Weighing the Psychological Well-Being Factors among Chinese Students Using Q-Methodology

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Abstract. Psychological well-being (PWB) may be interpreted differently across age groups, cultural contexts, and social populations, including Chinese university students. The present study aims to investigate Chinese college students' PWB using a mixed-methods Q-methodology approach to understand how different aspects of PWB are prioritized within this population. The present study recruited 18 participants aged 18 to 22 from various universities in China. Participants were asked to rank 33 statements adapted from Ryff's six-factor model of PWB, followed by qualitative explanations of their ranking decisions. Factor analysis revealed four distinct viewpoints of PWB, accounting for 58% of the total variance: mastery-stability orientation, autonomy-growth orientation, efficiency-purposefulness orientation, and relationship-connectedness orientation. Despite the diversity of viewpoints, environmental mastery emerged as the most highly valued dimension of PWB across all factors, whereas self-acceptance was consistently rated as the least important. The findings suggest that PWB among Chinese college students is not driven by a single dominant value. Instead, it reflects a combination of personal developmental priorities and culturally shaped values during a rapid transitional life stage. These results highlight the importance of future-oriented striving and competence in managing one's environment. Accordingly, universities may consider developing programs that support students' purpose formation and environmental mastery to enhance psychological well-being.

Keywords: psychological well-being, q-methodology, Chinese college students, Ryff's six-factor model

1. Introduction

College students are in a transformative phase of their lives. They experience various life transitions and changes, such as moving from dependent to independent living arrangements, forming long-term romantic relationships, transitioning from school to higher education or the workforce, and navigating shifts in their residential, educational, and employment statuses [1]. Furthermore, adjusting to a new learning environment and coping with increasing academic pressure are key challenges for college students [2]. Difficulty in adapting to college life can have significant impacts on both their emotional and physical health [3].

1.1. Psychological Well-Being (PWB)

Psychological well-being refers to experiencing life in a fulfilling and meaningful way, encompassing personal growth and the pursuit of self-fulfillment [4]. Ryff and Singer [5] consider PWB as a process of self-actualization that allows individuals to grow over time, realize their potential, set future goals, and contribute to the well-being of others. Unlike subjective well-being, which centers on the pursuit of hedonism, PWB emphasizes leading a meaningful life [6]. Therefore, it suggests that individuals achieve happiness through a sense of purpose, embracing challenges, and experiencing personal growth [7]. PWB is very important, and Khan et al. [8] showed that PWB is linked to stronger social support, improved physical health, enhanced academic performance, and the development of skills and life goals.

1.2. Ryff's six-factor model

Based on the concept of PWB, Ryff proposed a six-factor model [6]. The six factors are self-acceptance, positive relationships with others, autonomy, environmental mastery, life purpose, and personal growth [9]. These dimensions focus on the different competencies of an individual.

Self-acceptance refers to the ability to embrace oneself without judgment, regardless of the fairness or consequences of one's actions and their outcomes [10]. According to Ryff's [9] definition, individuals who excel in positive relationships with others build warm, trusting connections characterized by empathy, care, and mutual understanding. Autonomy, as a component of well-being, refers to the positive role individuals play by preserving their sense of individuality across various contexts and situations [11]. Environmental mastery refers to the extent to which individuals perceive themselves as having control over their life circumstances, as opposed to feeling that their experiences are beyond their influence [12]. Ribeiro et al. [13] characterized purpose in life by the belief that life holds meaning and direction, serving as a guide for setting life goals and making decisions about personal resources. Personal growth involves actively and intentionally working toward self-improvement, achieving goals, and adapting to new challenges [14].

1.3. The varied importance of factors to individuals

The importance of each factor in Ryff's six-factor model varies from person to person, with individuals prioritizing the factors differently based on their unique perspectives. According to De-Juanas et al. [11], socio-demographic factors, such as age, have been shown to influence PWB in various ways. Therefore, as individuals grow up in unique circumstances and experience different life stages, the factors that hold importance to them can vary greatly.

1.3.1. Culture

In collectivist Asian societies, individuals prioritize harmonious social relationships, unlike Western cultures, which emphasize independence and individuality [15]. Collectivistic cultures emphasize interdependence, group cohesion, harmonious relationships, and prioritizing collective needs over individual desires [4,16]. Therefore, in Western cultural contexts, self-focused aspects of well-being, such as self-acceptance and autonomy, often hold greater significance; in contrast, in Eastern interdependent cultures, greater emphasis may be placed on relational aspects of well-being, such as fostering positive relationships with others [9].

1.3.2. Gender

The importance of each factor may also be different for different genders. Studies have consistently found that women score higher than men on positive relationships with others and personal growth, while showing no significant gender differences in the remaining four dimensions of PWB [9]. However, across cultures, women tend to score lower than men in self-acceptance and autonomy [4]. This may be because males and females prioritize different aspects of PWB and invest more effort in the areas they value most.

1.3.3. Age

The significance of each PWB factor may vary for individuals depending on their age, as life stages involve distinct primary tasks and unique experiences that shape their priorities. Certain dimensions of PWB tend to fluctuate with age, particularly during key life transitions like early adulthood [17]. Ryff's [18] studies revealed that environmental mastery and autonomy increase with age, while personal growth and purpose in life decline, peaking in early adulthood; Meanwhile, self-acceptance and positive relationships remain stable across the lifespan.

In addition, the values of different generations have been influenced by historical and policy shifts, such as the Reform and Opening-Up, the One-Child Policy, and urbanization [19]. Therefore, for contemporary university students, there may be a greater emphasis on personal growth and autonomy, while traditionally valued aspects such as positive relationships with others might have shifted in priority.

1.4. The current study

Although many studies have explored the factors that influence psychological well-being (PWB) using Ryff's six-factor model, researchers still lack a clear understanding of how these dimensions are prioritized and experienced by specific cultural groups, such as Chinese college students. Most existing research applies findings broadly across different populations, often failing to consider the detailed individual factors that affect PWB. In addition, Ryff's model identifies age-related differences in PWB, but there is little empirical research focusing on early adulthood as a transitional life stage in rapidly modernizing societies like China. This gap leaves unanswered questions about how the shifting values of younger generations, shaped by historical and policy-driven factors (e.g., the One-Child Policy and urbanization), influence their psychological well-being priorities. To address these gaps, the present study employs Q-methodology to examine how Chinese college students prioritize the six dimensions of psychological well-being outlined in Ryff's six-factor model.

This study provides a new perspective on PWB research in the context of non-Western collectivist cultures. Academic achievement was found to have a negative relationship with psychological well-being, suggesting that students under greater school-related stress tended to perform better academically than those experiencing lower levels of stress [20]. Therefore, the findings of this study suggest that by focusing on the factors most relevant to their well-being, college students may maintain strong academic performance, and universities and society are better positioned to implement effective psychological interventions to enhance students' PWB.

2. Method

This study employs an explanatory mixed-methods design centered on Q-methodology to systematically investigate student subjectivity. By utilizing Ryff's six-factor model of psychological well-being as its theoretical framework, the primary objective is to identify, characterize, and weigh the distinct, shared perspectives (or 'viewpoints') that Chinese university students hold regarding the relative importance of the six PWB dimensions.

2.1. Participants

Participants were 18 students from various universities across China. Their average age was 19.90 years (SD = 1.45), ranging from 18 to 22 years old. The male-to-female ratio was 56% to 44% (10 males and 8 females).

2.2. Measure

This study employed an adapted version of Ryff's Scales of Psychological Well-being (SPWB) from Gao and McLellan's [6] study. This version was especially designed for Chinese students. The SPWB comprises 33 items corresponding to six dimensions of positive psychological functioning. The "Autonomy" subscale assesses an individual's sense of self-determination and independence, consisting of 5 items such as: "I tend to be influenced by people with strong opinions." The "Environmental Mastery" subscale measures an individual's sense of control over life events and adaptive capacity, comprising 6 items. For example: "The demands of everyday life often get me down." The "Personal Growth" subscale measures openness to new experiences and inclination toward self-improvement, comprising 6 items. Example: "I am the kind of person who likes to give new things a try." The "Purpose in Life" subscale measures individuals' sense of meaning and purpose in life, comprising 5 items such as: "When I think about the future, I feel hopeful." The "Positive Relations with Others" subscale assesses satisfaction in interpersonal relationships, comprising 6 items such as: "I find it difficult to really open up when I talk with others." The "Self-Acceptance" subscale measures the positivity of an individual's attitude toward themselves, comprising 5 items such as: "I like most aspects of my personality." Participants were asked to rate the extent to which each statement affected their well-being using a symmetrical 11-point Likert scale ranging from -5 to 5 (Figure 1). Participants were asked to rate how well each statement applied to their own situation, where -5 indicated "very little impact," and 5 indicated "very significant impact. The higher the score, the greater the impact of that dimension on the individual's PWB.
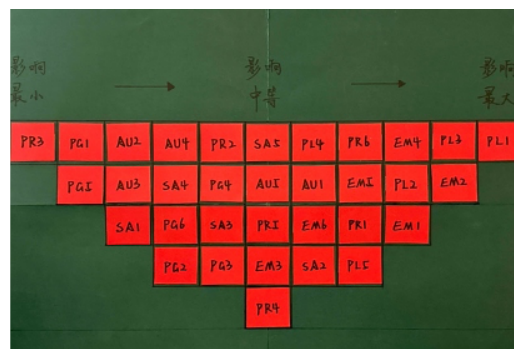

Figure 1. An example of the 11-point Likert scale used in the present study

2.3. Procedure

Each participant underwent a 30-minute to 1-hour interview during which they completed the Likert scale and explained their reasoning for each ranking as they proceeded. Following the completion of the rankings, additional questions were posed based on the participants' specific orders to gain deeper insight into their thought processes.

2.4. Statistical analysis

All analyses were conducted using R. Q-methodology was used to identify shared subjective viewpoints among participants based on their Q-sorts. Q-methodology is an exploratory research method designed to systematically reveal types of subjective viewpoints people hold on a specific topic. Unlike traditional quantitative research, Q-methodology's unit of analysis is "persons" rather than "variables," using factor analysis to identify groups of participants with similar viewpoint patterns, thereby revealing what typical subjective perspectives exist. The Q-methodological process will first use quantitative factor analysis to reveal patterns from participant 'Q-sorts' (their ranked arrangement of statements about well-being) [21]. These quantitative findings will then be explained and contextualized through qualitative post-sort interviews to further elucidate the psychological and cultural factors shaping these distinct viewpoints. Specifically, an average score for each psychological well-being dimension was calculated independently for each factor, providing a theoretically grounded basis for factor interpretation beyond reliance on individual item rankings. This mixed-analysis approach allowed the study to capture both the structural patterns of well-being priorities and the subjective meanings that college students attach to them.

3. Results

A total of 18 participants completed the Q-sorting task in this study. Participants ranked 33 statements using a forced distribution ranging from -5 (most disagree) to +5 (most agree). Following data collection, Q-methodology analysis was conducted using the qmethod package (version 1.8.4) in R.

By-person factor analysis with varimax rotation was conducted on all participants' Q-sorts. According to the Kaiser criterion (eigenvalue > 1), six factors had eigenvalues exceeding 1 (Table 1). However, only one person had a significant loading on the fifth and sixth factors, leading to lower composite reliability (0.80 vs 0.92-0.96). Therefore, a four-factor solution was ultimately selected so that at least three people load significantly onto each factor to ensure interpretation. Together, these factors accounted for 57.99% of the total variance (Table 1). In Q methodology, the selection of factors does not depend on maximizing total variance explained, but rather on whether each factor represents a clear and interpretable configuration of viewpoints [22].

Table 1. Factor eigenvalues and explained variance

Factor	Eigenvalue	Explained Variance (%)	Cumulative Variance (%)
1	4.55	25.3	25.3
2	2.47	13.72	39.02
3	1.89	10.47	49.49
4	1.53	8.5	57.99
5	1.24	6.87	64.86

Table 1. (continued)

6	1.04	5.76	70.63
7	0.97	5.42	76.04
8	0.88	4.88	80.92

Note. The four extracted factors demonstrated acceptable statistical characteristics. All factors had eigenvalues greater than 1 (2.79, 2.74, 2.71, and 2.20 for Factors 1–4).

Table 2. Four-factor solution characteristics

	Factor 1	Factor 2	Factor 3	Factor 4
Average reliability coefficient	0.80	0.80	0.80	0.80
Number of loading Q-sorts	5.00	6.00	3.00	2.00
Eigenvalues	2.79	2.74	2.71	2.20
Percentage of explained variance	15.53	15.20	15.06	12.20
Composite reliability	0.95	0.96	0.92	0.89
Standard error of factor scores	0.22	0.20	0.28	0.33

In addition, each factor included several participants whose Q-sorts loaded significantly (Factor 1 = 5, Factor 2 = 6, Factor 3 = 3, Factor 4 = 2), indicating that the factors were sufficiently stable for interpretation (Table 3). There were two participants who did not reach the loading threshold for any factor. After reviewing their loading patterns, they were assigned to the factors on which they showed the highest loading. This approach allowed all Q-sorts to be classified in a consistent manner and supported the coherence of the four-factor solution.

Table 3. Participant factor loading matrix

	Factor 1	Factor 2	Factor 3	Factor 4
participant 1	0.17	0.60*	0.09	-0.39
participant 2	0.53*	0.09	0.50	0.06
participant 3	0.33	0.68*	0.21	-0.09
participant 4	0.07	0.83*	0.09	0.12
participant 5	-0.01	-0.05	0.66*	0.54
participant 6	0.08	-0.17	0.73*	0.01
participant 7	0.17	0.53*	0.46	0.14
participant 8	0.76*	-0.04	-0.10	0.21
participant 9	0.33	-0.09	0.37	0.67*
participant 10	0.31	0.12	0.16	0.77*
participant 11	0.25	0.64*	-0.28	0.02
participant 12	0.84*	0.27	0.04	-0.16
participant 13	0.57*	0.22	0.23	0.13
participant 14	0.03	0.30	0.72*	0.04
participant 15	0.25	0.04	0.57	-0.55
participant 16	-0.27	0.46*	-0.19	0.28
participant 17	0.03	0.02	-0.03	0.33
participant 18	0.57*	0.22	0.14	0.28

Note. Loadings of all 18 participants on each factor are displayed in the table. The significant loadings are annotated using asterisks (*). Two of the 18 participants do not have a significant loading, which are participants 15 and 17. After evaluation, we put participant 15 on factor 3 because this participant showed the highest loading on factor 3. Similarly, we put participant 17 on factor 4 because this participant showed the highest loading on factor 4.
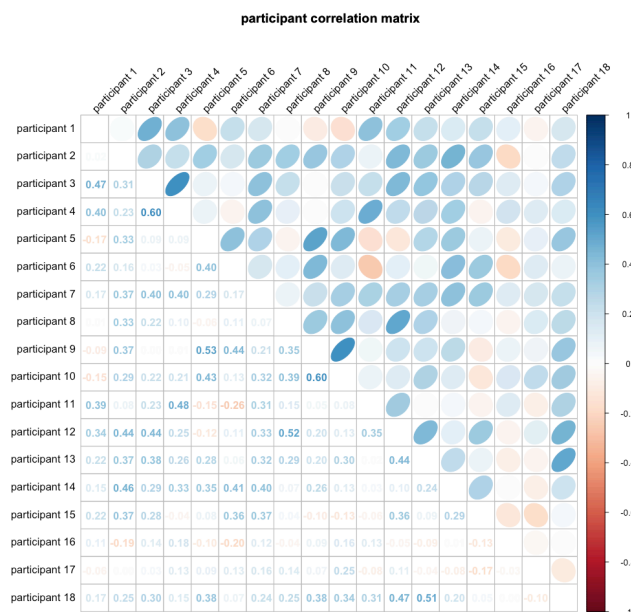

Figure 2. Interpersonal correlation matrix

Because the Q-set in this study was derived from six theoretically defined dimensions of psychological well-being, each dimension contained 5–6 items expressing closely related meanings rather than independent standalone statements. To avoid interpretive bias caused by repeated weighting of similar items within the same dimension, the interpretation of the factors was based on the average scores of these six dimensions rather than on individual item rankings. This approach provides a more accurate representation of each factor's overall orientation toward the core well-being constructs. Based on this method, the post-sorting comments revealed four distinct participant perspectives:

Factor 1: Mastery–Stability Orientation

Five participants (3 females and 2 males) in this group viewed well-being as something built through feeling capable in daily life and staying connected to a stable sense of self. They highlighted how important it was to manage responsibilities, organize their time, and keep their routines predictable. They also noted that being generally comfortable with who they are contributed meaningfully to how they judged their own well-being. For example, during the Q-sort, they placed statements such as "I can arrange my life in the way I prefer" and "I feel positive about myself and confident in who I am" in positions they believed had a strong impact on well-being. As one participant explained in the interview, "feeling good about myself when comparing with others gives me more motivation. It also makes me feel capable of handling each task in my life and continuing to improve, so this is quite important."

Factor 2: Autonomy-Growth Orientation

Six participants (3 females and 3 males) who loaded on Factor 2 viewed well-being as something largely influenced by having the freedom to make their own decisions and by pursuing ongoing self-improvement. They emphasized independence, new experiences, maturity, and learning. Compared

with personal motivation and self-direction, relationships and external approval played a much smaller role. Statements such as "I am willing to express my opinion even when it differs from most people" and "My life is a process of continuous learning, change, and growth" were placed on the more important side during their Q-sort. In this factor, a participant noted in the interview, "if I disagree with others' behavior, then changing my own behavior just to fit in would go against my own principles and would lower my well-being." This further illustrates the importance of autonomy for these participants. In addition, another participant stated, "if my life is moving forward, even if the progress is small, I feel more confident in myself and more certain about my decisions." This reflects how meaningful personal growth is for them.

Factor 3: Efficiency–Purposefulness Orientation

Four participants (1 female and 3 males) who represented this factor viewed well-being as closely tied to having direction and structure. They emphasized planning, efficiency, and organization, and felt that fulfillment comes from setting goals, following plans, and staying focused on what they want to achieve. Managing daily responsibilities effectively supported this orientation and helped them maintain steady progress toward their future goals. Statements such as "I can take initiative in completing the plans I set for myself" and "Whether I can manage my time effectively to complete everything I need to do" were placed on the important side of the Q-sort by participants who loaded on Factor 3. As a participant explained in the interview, "Having a clear short-term or long-term goal, and making daily plans and actively working toward it, makes me feel that I am moving step by step toward what I ultimately want to achieve. This gives me a strong sense of well-being." Additionally, another participant said, "Being able to manage my time well has a very strong impact on my well-being. When I plan my day and follow the schedule to complete everything, I feel fulfilled and satisfied. But if I am lazy and fail to organize my time, such as leaving all tasks until the last minute, I start to feel anxious and my mood becomes much worse".

Factor 4: Relationship–Connectedness Orientation

Three participants (1 female and 2 males) in this group viewed well-being as grounded mainly in interpersonal connection. They highlighted the comfort that comes from having trusted friends, open communication, and relationships built on mutual care and understanding. They felt most satisfied when they were surrounded by supportive people. Compared with relational closeness, autonomy and self-evaluation played a smaller role in how they defined their well-being. During the Q-sort, they placed statements such as "Whether others are willing to listen when I share my concerns" on the side they viewed as having a strong influence on well-being. A participant, who loaded on Factor 4, noted in the interview, "I feel that other people's emotions, states, and thoughts often affect my own mood. When I get along well with others and have many friends around me, I feel very happy. So I think positive interpersonal relationships have a strong influence on my well-being."

4. Discussion

The present study aimed to explore Chinese college students' subjective perceptions of PWB within the Ryff's six-factor model using Q-methodology. Four distinct viewpoints were identified: mastery-stability orientation, autonomy-growth orientation, efficiency-purposefulness orientation, and relationship-connectedness orientation. These results demonstrated that PWB among Chinese college students is not driven by a single dominant value but reflects a combination of personal development and culturally shaped relational norms.

4.1. Viewpoints of Psychological Well-Being

Four distinct viewpoints regarding the importance of different aspects of psychological well-being were identified. Across all viewpoints, environmental mastery emerged as the most highly valued dimension among Chinese university students, followed by purpose in life, positive relations with others, personal growth, and autonomy. Self-acceptance received the lowest ratings across all perspectives.

Although Ryff's six-factor model conceptualizes all dimensions as essential for positive functioning, previous research indicates that some dimensions may be more salient during specific developmental stages. For example, Ryff and Keyes [23] reported that environmental mastery and self-acceptance show the strongest associations with well-being in adult samples, highlighting mastery as a core component of psychological wellness.

In contrast, the consistently low valuation of self-acceptance differs from earlier findings, in which self-acceptance is described as a central indicator of positive functioning [9]. This pattern diverges from most Western findings and may represent a culturally or age-specific tendency, although the relatively small sample size could also contribute to the pattern.

These patterns may be shaped by developmental and cultural factors, which are discussed in the following sections.

4.1.1. Developmental stage

Emerging adulthood is described as a transitional period marked by identity exploration and increasing self-direction [24]. This developmental stage is characterized by active exploration of future goals and growing responsibility for one's own decisions, which makes environmental mastery and purpose in life two of the highest-valued factors. Prior research also supports this pattern. Purpose in life has been shown to guide emerging adults' goal-setting and provide a sense of direction during identity development [25], while mastery is associated with young adults' perceived ability to adjust to new challenges [26]. Ryff's [9] model similarly emphasizes that both mastery and purpose represent core components of positive psychological functioning in adulthood. Taken together, these findings suggest that college students may value self-direction and broader social exploration as central aspects of well-being.

4.1.2. Culture

Although China is often described as a collectivist society that emphasizes harmony and interpersonal obligations, Chinese college students in this study placed stronger emphasis on environmental mastery and purpose in life. This finding suggests a shift in value orientation among younger generations.

Research indicates that younger cohorts in China report higher levels of individualism and lower levels of collectivism than older generations, reflecting an age-specific cultural shift [27]. This pattern also aligns with broader national trends showing that young people increasingly ground their well-being in autonomy, personal achievement, and self-direction [28].

Another contributing factor is the growing exposure of Chinese college students to global and Western cultural norms. Studies describing the "individualization" of urban Chinese youth note that university students increasingly value independence, self-responsibility, and personal choice, often more strongly than previous generations [29, 30]. These changes may make constructs such as mastery and purpose feel more personally relevant and central to their understanding of well-being.

An alternative explanation is that our findings may reflect sampling characteristics. College students, especially those from urban or academically competitive environments, tend to adopt more individualistic orientations than the general population. A relatively small sample may also amplify these patterns.

4.1.3. Gender

Across the four viewpoints, gender distribution was generally balanced, making it difficult to draw clear conclusions about gender differences. Although Factor 3 included more males and Factor 1 had slightly more females, these differences were small and may reflect chance variation or sampling characteristics rather than meaningful patterns. Certain aspects of psychological well-being may resonate differently across genders, but the current data do not provide sufficient evidence to support gender-specific interpretations. Studies with larger and more balanced samples are needed before stronger conclusions can be made.

4.2. Practical implications

The findings offer several practical implications for universities. Because Factor 2 included the largest number of students and emphasized autonomy and personal growth, colleges may consider programs that strengthen self-direction and help students gain confidence in managing their own development. Research shows that when young adults feel capable of directing their lives, they report fewer depressive and anxiety symptoms [31]. Meaning-oriented experiences that support reflection and self-exploration can also increase resilience during stressful transitions [32]. These results suggest that providing spaces for students to explore interests, clarify values, and build a sense of agency may improve well-being.

Environmental mastery was also rated highly across viewpoints. This highlights the need for programs that help students navigate academic and social environments more effectively. Interventions that teach coping strategies, problem-solving, and adaptation skills may help students feel more capable in daily challenges. For example, research has shown that meaning-based coping resources are associated with better adjustment to stressful life circumstances, highlighting the role of adaptive coping processes in navigating daily challenges [32].

4.3. Limitations

This study has several limitations. The sample size was relatively small, which limits generalizability and reduces the stability of the identified viewpoints. The use of self-report measures also introduces subjectivity, as responses may reflect personal interpretation rather than objective evaluation. In addition, the cross-sectional design captures perceptions at only one point in time, making it unclear how views of psychological well-being may shift across developmental stages. Most participants were from urban areas, which may not represent students from different regions or educational contexts.

A key methodological limitation concerns the development of the Q-set. The 33 statements used in the Q-sort were taken directly from Ryff's Scales of Psychological Well-being (SPWB), which were originally designed for Likert-style self-evaluation. These items are inherently self-reflective (e.g., "I like most aspects of my personality," "The demands of everyday life often get me down") and assess how much a person possesses a trait. This structure does not align with Q-method best practices, which typically rely on a concourse of diverse opinions. As a result, participants may have

been unsure whether to rank statements based on personal truth or conceptual importance. Although post-sort interviews helped clarify the task, some ambiguity likely remained. Therefore, the resulting viewpoints should be interpreted with caution, as they may reflect a mix of self-assessment and subjective valuation.

4.4. Future directions

Future research can address these limitations in several ways. Recruiting a larger and more diverse sample would improve generalizability and help produce more stable factor structures. Longitudinal designs would also be useful, as they could show how students' views on psychological well-being change across developmental stages. Including participants from different regions and educational backgrounds may reveal cultural or contextual differences that were not captured in this study.

Methodological refinements are also needed. Future work should develop and validate a new Q-set based on a concourse of opinions specifically relevant to Chinese university students. A concourse-based Q-set would provide statements that better represent diverse perspectives on Ryff's six dimensions and reduce confusion between self-evaluation and concept importance. Such improvements would enhance the clarity of the sorting task and strengthen the validity of future findings.

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