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Positive Self-Compassion, Self-Coldness, and Psychological Outcomes in College Students: a Person-Centered Approach

Liyang Wu¹ · Maya J. Schroevers² · Lei Zhu¹

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Abstract

Objectives Self-compassion is related to psychological outcomes. By examining wholistic concept of self-compassion, previous research has overlooked the possibility that people may differ in combination of positive self-compassion and self-coldness. This study, using a person-centered approach, aimed to identify subgroups of college students based on different profiles of positive self-compassion and self-coldness. We also examined how these profiles related to socio-demographic variables as well as psychological outcomes.

Methods This cross-sectional study included 1029 Chinese college students. Self-reported questionnaires were used to collect levels of positive self-compassion and self-coldness (including six facets) and psychological outcomes (depressive symptoms, anxiety symptoms, negative affect, and positive affect). A latent profile analysis was performed to identify different profiles based on the six facets. The Bolck-Croon-Hagenaars approach was used to examine how profiles related to socio-demographic variables and psychological outcomes.

Results Five distinct profiles were identified: high self-coldness, low self-compassion (16.2%), high self-compassion, low self-coldness (17.2%), average self-compassion, average self-coldness (38.9%), low self-compassion, low self-coldness (17.5%), and high self-compassion, high self-coldness (10.2%). Older people tended to report high self-compassion, high self-coldness profile, and females tended to have high self-coldness, low self-compassion profile. People with high self-compassion, low self-coldness profile reported the best psychological outcomes, whereas those in high self-coldness, low self-compassion and high self-compassion, high self-coldness profiles experienced the worst outcomes.

Conclusions We identified five subgroups with different combinations of the six facets of self-compassion and self-coldness. People with distinct profiles differed on psychological outcomes. Future research is needed to adopt longitudinal design and replicate our findings in different groups.

Keyword Profiles of self-compassion; Depressive symptoms; Anxiety symptoms; Positive affect; Negative affect; Latent profile analysis

Self-compassion refers to an attitude of being caring, warm, and understanding towards one's personal failures, inadequacies, and sufferings (Neff, 2003a). It is proposed that self-compassion consists of three interacting components: (1) self-kindness (versus self-judgment), the ability to treat oneself with warmth rather than with harsh self-judgment;

(2) common humanity (versus isolation), recognizing that one's failures and imperfections as shared parts of human experience rather than feeling isolated; and (3) mindfulness (versus over-identification), maintaining one's experience in a balanced way rather than over-identifying with pain (Neff, 2003b). Findings of recent meta-analyses showed that people with a higher self-compassionate capacity generally reported better psychological well-being and less severe psychopathological symptoms (Macbeth & Gumley, 2012; Muris & Petrocchi, 2016).

The 26-item multi-factorial Self-Compassion Scale (SCS) and the abbreviated 12-item Self-Compassion Scale Short-Form (SCS-SF) are the most widely used questionnaires to assess self-compassion (Neff, 2003a; Raes et al., 2011). A

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total score of the SCS or the SCS-SF, which can be calculated by summing the three positive components (i.e., self-kindness, common humanity, and mindfulness) and the reversed scores of the three negative components (i.e., self-judgment, isolation, and over-identification), is intended to measure an overall construct of self-compassion (Hayes et al., 2016; Neff, 2016). In line with the original conceptualization of self-compassion (Neff, 2003b), most previous empirical research regarded self-compassion as a wholistic concept by using a total score composite as an overall measure of self-compassion, and relatively few researchers looked at the SCS components (Macbeth & Gumley, 2012; Muris et al., 2021). However, more recently, research has shown that positive components and negative components seem to be two distinct constructs, namely positive self-compassion and self-coldness (López et al., 2015; Muris & Petrocchi, 2016; Muris et al., 2018). There were also empirical studies showing that the intercorrelations within positive self-compassion or self-coldness were much higher than the intercorrelations between positive self-compassion and self-coldness (López et al., 2015; Neff, 2003a; Van Dam et al., 2011). Particularly, findings of a meta-analysis revealed distinctive roles of positive self-compassion and self-coldness in the associations with psychological symptoms: self-coldness was found to be more closely linked with psychological problems than positive self-compassion (Muris & Petrocchi, 2016). It is therefore argued that it is preferable to look at positive and negative components of self-compassion separately, and a total score of self-compassion should not be used, because the negative components of self-compassion may inflate the relations between self-compassion and psychological well-beings (Muris & Petrocchi, 2016). In contrast, another recent research line conducted by Neff et al. (2016; 2017; 2018a) found that both positive and negative self-compassion components were central to self-compassion and both helped to explain the links to psychological functioning.

These mixed findings may reflect the possibility that different subgroups of people exist with each having a particular constellation of the six self-compassion components and that these subgroups differ in their report of psychological outcomes. For instance, it can be hypothesized that those reporting a high level of self-criticism with a low level of self-kindness would report lower well-being than those with a high level of self-criticism but also a high level of self-kindness. So far, most previous studies have applied a variable-centered approach (i.e., using the total score or scores on individual facets), hereby overlooking the possibility that people may differ in their report of profiles of positive self-compassion and self-coldness. A person-centered approach (e.g., Latent Profile Analysis, LPA) can help to address this issue by categorizing individuals into distinct subgroups based on

their combinations of six self-compassion components (Jung & Wickrama, 2008). According to the theoretical conceptualization, self-compassion is assumed to work as a dynamic balanced system within individuals and the six components of self-compassion may mutually influence one another (Neff et al., 2018a, 2018b; Neff, 2003b). As such, it is possible that people may report distinct profiles of self-compassion, in which various combinations of the distinct facets of positive self-compassion and self-coldness would work as a different system.

Recently, a first step has been taken to examine the existence of possible distinct profiles of self-compassion. In a sample including Australian college students, three profiles of self-compassion were identified with the use of LPA: the “uncompassionate self-responding” profile, characterized by low levels of positive components (e.g., low self-kindness) and high on negative components (e.g., high self-judgment); the “moderately self-compassionate” profile, showing moderate levels across the six components; and the “highly self-compassionate”, with high levels on positive components (e.g., high self-kindness) and low on negative components (e.g., low self-criticism) (Phillips, 2019). This research also found that people with the highly self-compassionate profile tended to be men, older, and highly educated. People with the highly self-compassionate profile reported the best psychological well-being than those with the moderately self-compassionate profile, whereas people in the uncompassionate self-responding reported the lowest levels of well-being. More research is needed to examine whether these findings regarding the number and types of profiles and associations with psychological outcomes can be replicated.

In order to extend previous research on profiles of self-compassion, the first objective of the current study was to identify distinct profiles of self-compassion in a large sample including Chinese college students. We hypothesized that at least three distinct profiles would be identified based on previous findings: one profile with high level on both positive and negative self-compassion components, one with low level, and one with moderate level on both components. The second objective was to examine which socio-demographic characteristics would be related to distinct self-compassion profiles. Previous studies have shown that gender and age were related to levels of self-compassion. Males reported a higher level of self-compassion than females in a meta-analysis (Yarnell et al., 2015). Older people were theoretically expected to hold higher self-compassion (Neff, 2003b), and were empirically found to report lower negative self-compassion components (López et al., 2017). Therefore, it was expected that gender and age would be significantly related to distinct profiles. The third objective was to examine the associations of distinct profiles with psychological outcomes (in terms of depressive and anxiety symptoms, positive and negative affect). It was expected that profiles characterized

with highly self-compassion would report better psychological well-being.

Methods

Participants

The inclusion criteria were as follows: (1) Chinese college students, (2) aged 18 years or older, and (3) able to complete Chinese questionnaire independently. In total, 1203 college students were approached, of whom 1185 college students agreed to participate and gave written informed consent. Of the 1185 students, 1029 students completed the questionnaires and were included in the final data analyses (response rate = 85.5%). For the 1029 participants, the mean age was 20 years old (ranged from 18 to 32 years, $SD = 1.67$ years); 75.3% ($n = 775$) were girls; 66.7% ($n = 686$) were first-year college students, 5.2% ($n = 53$) were second-year students, 6.7% ($n = 69$) were third-year students, and 21.5% ($n = 221$) were final-year students; 38.6% ($n = 397$) majored in arts, 42.3% ($n = 435$) in science, 16.4% ($n = 169$) in engineering, and 2.7% ($n = 28$) in other disciplines; 82.0% ($n = 844$) were Han Chinese, and 18.0% ($n = 185$) were minority; and 66.4% ($n = 683$) were from an urban area, and 33.6% ($n = 346$) were from a rural area.

Procedures

Participants of the present study were college students enrolled in Shaanxi Normal University (located in Xi'an, China) from September to October 2019, which was not an exam marking period. Participants were recruited randomly in the unit of class and did not receive any compensation for participation. The study was approved by the Ethical Committee of Shaanxi Normal University.

Measures

Participants completed the following questionnaires in one and the same order. It took participants about 10–15 min to complete the survey.

Socio-demographic characteristic

Participants reported their age, gender, grade, residence (i.e., rural or urban), major (i.e., science, engineering, art or others), and ethnicity (i.e., Han or minority).

Self-compassion

We assessed this construct with the 26-item SCS consisting of six subscales: self-kindness (5 items), self-judgment

(5 items), common humanity (4 items), isolation (4 items), mindfulness (4 items), and over-identification (4 items) (Neff, 2003a). Each item can be answered on a five-point scale from 1 (*almost never*) to 5 (*almost always*). The total score of each component ranged from 4 to 20 (for the 4-item component) or 5 to 25 (for the 5-item component). For the three positive components, a higher score indicated more self-compassionate responding, whereas for the three negative components, a higher score indicated more uncompassionate responding and more self-coldness. The Chinese version of the SCS has been validated and indicated good test–retest reliability and internal consistency reliability (Chen et al., 2011). In this study, the Cronbach's alphas of the total scale and the six components (i.e., self-kindness, self-judgment, common humanity, isolation, mindfulness, and over-identification) of self-compassion were 0.75, 0.70, 0.72, 0.70, 0.72, and 0.85.

Depressive symptoms

We assessed this construct with the 9-item Patient Health Questionnaire (PHQ-9) (Kroenke et al., 2001). Responses ranged from 0 (*not at all*) to 3 (*nearly every day*). The total score of PHQ-9 ranged from 0 to 27, with higher scores indicating more severe depression. The Chinese version of the PHQ-9 has good internal consistency reliability and test–retest reliability among Chinese college students (Du et al., 2017). In this study, the Cronbach's alpha of PHQ-9 was 0.86.

Anxiety symptoms

We assessed symptoms of anxiety with the 6-items short form of State-Trait Anxiety Inventory (STAI-6) (Marteau & Bekker, 1992). The response of each item ranged from 1 (*not at all*) to 4 (*very much*). After reversing the three negatively formed items, total scores can be obtained by summing the six items (ranged from 6 to 24). A higher score indicated higher severity of anxiety. The Chinese version of STAI-6 has been validated and shown high internal consistency among Chinese community (Shek, 1987). In this study, the Cronbach's alpha of STAI-6 was 0.75.

Positive affect and negative affect

We assessed positive and negative affect with Positive and Negative Affect Schedule (PANAS) (Watson et al., 1988). The PANAS consists of 20 items describing positive and negative feelings (e.g., happy and angry), and measures the extent to which participants experienced those feelings on a five-point Likert scale that ranged from 1 (*very slightly*) to 5 (*extremely*). The Chinese version of PANAS has been validated and shown good criterion validity and test–retest

reliability among Chinese college sample (Guo & Gan, 2010). In this study, the Cronbach's alphas of positive affect and negative affect were 0.84 and 0.86.

Data analyses

Latent Profile Analysis (LPA) was performed to identify possible distinct profiles of self-compassion based on the six components of positive self-compassion and self-coldness in *Mplus 7.5* (Muthén & Muthén, 2017). Standardized scores of the six components were used in the LPA, thus, a positive standardized score was above the mean and a negative standardized score was below the mean.

We examined LPA models ranging from 2 to 5 profiles. Several statistical and non-statistical criteria were used to determine the best-fitting LPA model. Statistical criteria included Akaike Information Criterion (AIC), adjusted Bayesian Information Criterion (aBIC), entropy, Bootstrapped Likelihood Ratio test (BLRT), and Vuong-Lo-Mendell-Rubin likelihood ratio test (VLMR). Both AIC and aBIC were measures of relative fit of different models, with lower values indicating a better model fitting. Entropy was used to inspect separation between distinct profiles of one model, with higher values indicating a better profile separation (Ramaswamy et al., 1993). Significant BLRT and VLMR tests suggested that a “K-profile-model” was better than a “K-1-profile-model” (Lo et al., 2001; McLachlan et al., 2019). According to the non-statistical criteria, the addition of an extra profile should be meaningful in concept and represent a profile that was obviously different from the model with fewer profiles. The minimum criterion of each profile is 5% of the total sample (Marsh et al., 2009).

After identifying the optimal number of latent profiles of self-compassion, the Bolck–Croon–Hagenaars (BCH) approach was used to examine how distinct profiles of self-compassion would be related to demographic differences (i.e., age and gender) and psychological outcomes (Bakk

& Vermunt, 2016; Bolck et al., 2004). The BCH approach can consider the probabilistic nature of class membership, yielding unbiased estimates on distal outcomes, which was more robust than the traditional analyses such as ANOVA (Bakk & Vermunt, 2016).

Results

Levels of self-compassion and psychological outcomes and their intercorrelations

The mean levels of self-compassion as well as psychological outcomes were shown in Table 1. All three negative components of self-compassion (i.e., self-judgment, isolation, and over-identification) were correlated with symptoms of depression, anxiety, and negative affect (r ranged from 0.31 to 0.48, $ps < 0.01$), whereas only isolation and over-identification were weakly correlated with positive affect ($rs = -0.09$, $ps < 0.01$). All three positive components of self-compassion were significantly correlated to positive affect (r ranged from 0.25 to 0.30, $ps < 0.01$), and were, to a lesser extent, correlated to depressive symptoms, anxiety symptoms, and negative affect (r ranged from -0.10 to -0.31 , $ps < 0.01$).

Identifying distinct profiles of self-compassion

As can be seen in Table 2, the 5-profile LPA model had the lowest AIC and aBIC, suggesting the best model fitting. The significant BLRT of the 5-profile LPA model also suggested that this model was significantly better than the 4-profile model, although the non-significant VLMR indicated a similar fit between the 5-profile and 4-profile models. In addition, the entropy of the 5-profile model was slightly lower than the 4-profile model, but still acceptable (> 0.7)

Table 1 Levels of self-compassion and psychological outcomes and their inter correlations ($n = 1029$)

	Mean	SD	1	2	3	4	5	6	7	8	9	10
1. Self-kindness	16.72	3.11	-									
2. Self-judgment	15.32	3.22	-.15**	-								
3. Common humanity	13.67	2.47	.48**	.03	-							
4. Isolation	12.23	3.06	-.17**	.61**	-.07*	-						
5. Mindfulness	13.83	2.45	.59**	-.03	.53**	-.22**	-					
6. Over-identification	13.17	3.01	-.17**	.61**	-.04	.72**	-.25**	-				
7. Depression	8.48	4.84	-.18**	.38**	-.10**	.48**	-.24**	.42**	-			
8. Anxiety	12.79	3.32	-.30**	.31**	-.19**	.44**	-.31**	.40**	.55**	-		
9. Negative affect	22.44	8.26	-.13**	.34**	-.05	.38**	-.17**	.34**	.53**	.54**	-	
10. Positive affect	29.38	7.31	.30**	.04	.25**	-.09**	.30**	-.09**	-.00	-.17**	.39**	-

Note: * $p < 0.05$; ** $p < 0.01$

Table 2 Fit statistics of the LPA models with 2 profiles through 5 profiles

	AIC	aBIC	Entropy	VLMR	BLRT	1	2	3	4	5
The 2-profile model	16,605.04	16,638.48	0.75	− 8738.02**	− 8738.02**	53%	47%			
The 3-profile model	16,205.01	16,250.789	0.76	− 8283.52**	− 8283.52**	46%	16%	38%		
The 4-profile model	15,774.01	15,832.10	0.80	− 8076.51**	− 8076.51**	49%	19%	15%	17%	
The 5-profile model	15,635.11	15,705.528	0.76	− 7854.01	− 7854.01**	16%	18%	17%	39%	10%

Note: ** $p < 0.01$

(Bakk et al., 2014). Therefore, the 5-profile LPA model was selected to represent the profiles of self-compassion.

Figure 1 shows the standardized z scores of the six components of self-compassion in each latent profile. Participants in profile 1 ($n = 167$, 16.2%) showed low scores across the three positive components (e.g., low self-kindness) and high scores across the three negative components (e.g., high self-criticism). This profile was labeled as “high self-coldness, low self-compassion” profile. In contrast, participants in profile 3 ($n = 177$, 17.2%) reported high scores across three positive components (e.g., high self-kindness) and low scores on three negative ones (e.g., low self-criticism), which was labeled as “high self-compassion, low self-coldness” profile. Participants in profile 4, the largest group ($n = 400$, 38.9%) showed average levels across all six components. We labeled this profile as “average self-compassion, average self-coldness”.

There were also two other profiles presenting reverse patterns across the six components of self-compassion. People in profile 2 ($n = 180$, 17.5%) showed low scores across the three positive components of self-compassion (e.g., low self-kindness) and low scores on the three

negative components (e.g., low self-criticism). This profile was labeled as “low self-compassion, low self-coldness” profile. In contrast, the small group of participants in profile 5 ($n = 105$, 10.2%) showed high scores across all six components (e.g., high self-kindness and high self-criticism). This profile was labeled as “high self-compassion, high self-coldness”.

Socio-demographic characteristics of self-compassion profiles

Participants’ socio-demographic characteristics of each profile were shown in Table 3. Both age and gender were significantly associated with distinct profiles of self-compassion ($ps < 0.01$). Particularly, in comparison with participants in the other four profiles, participants in the high self-compassion, high self-coldness profile were more likely to be older, and people in the high self-coldness, low self-compassion profile were more likely to be female. We found no significant difference between the five profiles regarding grade, type of major, ethnicity, or residence.

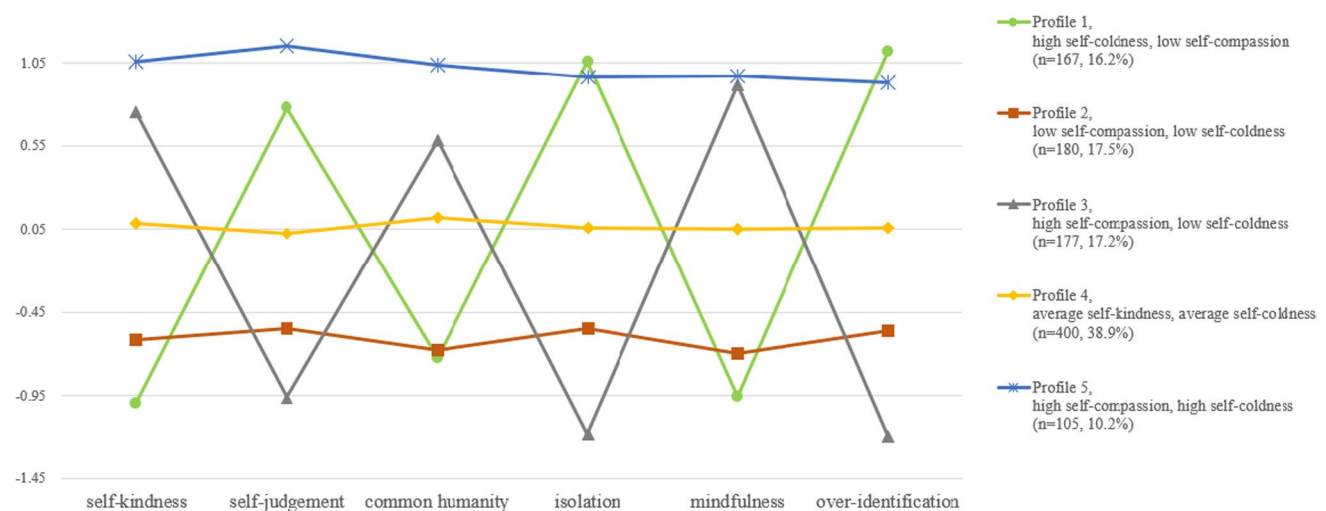


Fig. 1 The standardized z scores of the six components of self-compassion in each of the five profiles. Note. Higher scores on the three positive components refer to higher levels of self-kindness, common

humanity, and mindfulness. Higher scores on the three negative components refer to higher levels of self-judgment, isolation, and over-identification

Table 3 Comparisons on demographic variables and psychological outcomes between the five profiles of self-compassion

Variables	All sample	Profile 1	Profile 2	Profile 3	Profile 4	Profile 5	BCH test
		M (SD)					
Depression	8.48 (4.84)	11.80 (6.05)	8.00 (5.54)	4.33 (3.25)	8.30 (5.66)	11.24 (6.13)	1,5 > 2,4 > 3
Anxiety	12.79 (3.32)	16.00 (3.79)	12.72 (4.08)	10.11 (2.99)	12.53 (3.8)	13.17 (3.24)	1 > 2,4,5 > 3
Negative affect	22.44 (8.26)	26.85 (9.59)	21.60 (9.34)	16.68 (6.75)	22.16 (10.14)	27.32 (10.91)	1,5 > 2,4 > 3
Positive affect	29.38 (7.31)	25.93 (7.84)	26.82 (8.91)	32.22 (8.32)	29.22 (8.56)	34.97 (9.12)	5 > 3 > 4 > 1,2
Age	19.72 (1.67)	19.69 (1.84)	19.57 (1.62)	19.64 (1.60)	19.72 (1.64)	20.17 (1.63)	5 > 1,2,3,4 ^a
Gender		n (%)					
Male	254 (24.7%)	23 (13.8%)	52 (28.9%)	47 (26.6%)	91 (22.8%)	41 (39.0%)	1 > 2,3 > 5; 4 > 5 ^b
Female	775 (75.3%)	144 (86.2%)	128 (71.1%)	130 (73.4%)	309 (77.2%)	64 (61.0%)	
Grade							
First grade	686 (66.7%)	112 (67.1%)	136 (75.6%)	123 (69.5%)	262 (65.5%)	53 (50.5%)	
Second grade	53 (5.2%)	12 (7.2%)	4 (2.2%)	6 (3.4%)	25 (6.2%)	6 (5.7%)	
Third grade	69 (6.7%)	13 (7.8%)	9 (5.0%)	7 (4.0%)	25 (6.2%)	15 (14.3%)	
Fourth grade	221 (21.5%)	30 (18.0%)	31 (17.2%)	41 (23.2%)	88 (22.0%)	31 (29.5%)	
Major							
Art	397 (38.6%)	71 (42.5%)	68 (37.8%)	63 (35.6%)	161 (40.2%)	34 (32.4%)	
Science	435 (42.3%)	72 (43.1%)	78 (43.3%)	84 (47.5%)	160 (40.0%)	41 (39.0%)	
Engineering	169 (16.4%)	20 (12.0%)	27 (15.0%)	29 (16.4%)	66 (16.5%)	27 (25.7%)	
Others	28 (2.7%)	4 (2.4%)	7 (3.9%)	1 (0.6%)	13 (3.2%)	3 (2.9%)	
Ethnicity							
Han	844 (82.0%)	127 (76.0%)	149 (82.8%)	148 (83.6%)	331 (82.8%)	89 (84.8%)	
Minority	185 (18.0%)	40 (24.0%)	31 (17.2%)	29 (16.4%)	69 (17.2%)	16 (15.2%)	
Residence							
Urban	683 (66.4%)	107 (64.1%)	123 (68.3%)	126 (71.2%)	255 (63.7%)	72 (68.6%)	
Rural	346 (33.6%)	60 (35.9%)	57 (31.7%)	51 (28.8%)	145 (36.2%)	33 (31.4%)	

Note: Profile 1 high self-coldness, low self-compassion; Profile 2 low self-compassion, low self-coldness; Profile 3 high self-compassion, low self-coldness; Profile 4 average self-compassion, average self-coldness; Profile 5 high self-compassion, high self-coldness; ^a people in profile 5 were more likely to be older than those in other four profiles; ^b people in profile 1 were more likely to be female compared with those in profile 2 and 3; people in profile 2 and 3 were more likely to be female than those in profile 5; people in profile 4 were more likely to be female than those in profile 5

Associations of self-compassion profiles with psychological outcomes

As shown in Table 3, the BCH analyses suggested that participants in distinct profiles of self-compassion reported differential levels of psychological outcomes. In terms of negative indicators of psychological outcomes, participants in the high self-coldness, low self-compassion profile and those in the high self-compassion, high self-coldness profile reported the highest levels of depressive and anxiety symptoms and negative affect. People in the high self-compassion, low self-coldness profile reported the lowest levels across depressive and anxiety symptoms and negative affect.

In terms of positive affect, participants in the high self-compassion, high self-coldness profile reported the highest level of positive affect (in addition to their high levels of negative outcomes), followed by people in the high self-compassion, low self-coldness profile and the average self-compassion, average self-coldness profile, with the lowest

level of positive affect in people in the low self-compassion, low self-coldness profile and the high self-coldness, low self-compassion profile.

Discussion

This study examined the existence of distinct subgroups based on the report of a combination of distinct self-compassion facets. In a large sample of college students, we confirmed the existence of five distinct profiles of self-compassion: high self-coldness, low self-compassion (16.2%), high self-compassion, low self-coldness (17.2%), average self-compassion, average self-coldness (38.9%), low self-compassion, low self-coldness (17.5%), and high self-compassion, high self-coldness (10.2%). Participants being older were more likely to report the high self-compassion, high self-coldness profile, and participants being female were more likely to report the high self-coldness,

low self-compassion profile. In general, participants in the high self-compassion, low self-coldness profile reported the most adaptive psychological outcomes, whereas those in the high self-coldness, low self-compassion profile experienced the worst psychological outcomes. Interestingly, participants in the high self-compassion, high self-coldness profile also reported a high level of negative outcomes, in addition to high levels of positive outcomes. Moreover, low levels of positive outcomes were also found in participants classified to the low self-compassion, low self-coldness profile.

The five profiles of self-compassion differed on both configurations and levels of self-compassion. Three profiles (i.e., high self-coldness, low self-compassion, high self-compassion, low self-coldness, average self-compassion, average self-coldness) differed mainly on the overall level of self-compassion (i.e., high, low, and average). These results replicated previous findings also showing these three profiles of self-compassion (Phillips, 2019). It should be noted that these levels can only be interpreted as relatively high, low, and average, as there is currently a lack of information regarding the thresholds of self-compassion.

Moreover, a novel finding of the present study is the identification of the two additional profiles: the high self-compassion, high self-coldness profile characterized by high levels of positive components but also high on negative components, and the low self-compassion, low self-coldness profile characterized by low levels on both positive and negative components. Although these profiles may make less sense at the first sight, these findings are in line with research showing that the positive and negative components of self-compassion are relatively weakly interrelated and therefore can be seen as independent, and consequently they may co-occur (López et al., 2015; Muris & Petrocchi, 2016; Muris et al., 2018). As such, our findings add to the ongoing debate about whether the positive components of self-compassion (e.g., self-kindness) can be seen as the opposite of negative components of self-compassion (e.g., self-judgment). Our findings, together with those of previous studies, suggest that the three positive and three negative components of self-compassion may co-occur within one person. More future studies are needed to replicate our findings in different populations. Findings of these profiles are of high theoretical values, as well as at the level of assessment. Our results suggest that only using a total score of self-compassion might be problematic, as people with the same total score may in fact present various combinations across the six facets.

Age and gender were found to be related to distinct self-compassion profiles. We found that females were more likely to report the high self-coldness, low-self-compassion profile. This corroborated findings in previous variable-centered studies that females reported lower levels of self-compassion than males (Yarnell et al., 2015). A possible explanation could be that females, compared to males, tend to be more

self-critical and use more ruminative coping styles (Neff, 2003b). In addition, we found that people being older were more likely to report the high self-compassion, high self-coldness profile. The result is partly consistent with several previous studies (Homan, 2016; López et al., 2017). It is worthy to note that the sample of this study included college students with a small span of age, which precludes drawing conclusions about the role of age in the description of the distinct trajectories of self-compassion. Future studies are needed to further examine the role of age on the profiles of self-compassion in a more age-diverse sample.

We also investigated the relations between the profiles of self-compassion and psychological outcomes. In line with findings in previous person-centered research (Phillips, 2019), we found that the people in the high self-compassion, low self-coldness profile reported the fewest symptoms of depression and anxiety and negative affect as well as a high positive affect. These findings are in line with previous variable-centered studies showing that people with high levels of self-compassion reported the best psychological outcomes (Van Dam et al., 2011). Another interesting finding was that participants in the high self-coldness, low self-compassion profile and the high self-compassion, high self-coldness profile both reported high levels of psychological symptoms. These two groups both reported high levels of negative self-compassionate components but differ in the presence or absence of positive components. It seems to suggest that the presence of positive components would not buffer the effect of negative components on psychological symptoms.

Another interesting finding relates to the participants in the high self-compassion, high self-coldness profile. In addition to the highest levels of psychological symptoms and negative affect, they also reported the highest levels of positive affect. These findings were in line with previous variable-centered studies showing that the presence of positive self-compassion is related to positive psychological outcomes (Muris & Petrocchi, 2016; Muris et al., 2018). Similar findings were also found in respect of mindfulness profiles. In recent research using a person-centered approach to identify distinct profiles of mindfulness, the profile characterized by judgmental observing showed both high life satisfaction and highly psychological symptoms (Sahdra et al., 2017). These unexpected results seemed to show that psychological symptoms and flourishing do not contradict each other, but act as separate constructs (Keyes, 2005).

Limitations and future research directions

The findings of the present study should be interpreted in the context of several limitations. First, as this is a cross-sectional observational research, we cannot examine the course of profiles over time neither the causal relations between profiles of self-compassion and psychological outcomes. Future research,

with a longitudinal design or an experimental design, should be conducted to examine this. Second, the study was conducted among a sample of Chinese college students, which has a limited socio-demographic distribution and cannot represent the whole Chinese population. Therefore, the findings of this study cannot be generalized into a much broader general population or people from other cultural backgrounds. More research is needed to replicate our results in different samples. Third, symptoms of depression and anxiety were measured by self-reported measures (such as PHQ-9) in the present study, which could make it possible to suffer from common method bias. Future research, with the use of more objective measures (e.g., clinical interviews to measure psychological symptoms), is needed to replicate our findings.

Despite the above limitations of the present research, our findings on the profiles of self-compassion clearly hold the promise of using a person-centered approach (i.e., LPA) as well as an advanced statistical technique (i.e., the BCH approach) in separating subgroups of people based on their profiles of self-compassion and investigating the associations of these profiles with socio-demographic variables as well as psychological outcomes. The longitudinal extension of LPA, latent transition analysis, is needed to examine individual's longitudinal transitions in profiles of self-compassion. Moreover, this research suggested that people with high self-compassionate capacities reported the most adaptive psychological outcomes.

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Author contribution Liyang Wu: analyzed the data and wrote the paper. Maya J. Schroevers: collaborated in the study design and editing of the final manuscript. Lei Zhu: executed the study and wrote the paper. All authors approved the final version of this manuscript.

Data availability The data of the current study is available from the corresponding author upon reasonable request.

Declarations

Conflict of interest The authors declare no competing interests.

Ethics approval and consent to participate All procedures were approved by the ethics committee at the Shaanxi Normal University. Written informed consent was obtained from all participants included in the study.

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