinking), SCSQ (fantasizing that some miracle may happen to change the status quo), MCI (blame myself for procrastinating or being too emotional about the situation, daydream about a better time or place, fantasize about how things might turn out), and RSQ (wishful thinking). This shows that these coping strategies may be prevalent in other situations. Besides, other coping theories contain coping dimensions that are not included in the Transactional Theory of Stress and Coping, for example, denial in the Brief COPE Inventory and RSQ, blaming others in the Kidcope, and on the way towards giving up in BACQ. Future research could further investigate and compare these coping dimensions to enhance knowledge accumulation in the field.

*5.6. Theoretical Implications*

The findings of the current study have important theoretical implications. First, the study supports and extends the Transactional Theory of Stress and Coping. Researchers stressed the lack of consensus about the core coping categories, which created difficulties in the accumulation of results and knowledge for further explanatory research and intervention [27]. The current study contributes to the literature by analyzing the empirical findings based on the Transactional Theory of Stress and Coping, and discussing the research findings with various coping theories. Second, the current study captured the unique challenges and coping strategies of Hong Kong university students during the pandemic. The use of the qualitative research approach illustrated the contextual features of the city and the people, including preventive policies, severity of the pandemic, and lifestyle of young people. Third, data collection in the current study was conducted at a unique time point (late December 2022 to mid-January 2023). Although many countries or regions had already loosened the pandemic restriction, Hong Kong still kept many preventive measures at the time, including quarantine order for COVID-19 patients, travel restriction between Hong Kong and Mainland China, and mask order. So, the current study contributes to the literature by examining the retrospective view of young people's challenges and use of coping strategies after a prolonged pandemic restriction. Besides, Mainland China had a major shift in zero-COVID policy and a national omicron outbreak in early December 2022. The current study examined the challenges and coping strategies of Mainland Chinese students studying in Hong Kong at this unique timepoint. Fourth, the current study specifically examined university students in three categories (i.e., students who coped well, Mainland Chinese students studying in Hong Kong, and students with financial difficulties), which were not sufficiently examined in the literature, so the current study could fill in this knowledge gap.

*5.7. Practical Applications*

For the practical implications, the current study identified various challenges faced by university students during the pandemic, which would benefit the planning of effective interventions in the post-pandemic period. Employment and mental health issues are still influencing young people. Specifically, evidences showed that the pandemic had increased young people's suicide risk [108], and the long-term impact of loneliness on their mental health was not fully examined [109]. There is an uneven recovery in the labor market across geographies in the post-pandemic world [110]. So, the current study provides evidence on the challenges and coping strategies of university students during the pandemic, which could facilitate the design of related policies and interventions in the future.

*5.8. Limitations*

Several limitations of this study should be noted. First, the findings may only explain the stress and coping strategies of the research participants sampled in the current study. Findings may be generalized to other university students based on the naturalistic generalizability principle of qualitative study [111]. It emphasizes readers' own determination stemming from their related experiences and understanding of the phenomenon in the current study [112]. Second, the current study only investigated participants' retrospective views of their stress and coping strategies in the three-year pandemic in Hong Kong, so we may not fully understand their related changes over time. Future studies may apply longitudinal study design to examine the changes in coping strategies over a period after the pandemic. Third, the themes developed in the present study were presented based on the challenges faced by university students (e.g., negative emotions, conflict with family members), but the potential interactions between themes should be considered when interpretating the findings. For example, the inter-relationships between conceptions of coping and ego orientation involved in coping should be further investigated [113]. Finally, as a deductive approach was adopted, the present study may not be able to identify themes that are not covered in the proposed

theoretical framework. Although some researchers promoted the extension of coding beyond the theoretical framework of a study [114], other researchers viewed this as an exception in deductive thematic analysis [59]. The current study did not analyze data beyond the theoretical framework. Future study may adopt inductive approach to qualitative study to explore new categories of coping.

## 6. Conclusions

The current study applied deductive data analytic approach based on the Transactional Theory of Stress and Coping to investigate the stress and coping strategies of Hong Kong university students during the pandemic. The findings revealed four major challenges faced by Hong Kong university students, which were: accumulated negative emotions, health-related anxiety and constant change in pandemic-related policies, conflict with family members, and challenges in online learning, academic and career development. To cope with the stress arising from these challenges, the most frequently applied coping strategies were: seeking social support, problem-focused coping and emphasizing the positive. Particularly, students applied seeking social support, emphasizing the positive and tension-reduction to manage their negative emotions; problem-focused coping and emphasizing the positive to deal with health-related anxiety and stress arising from the constant change in pandemic-related policies; seeking social support, tension-reduction, distancing/detachment and self-isolation/keep to self to handle conflict with family members; seeking social support, problem-focused coping, emphasizing the positive and distancing/detachment to cope with challenges in online learning, and academic and career development uncertainty. Besides, the findings revealed that more students with a high level of self-perceived resilience employed emphasizing the positive as a coping strategy; while more students with financial difficulties applied tension-reduction coping strategies.

## Abbreviations

The following abbreviations are used in this manuscript:

| | |
|---|---|
| COVID-19 | Coronavirus disease 2019 |
| WCCL | Ways of Coping Checklist |
| SCSQ | Simplified Coping Style Questionnaire |
| MCI | Multidimensional Coping Inventory |
| BACQ | Brief Approach/Avoidance Coping Questionnaire |
| RSQ | Responses to Stress Questionnaire |
| CPYDS | Chinese Positive Youth Development Scale |

## Appendix A

*Appendix A.1. Reflexivity Statement*

The first author is a researcher on positive youth development. Her previous research generally focuses on qualitative studies. Prior to the current study, she has conducted more than 50 individual and focus group interviews with secondary school teachers and university students on topics including mental health, leadership, and teaching and learning effectiveness. These experiences enabled her to be well-prepared to engage interviewees in meaningful conversation, and analyze qualitative data rigorously. However, the potential bias of the first author is that she was an outsider of the group being studied (i.e., university students), so research participants may not be fully opened with their feelings and experience. This bias was minimized by building rapport with the research participants before and during the interviews.

The second author is a psychologist with rich experience in conducting both qualitative and quantitative research on positive youth development, family process, scale development, quality of life, programme evaluation, addiction, and spirituality. He developed the Chinese Positive Youth Development Scale (CPYDS) in 2006 and has contributed to the research on youth development for many years. His expertise and experience have greatly enhanced the research design, conceptualization of the theoretical framework, and interpretation of the research findings. The second author served as a "critical friend" to the first author during the data analysis process by challenging the development of codes and themes, which enabled the comprehensive analysis of the qualitative data.

*Appendix A.2. Qualitative Interview Questions*

A.  Challenges faced by students

1.  Can you tell me about the challenges you encountered under the COVID-19 pandemic? Please share your experience.

   a.  Academic Domain

      i.  Unfulfilled personal & professional goals due to suspension of learning activities

      ii.  Online learning

      iii.  Disruption of outbound activities

      iv.  Uncertainty on career and employment

      v.  University life & sense of belonging

      vi.  Technology literacy related to online learning

      vii.  Uncertainty on academic development

   b.  Personal (including physical, psychological, social and spiritual) Domain

      i.  Physical health (e.g., illness, lack of exercise, dry eyes, sleep problems, body pain)

      ii.  Psychological (e.g., negative emotions, feeling nervous/anxious/worries/depress/hopelessness, fear of going out, bored, fatigue)

      iii.   Social (e.g., loneliness, lack of peer support, friendship, peer relationship, organization)

      iv.   Spiritual (e.g., reflection on/ rethinking life, human relationship, living, etc.)

      v.   Have you reflected on your life meaning during the pandemic?

  c.   Family Domain

      i.   Competition to use family resources (e.g., Wifi, space, furniture)

      ii.   Increased family conflict

      iii.   Financial hardship (e.g., unemployed/underemployed/business close down/rent/loan)

      iv.   Role change (e.g., take care of siblings/elder/sick family member when learning)

      v.   Family members/relatives/friends suffering from the COVID-19

  d.   Community Domain

      i.   Discrimination (e.g., test-positive/under quarantine/travel history)

      ii.   Community sentiment (e.g., measures and policies imposed by the government, performance of officials/members of Legco, experts)

  e.   Other examples of challenged experienced by the interviewees

B.   Coping with Challenges

  1.   How did you deal with the challenge(s) and the feeling(s) (e.g., stress, negative feelings)? Why did you choose this way? Was it useful? Please share with us your experience.

C.   Review

  1.   Do you think the pandemic has helped you to grow better? Why or why not?

  2.   What lessons have you learned from the pandemic?

**Table A1.** Summary on the Use of Coping Strategies by Research Participants.

| The Eight Ways of Coping Scales [23] | |
|---|---|
| Items in each scale | Participant code |
| **Problem-focused coping (11 items) ($n$ = 24)** | |
| 1. I go over in my mind what I will say or do. | C-C-1 ($n$ = 1) |
| 2. Stand my ground and fight for what I want. | / |
| 3. I know what has to be done, so I am doubling my efforts to make things work. | C-C-4, C-D-4, F-C-7 ($n$ = 3) |
| 4. Come up with a couple of different solutions to the problem. | C-A-1, C-A-2, C-A-4, C-A-7, C-C-6, F-B-8, F-C-1, M-A-3 ($n$ = 8) |
| 5. I try not to act too hastily or follow my first hunch. | / |
| 6. I'm making a plan of action and following it. | C-A-5, M-C-5 ($n$ = 2) |
| 7. I try to see things from the other person's point of view. | / |
| 8. I try to keep my feelings from interfering with other things too much. | C-C-2, C-C-3, F-B-7, M-C-4 ($n$ = 4) |
| 9. Change something so things will turn out all right. | C-A-5 ($n$ = 1) |
| 10. I try to analyze the problem in order to understand it better. | C-B-7, C-C-5, F-C-8, M-B-8, M-B-9 ($n$ = 5) |

| 11. Draw on my past experiences; I was in a similar situation before. | / |
|---|---|
| **Emotion-focused coping (*n* = 46)** | |
| **Wishful thinking (5 items):** | |
| 1. Wish that I can change what is happening or how I feel. | / |
| 2. Wish that the situation would go away or somehow be over with. | / |
| 3. I daydream or imagine a better time or place than the one I am in. | / |
| 4. Have fantasies or wishes about how things might turn out. | / |
| 5. Hope a miracle will happen. | / |
| **Distancing/Detachment (6 items): (*n* = 6)** | |
| 1. Try to forget the whole thing. | F-B-7 (*n* = 1) |
| 2. Go on as if nothing is happening. | C-D-2, F-C-3 (*n* = 2) |
| 3. I'm waiting to see what will happen before doing anything. | M-A-2 (*n* = 1) |
| 4. Go along with fate; sometimes I just have bad luck. | / |
| 5. I feel that time will make a difference – the only thing to do is to wait. | / |
| 6. Accept it, since nothing can be done. | F-C-1, M-A-3 (*n* = 2) |
| **Emphasizing the positive (4 items): (*n* = 22)** | |
| 1. I'm changing or growing as a person in a good way. | C-B-3, M-C-4 (*n* = 2) |
| 2. Rediscover what is important in life. | C-A-2 (*n* = 1) |
| 3. I am inspired to do something creative. | C-A-4, C-B-2, C-B-7, C-C-5, F-B-7, F-C-4, F-C-7, F-C-8, F-C-9, M-C-7 (*n* = 10) |
| 4. Look for the silver lining, so to speak; try to look on the bright side of things. | C-B-1, C-B-2, C-B-4, C-B-6, C-B-7, C-C-4, C-D-1, C-D-4, M-B-8 (*n* = 9) |
| **Self-blame (3 items):** | |
| 1. Criticize or lecture myself. | / |
| 2. Realize I brought the problem on myself. | / |
| 3. Make a promise to myself that things will be different next time. | / |
| **Tension-reduction (3 items): (*n* = 17)** | |
| 1. Got away from it for a while; tried to rest or take a vacation. (Including simply going out and going to the nature) | C-A-2, C-A-7, C-C-2, C-D-2, F-B-1 (*n* = 5) |
| 2. Try to make myself feel better by eating, drinking, smoking, using drugs or medication, etc. | F-B-4 (*n* = 1) |
| 3. I jog or exercise. (Including hiking, meditation and breathing exercise) | C-A-7, F-A-2, F-A-4, F-A-6, F-B-4, F-C-2, F-C-4, F-C-5, F-C-6, F-C-8, F-C-9 (*n* = 11) |
| **Self-isolation/Keep to self (3 items): (*n* = 3)** | |
| 1. I try to keep my feelings to myself. | C-A-6, M-C-5 (*n* = 2) |
| 2. Avoid being with people in general. | / |
| 3. Keep others from knowing how bad things are. | M-B-6 (*n* = 1) |
| **Mixed problem- and emotion-focused coping (*n* = 29)** | |
| **Seeking social support (7 items):** | |

| 1. | Talk to someone about how I'm feeling. | C-A-6, C-D-2, C-D-4, F-A-6, F-B-2, F-B-4, F-B-6, F-C-2, F-C-5, M-A-2, M-B-4, M-B-5, M-B-9, M-C-7 ($n$ = 14) |
|---|---|---|
| 2. | Accept sympathy and understanding from someone. | / |
| 3. | I let my feelings out somehow. | F-A-3 ($n$ = 1) |
| 4. | Talk to someone who can do something concrete about the problem (e.g., psychological counsellor, professional help) | C-B-5, F-A-2, F-A-4, M-A-8 ($n$ = 4) |
| 5. | Talk to someone to find out more about the situation. | / |
| 6. | Ask a relative or friend I respect for advice. | C-A-6, C-C-3, C-C-4, C-C-6, F-B-2, F-B-6, F-B-8, F-C-1, M-B-6 ($n$ = 9) |
| 7. | I pray. | F-A-2 ($n$ = 1) |

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