

Typical coping patterns: A person-centered approach to coping

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ABSTRACT

Applying the person-oriented approach to coping can provide a unique perspective by revealing typical latent patterns. The study examined typical latent patterns shown by task-, emotion- and avoidance-oriented trait-based coping styles. We performed secondary analyses with Latent Profile Analysis on our former data and three independent datasets containing coping measures with the CISS-48 scale (Endler & Parker, 1994). Gender differences were also studied. Two basic profiles seem universal: the first is characterized by a high level of task-oriented coping, and the second profile is with moderately high scores on all three coping styles. The finding indicates that two fundamental latent coping profiles exist, which suggests a within-subject comparison in practice instead of investigating the absolute value of coping styles. Comparing data before and after 2020, COVID-19 does not seem to affect these profiles. The person-centered approach provides a possibility for the integration of coping-related findings.

1. Introduction

The research focuses on a person-centered approach to trait-based task-, emotion-, and avoidance-oriented coping styles, which Endler and Parker (1994) differentiated. Coping is a topical issue due to the demanding situation caused by the pandemic (e.g., Kavčič et al., 2022) and war-related crises (e.g., Chudzicka-Czupala et al., 2023). To explore universal profiles, we aimed to identify larger groups of people with similar coping patterns. The motivation was the increasing number of studies demonstrating the utility of the person-centered approach and the empirical experience that it is possible to find a low number of schemas for coping styles to be considered while speculating on research results.

The dispositional approach to coping seems more relevant than situational coping while searching for typical patterns. Besides, coping literature shed light on gender (e.g., Matud, 2004) and age-related differences (e.g., Chen et al., 2018). The practical strength of the study lies in the fact that it simplifies the diversity in coping into a manageable number of main profiles, enhancing the interpretation and integration of former results on coping.

We aimed to perform Latent Profile Analysis on independent datasets to reveal typical coping style profiles. Clustering studies on coping have been carried out (e.g., Gaudreau and Blondin, 2004), and also Latent Profile Analysis has been applied (e.g., Wang et al., 2022). However, to our knowledge, no systematic study can be found in the literature in

which LPA is applied to independent datasets with the same measurement method of coping. To study the universal patterns, we investigated data before and after the pandemic.

1.1. Person-centered approach

The person-centered approach focusing on individuals instead of variables (e.g., Meyer et al., 2013; Wang & Hanges, 2011; Woo et al., 2018) has gained popularity in the last decade. This approach differentiates quantitatively and qualitatively different groups in a sample, which sample is considered a homogeneous group in the variable-centered approach (Morin et al., 2017). The person-centered approach aims to find individuals with similar patterns that can be understood and supported differently (Teng, 2021). Revealing sub-populations enables one to consider several variables without collinearity in a statistical model and provides easy interpretations and finer-grained details (Howard & Hoffman, 2018; Teng, 2021).

According to Howard and Hoffman (2018), the variable-centered approach is mainly beneficial when the study focuses on the effect of variables on one another. Given that the entire sample is analyzed, the conclusions are not specific. The variable-centered approaches (e.g., SEM, CFA, regression analysis) assume a homogeneous population for which a range of average parameters can be estimated (Morin et al., 2017, p. 2).

Through the person-centered approach (e.g., cluster analysis, latent

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profile analysis, mixture models), researchers can identify subgroups based on the chosen variables and then compare their characteristics (Howard & Hoffman, 2018). This method is beneficial for understanding the relationship between the subgroups and the predictors or output variables. The person-centered approach provides a medium level of specificity compared to the variable-centered approach. Furthermore, in the case of a variable-centered approach, interpreting interactions of three or more variables can become complicated. A person-focused approach can represent a suitable alternative and provide an answer to how the combination of factors develops in different subgroups (Granziera et al., 2022, p. 6).

The person-centered approach inspired theoretical models and introduced new ideas to different fields (e.g., Bouckenoghe et al., 2019; Gabriel et al., 2015; Meeusen et al., 2018; Meyer et al., 2013; Morin, Boudrias, et al., 2016; Morin et al., 2017; Sahdra et al., 2017), as it can support theory development and modeling (Teng, 2021). Considering statistical methods, researchers can use Latent Class Analysis (LCA, Masyn, 2013; Muthén & Muthén, 2000; Nylund-Gibson & Choi, 2018; Vermunt, 2010) for discrete data and Latent Profile Analyses (LPA, Marsh et al., 2009; Muthén & Muthén, 2000) for continuous input data.

The person-centered approach is already used in many areas, such as the study of motivation (e.g., Franco et al., 2023), antisocial behavior (e.g., Carroll et al., 2023), eating habits (e.g., Power et al., 2018), perfectionism (e.g., Lin & Muenks, 2022), or well-being (e.g., Granziera et al., 2022).

Profiles resulting from LPA on mindfulness data had additional predictive value beyond that of separate mindfulness variables on life satisfaction and effectiveness (Sahdra et al., 2017). Prejudice was investigated with both LCA and LPA, and the resulting classifications provided complementary results in explanatory models (Meeusen et al., 2018).

The person-centered approach has been used in the work context (see e.g., Bouckenoghe et al., 2019; Gabriel et al., 2015; Meyer et al., 2013; Meyer & Morin, 2016; Morin, Gagne, & Bujacz, 2016, 2017; Wang & Hanges, 2011), and its utility has been phrased (e.g., Woo et al., 2018).

1.2. Coping and its co-relation with gender and age

Coping strategies help people adapt to stressful situations (Endler & Parker, 1994) and greatly impact physical and psychological well-being while facing problems, and challenges (e.g., Endler & Parker, 1989).

Coping is a psychological construct comprising cognitive and behavioral efforts that use a person's resources to meet the expectations posed by their environment and provide them with support in managing, reducing, or resolving conflicts (Folkman & Lazarus, 1980). Coping differs from defense mechanisms: coping behaviors are future-oriented; they involve deliberate and conscious thoughts, behaviors, and affects (Tiringer, 2014).

Some coping theories focus on what a person thinks and does (Lazarus & Folkman, 1984) in challenging and stressful situations; these regard coping as situational (Tiringer, 2014). Other theories consider coping based on habits (Carver & Scheier, 1994); these are trait-based approaches to coping (Tiringer, 2014). While the former approach regards coping as dynamic, the latter considers it a static response (Greenaway et al., 2015). Since our research aimed to identify latent patterns presumably consistent over time, we follow the trait-based approach.

Coping styles are affected by demographic factors like gender, age, socioeconomic status, and cultural background (Tiringer, 2014), so they also seem relevant regarding the latent profiles.

Studies revealed that threat assessment and the nature of the stressor are reflected in the gender differences experienced in coping (Meléndez et al., 2012). Folkman and Lazarus (1980) found no relationship between gender and emotion-focused coping. However, other results showed that women tend to use emotion- and avoidance-oriented styles (e.g., Endler & Parker, 1990b; Matud, 2004). Ptacek et al. (1992, cited

by Meléndez et al., 2012, p. 1091) found that men focus on problem-oriented adaptation more, and women prefer emotion-focused behaviors. Other results showed that women prefer looking for partners' support, whereas men prefer the task-oriented style (Ptacek et al., 1994).

Folkman et al. (1987) conducted a study to compare coping patterns in younger and elderly adults and set up two interpretations. The developmental interpretation says there are stage-related changes in how people cope as they age. In contrast, according to the contextual approach, age differences result from changes in what people must cope with in general.

Diehl et al. (1996) found that older adults employ defense strategies reflecting greater impulse control and a more positive appraisal of conflict situations. Teenagers and young adults exhibited more aggressive behaviors indicating lower levels of impulse control. In the study conducted by Chen et al. (2018), older adults tended to employ problem-focused strategies less frequently.

1.3. CISS-48

Lazarus and Folkman (1984) proposed a Cognitive Transactional Model (CTM) of stress and treated coping as a dynamic phenomenon. Even today, experts strongly agree with the essential and universal nature of the problem-focused and emotion-focused coping methods they established (Parker & Endler, 1992). At the same time, these coping methods were the starting point for trait-based approaches. Problem-focused coping mainly involves cognitive, problem-solving behaviors and concentrates on changing the stressor, whereas emotion-focused coping is aimed at reducing and managing emotional distress (Folkman & Lazarus, 1980).

The CTM gave rise to several trait theories (e.g., COPE, Carver et al., 1989). Endler and Parker's approach is the most prominent for our study's aims. They worked out a valid and reliable measure to be used as an alternative for the previously developed scales (e.g., Ways of Coping Questionnaire, WCQ, Folkman & Lazarus, 1988) with several shortcomings. They differentiated task- and emotion-oriented trait-based coping styles. The task-oriented style includes problem-solving and cognitive re-assessment of the problem. The emotion-oriented style is characterized by developing emotional reactions, thinking about possible actions, and focusing the persons' attention on them (Parker & Endler, 1992). A third style emerged as well, the avoidance-oriented coping containing both task-oriented (e.g., starting an activity to distance the problem) and person-oriented features (e.g., looking for social support) (Endler & Parker, 1990b).

The final version of their research scale is the Coping Inventory for Stressful Situations (CISS-48), which consists of 48 items (Endler & Parker, 1994; Wong, Reker, & Peacock, 2006). The different coping styles are assessed with 16 items each. A four-factor model of CISS is also used: avoidance-oriented coping can be divided into two sub-factors: social diversion and distraction (Endler & Parker, 1994).

Seven large samples revealed the three-factor factor structures, which showed clear overlap in both women's and men's samples. The scale's internal consistency is high, and test-retest reliability is acceptable (Endler & Parker, 1990a, cited by Endler & Parker, 1994, p. 51). The strength of the scale relies on its psychometric properties (Greenaway et al., 2015).

1.4. Studies on coping with variable- or person-centered approach

Most research examines coping in line with other psychological or demographic variables. These studies look at coping styles separately as continuous variables, enter them into regression models, or perform structural equation modeling, representing the variable-centered approach. For example, Cabras and Mondo (2018) found -through CISS-48- that successful task-oriented coping resulted in higher levels of life satisfaction and optimism, whereas higher levels of emotion-oriented style involved lower levels of life satisfaction and

optimism. Kurtović et al. (2018) found that task-oriented coping was associated with a lower level of depression, anxiety, and stress than the emotion-oriented style. Konaszewski et al. (2019) investigated the role of resilience, self-efficacy, and a sense of coherence. All of these approaches consider coping linearly; consequently, they suggest increasing or decreasing the occurrence of certain coping behavior.

Other studies classify participants based on their most commonly used coping style (see e.g., Bafghi et al., 2018; Cabras & Mondo, 2018; Rogowska et al., 2020). While the continuous approach fails to consider the relative level of coping styles, the categorical approach enforces classification even in cases where at least two different coping styles are present to a roughly similar extent.

In our related empirical studies in 2015–2016, we regarded coping being a continuous variable. Lacking systematic results, we performed a K-means cluster analysis on coping scores on CISS-48. For most individuals, high task-oriented coping was associated with a moderate/high rate of emotion- (Cluster 1) and avoidance-oriented styles (Cluster 2). A third cluster mainly comprised individuals with a high level of task-oriented coping (Nagy, 2020; Nagy & Balázs, 2018).

Gaudreau and Blondin (2004) used the cluster analytical approach, investigated the coping of athletes, and found four patterns related to athletes' positive affective state, anger-dejections state, and feelings of control. Oles and Oles (2014) applied K-means cluster analysis on CISS data of elderly individuals with visual disturbances. They found three patterns: all coping showed high or medium levels (1); the extremely high task-oriented style was detected (2), and all coping showed low levels (3). In this study, the analyses of patterns had a clear utility. These were person-centered approaches, even if the authors did not use this term.

Recent studies used the person-centered approach itself. Kavčič et al. (2022) examined coping among Slovenian adults during the first wave of the pandemic. On the results of the Brief-COPE inventory (Carver, 1997), they applied the LPA revealing the engaged (1), the disengaged (2), and the avoidant (3) profiles with different kinds of well-being, stress, and anxiety. According to the results, coping behaviors seem to be „a part of an interconnected coping system“; hence studies could focus on „similar combinations of coping strategies within individuals“ (Kavčič et al., 2022, p. 3). Wang et al. (2022) used the LPA to investigate coping among Canadian teachers. They found three coping profiles, namely, the adaptive copers (1), the problem-avoidant copers (2), and the social-withdrawal copers (3), with different extents of problem-solving, seeking social support, disengagement, problem avoidance, and social withdrawal.

Based on these results, we chose to apply LPA, which can reveal the underlying psychological experiences to establish typologies (Williams & Kibowski, 2015). The main assumption is that unobserved latent profiles drive behavior, leading to the answers in the measured variables. The schemes resulting from latent categorical models have practical importance in creating typologies (Costa et al., 2002).

2. The present research

The present study investigates task-, emotion- and avoidance-oriented coping styles from a person-centered perspective. Based on our preceding studies and the results of Gaudreau and Blondin (2004), Oles and Oles (2014), Kavčič et al. (2022), and Wang et al. (2022), we assume that coping styles form general patterns, leading to potentially universal profiles (H1).

Literature (e.g., Endler & Parker, 1990; Tiringer, 2014) suggests that there might be a relationship between a person's age, gender, and the exhibited coping. Results suggested (e.g., Matud, 2004) that emotion- and avoidance-oriented coping is more typical for women, while task-oriented style is more typical for men. The effect of age on coping is not evident (e.g., Chen et al., 2018; Diehl et al., 1996). Hence, we expect that coping profiles differ in gender ratio and mean age (H2).

3. Material and methods

We used secondary data analysis applying LPA on CISS-48 data. To reach secondary datasets, we contacted all authors of studies one by one (starting with the first authors) in e-mails who employed the CISS-48 scale on relatively large samples of non-specific target groups. Although we found many corresponding studies, we aimed to analyze data from the general population and excluded data collections from very specific samples (e.g., patient groups and athletes – Urbański et al., 2022; firemen – O'Rourke & Hyland, 2021; nurses – Rai & Tauheed, 2013). Furthermore, a minimum number of 200 examinees was set as a sample size criterion.

First, we searched for such studies on Google, and ScienceDirect, mainly on Google Scholar. We contacted 22 authors and requested data on CISS-48 and demographic variables. In 15 cases, the authors did not reply (we suspect incorrect contact information due to a change of affiliation); two authors no longer possess the data. One of the authors refused to provide empirical data referring to ethical issues. Three of the contacted authors replied to our request positively. We received the data obtained from a study of one Polish university student sample (Rogowska et al., 2020) and two Hungarian studies (Birke & Kéki-Luterán, 2021; Kövály et al., 2014). The authors sent their data as Excel sheets or SPSS files. The sample features are detailed below. We also surveyed Mendeley Data and other data repositories but found no CISS-48 data collection on large samples.

3.1. CISS-48

The studies applied the adaptations of the 48-item version of the Coping Inventory for Stressful Situations (Endler & Parker, 1994). Participants are instructed to indicate to what extent they agree with the statement on a 5-point Likert scale (not at all – absolutely) when considering a stressful or challenging situation (Perczel-Forintos et al., 2005).

The scale assesses the different coping styles with 16 items for each style, and the points for the individual items are summed for each style. Here are some examples of items.

- Task-oriented style: "Schedule my time better.", "Analyze the problem before reacting.",
- Emotion-oriented style: "Blame myself for not knowing what to do.", "Worry about what I am going to do.",
- Avoidance-oriented style: "Watch TV.", "Phone a friend." (Endler & Parker, 1994).

3.2. Study samples

We received three independent samples: one from a Hungarian study carried out on the general population (Sample 1; Kövály et al., 2014), another one from a study on Polish university students (Sample 2; Rogowska et al., 2020), and the third database was obtained from a data collection performed by Hungarian students on young adults (Sample 3; Birke & Kéki-Luterán, 2021). Data collection in all three cases was carried out online with convenience sampling. Hungarian students applied snowball sampling (Birke & Kéki-Luterán, 2021), while Polish data collection was carried out through Moodle system (Rogowska et al., 2020).

The Polish study participants were young adults under 40. Both of the Hungarian data collections targeted mostly the same age group as 80% of the subjects were under 40. Since literature considers age an important variable in coping (e.g., Chen et al., 2018), and we aimed to define typical patterns, we only used a narrowed sample from the two Hungarian databases. This way, we could work on data related to the same age group obtained from several sources and could subsequently examine their profiles. However, the narrow age range made it impossible to examine age-related effects, but the small number of older

examinees could not allow that anyhow.

Table 1 provides a summary of the main demographic characteristics of the samples.

In the Hungarian study conducted on the general population, 90% of the sample had secondary or higher education roughly equal proportions, and 10% of respondents had elementary education. In the Polish sample, 62% of the respondents were first-year students, 37% were doing their MA, and the rest of the respondents were doctoral students. In the data collection done by Hungarian students, 70% of the sample had secondary education, and 29% had a university degree.

3.3. Statistical procedures

Secondary data analysis was performed using the RStudio statistical software (Version 1.3.1093, RStudio Team, 2015) with Latent Profile Analysis (LPA) in the 'mclust' package. The LPA is used to identify latent group profiles; this is a mixed model where each input variable is assessed on a continuous scale (Harring & Hodis, 2016). LPA is based on cluster analysis and can be used to assess the differences in the fit of alternative models, and it provides the number and nature of profiles in the models that stand out in the comparison. For the profiles, LPA defines the mean value for each measured variable, while for individuals, it determines classification into clusters, which defines the size of the clusters (Rosenberg et al., 2019).

The basic assumption of LPA is that there are certain types or groups of people with similar patterns, and each person can be categorized into a certain type with a given probability based on the available data. The revealed types can serve the natural desire to create schemes to reduce information and create a parsimonious view of complex patterns (Macrae & Bodenhausen, 2000).

One of the most commonly used model fit indices is the Bayesian information criterion (BIC). For LPA, the lowest BIC needs to be considered (Oberski, 2016). In a simulation study, Tein et al. (2013) found that the BIC was one of the four indices that effectively selected the correct number of classes in LPA.

We carried out univariate repeated measures analyses of variance to examine the mean differences between coping styles, after which we performed paired Bonferroni analyses. To compare the overall gender distribution of the profiles, chi-square tests were used. Whereas for the individual coping styles, binomial tests were applied.

4. Results

4.1. Preliminary analysis - LPA of our former data

As a preliminary step, we analyzed our former CISS data from 2015 to 2016 with LPA. The sample size was 298 (145 men and 153 women). The mean age was 23.32 years (SD = 4.09). 93% of the sample had secondary or higher education, and 7% had elementary education. The age range was between 18 and 35 years.

LPA showed a two-profile model with the best fit based on the BIC index (BIC = -6769.29). 240 people shared the first profile, and 58 individuals shared the second profile. The profiles are shown in Fig. 1.

As Fig. 1 shows, LPA indicated two profiles, one less than the K-means cluster analyses had indicated before. However, the patterns have

Table 1
The main characteristics of the study samples.

| | N | N _{male} | N _{female} | Mean age | SD |
|---|-----|-------------------|---------------------|----------|------|
| Hungarian data – the general population (Kövárý et al., 2014) | 545 | 102 | 443 | 25.96 | 5.74 |
| Polish data (Rogowska et al., 2020) | 914 | 520 | 394 | 23.04 | 2.60 |
| Hungarian data collected by students (Birke & Kéki-Luterán, 2021) | 317 | 91 | 223 | 23.59 | 5.08 |

similarities. Considering the background of the two analyses, the two cluster-solution seems to fit the data better. Profile 1 showed a high value of task-oriented coping and lower emotion-oriented and avoidance-oriented coping; the latter two had moderate values. Individuals sharing Profile 2 had a more striking contrast of values: task-oriented coping had a similar average value as before, but emotion-oriented coping and avoidance had much lower average values.

ANOVA analyses were applied on both profiles separately. The coping values gave the dependent variable, while the coping style types were the levels of the independent within-subjects variable. The results indicated a significant effect of the coping style (Profile 1: $F(2,478) = 260.48$, $p < .001$, Huynh-Feldt $p < .001$; Profile 2: $F(2,114) = 234.29$, $p < .001$, Huynh-Feldt $p < .001$). The effect size ($\eta^2 = 0.42$) was lower for Profile 1 than for Profile 2 (0.73), which indicated a stronger difference in the latter. Paired Bonferroni analyses showed significant differences between task- and emotion-oriented coping styles and task- and avoidance-oriented coping styles ($ps < .001$), but not between emotion- and avoidance-oriented styles ($p = 1$) in Profile 1. For Profile 2, Bonferroni analyses showed significant differences in the mean values in all three comparisons ($ps < .002$).

The chi-squared test confirmed a gender difference between profiles ($\chi^2 = 13.99$, $df = 1$, $p < .001$, Cramer's $V = 0.22$). 104 men and 136 women had the coping pattern as in Profile 1, and 41 men and 17 women showed the pattern as in Profile 2. The gender distribution showed a marginally significant difference in favor of women in Profile 1 (exact binomial test: $p = .045$); and a significantly higher number of males in Profile 2 (exact binomial test: $p = .002$).

4.2. Sample 1

In the Hungarian general population sample, we found a model with two profiles to fit the best (BIC = -12129.3). 344 individuals shared Profile 1, while 201 individuals shared Profile 2, meaning both groups are sizeable. The profiles are presented in Fig. 2.

As Fig. 2 shows, Profile 1 represents people who obtained similar values for each coping style. In contrast, individuals with patterns described as Profile 2 show high values on task-oriented coping and seem to apply reasonably less avoidance- and emotion-oriented coping.

We applied one-way repeated measures analyses of variance on both profiles separately. We treated the obtained coping values as a dependent variable and coping style as an independent within-subjects variable. The results indicated a significant effect of the coping style (Profile 1: $F(2,400) = 84.0$, $p < .001$, Huynh-Feldt $p < .001$; Profile 2: $F(2,686) = 883.06$, $p < .001$, Huynh-Feldt $p < .001$). In the case of Profile 1, the effect size ($\eta^2 = 0.18$) is much lower than in the case of Profile 2 (0.59), which indicates a greater difference in the latter. Paired Bonferroni analyses showed significant differences in the mean values in all pairs ($ps < .01$).

As regards the effect of gender, the chi-squared test confirmed a similar gender ratio in the two profiles ($\chi^2 = 0.02$, $df = 1$, $p = .88$); 37 men and 164 women have the coping pattern seen in Profile 1, and 65 men and 279 women show the pattern identified in Profile 2.

4.3. Sample 2

In the case of the Polish data, LPA revealed the fit of a 4-profile model to be the best (BIC = -20714.71), with 198 persons in Profile 1, 171 in Profile 2, 115 in Profile 3, and 430 in Profile 4. The groups are presented in Fig. 3. For the figure to be easily understandable and interpretable, the mean values for the coping styles are provided separately in Table 2.

Two of the profiles seem to be similar to Profile 1 found in the analysis of Sample 1, and the other two are much like Profile 2 in Sample 1. Looking at Fig. 3, we can easily notice the close resemblance between Profile 1 and Profile 2, as well as Profile 3 and Profile 4. In the case of Profile 1 and Profile 2, the high level of the task-oriented coping style stands out, accompanied by a low level of emotion-oriented coping and a

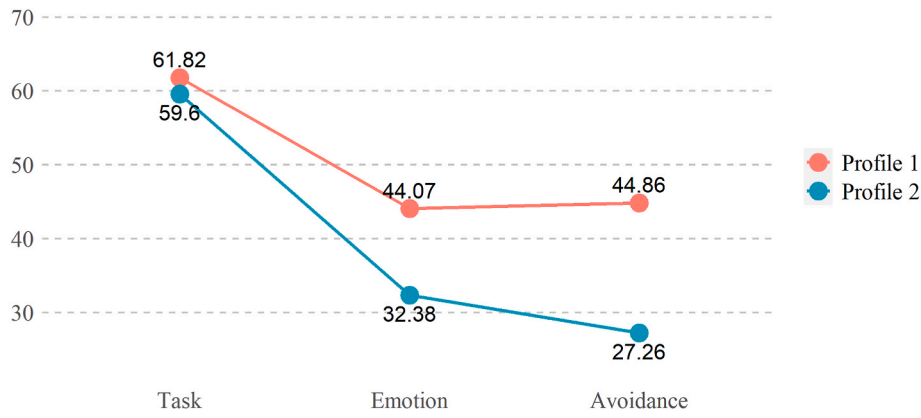


Fig. 1. The profile patterns in our sample of Hungarian young adults.

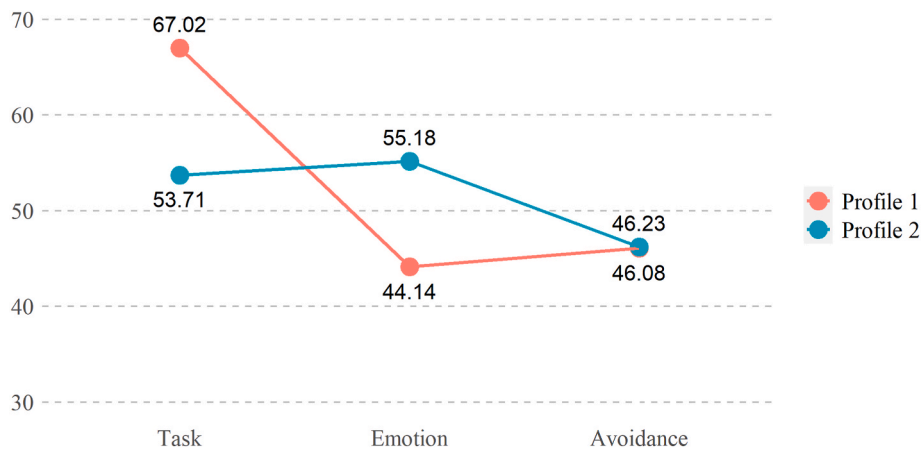


Fig. 2. The profile patterns in the sample from the Hungarian general population.



Fig. 3. The profile patterns in the Polish sample.

Table 2
The coping style means of the profiles in the Polish sample.

| | Task | Emotion | Avoidance |
|------------------|-------|---------|-----------|
| Profile 1 | 51.75 | 33.36 | 41.82 |
| Profile 2 | 61.07 | 27.38 | 40.12 |
| Profile 3 | 43.16 | 43.60 | 43.52 |
| Profile 4 | 52.28 | 48.57 | 46.49 |

moderate level of avoidance. Profile 3 and 4 are characterized by an almost identical level of the three coping styles, with a low level of task-oriented coping style compared to the other two.

The same kind of repeated measures analyses of variance were carried out as before. The results for Profile 1 and Profile 2 are significant; moreover, the effect sizes indicate meaningful differences ($F(2,394) = 519.5, p < .001$, Greenhouse-Geisser $p < .001, \eta^2 = 0.52$; and $F(2,340) = 902.22, p < .001$, Greenhouse-Geisser $p < .001, \eta^2 = 0.80$, respectively). Paired Bonferroni analyses showed significant differences in all

pairs ($p < .01$).

The repeated measures analyses of variance revealed a significant effect of coping style for Profile 3 and Profile 4. However, the corresponding effect sizes were very low, supporting the idea that the differences were negligible (Profile 3: $F(2,228) = 5.37, p < .01$, Huynh-Feldt $p < .01, \eta^2 = 0.002$; Profile 4: $F(2,858) = 41.51, p < .001$, Huynh-Feldt $p < .001, \eta^2 = 0.06$). Paired Bonferroni analyses for dependent samples indicated that the mean values of task-oriented coping differed from the mean values of emotion-oriented coping ($p = .033$) and avoidance ($p < .01$), but those for the latter two did not differ from each other ($p = 1$) in Profile 3. Bonferroni analyses indicated that all coping style mean values were significantly different ($p < .001$) in Profile 4.

It was still a question of what makes a difference between Profile 1 and 2 and between Profile 3 and 4. The correlations between the coping style pairs suggest answers. The pairwise coping style correlations are presented in Table 3. In the subsample with coping patterns of Profile 1, all coping styles were positively correlated, and the highest correlation value was found between task-oriented and emotion-oriented styles. In the subsample showing Profile 2, task- and avoidance-oriented styles were negatively correlated, while task- and emotion-oriented styles were positively correlated. Considering the subsample showing coping patterns as in Profile 3, all coping values are highly correlated. This result is not likely to be an artifact, as 115 individuals show this profile. In contrast to Profile 3, individuals showing Profile 4 show low correlations between the coping styles. These correlations seem to differentiate between similar profiles.

Gender differences can also be detected between the profiles ($\chi^2 = 17.06, df = 1, p < .001$, Cramer's $V = 0.14$). The distribution of genders shows a balanced ratio in Profile 4 (216 women and 214 men, binomial test: $p = 1$), whereas the rest of the profiles exhibit a higher number of males (exact binomial test: $ps < .001$).

4.4. Sample 3

In the case of the Hungarian young adult data collection, LPA found a 2-profile model shown in Fig. 4 to have the best fit ($BIC = -7212.904$). Profile 1 represents 270 respondents, and Profile 2 represents 44 individuals.

In Fig. 4, we can again see a profile (Profile 1) with respondents who have a roughly similar level of the three coping styles; the level of the task-oriented style, however, excels that of the other two. Profile 2 is also similar to one of the profile types seen previously: the mean value of task-oriented coping is outstandingly high, which is accompanied by low means of emotion-oriented coping and avoidance-oriented coping.

The repeated measures analyses of variance were significant for both profiles (Profile 1: $F(2,538) = 123.83, p < .001$, Huynh-Feldt $p < .001, \eta^2 = 0.23$; Profile 2: $F(2,86) = 813.08, p < .001$, Huynh-Feldt $p < .001, \eta^2 = 0.93$). Paired Bonferroni posthoc analyses showed significant mean differences in all pairs ($ps < .01$). Considering the effect sizes, the mean differences are more pronounced in Profile 2.

The chi-squared test indicated a significant difference in gender ratio ($\chi^2 = 13.49, df = 1, p < .001$, Cramer's $V = 0.21$). Profile 1 is more typical of women (202 women and 68 men, exact binomial test: $p < .001$), whereas Profile 2 showed a balanced gender ratio (23 women and 21 men, exact binomial test: $p = .76$).

Table 3
The correlation values of the coping styles by profiles of the Polish sample.

| | Profile 1 | Profile 2 | Profile 3 | Profile 4 |
|-------------------|-----------|-----------|-----------|-----------|
| Task-Emotion | .71*** | .33*** | .93*** | -.16*** |
| Task-Avoidance | .17* | -.47*** | .97*** | .18*** |
| Emotion-Avoidance | .37*** | -.08 | .94*** | -.02 |

*** $p < .001$, ** $p < .01$, * $p < .1$.

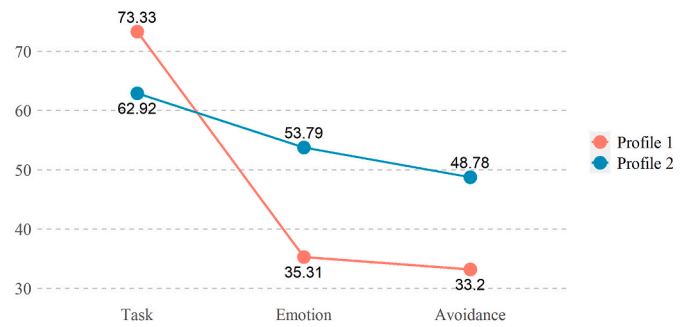


Fig. 4. The profiles patterns in the Hungarian data collected by students.

4.5. Comparison of the profiles obtained from the four samples

The data analyses were carried out to investigate two expectations. Our first expectation was that universal coping patterns arise while investigating large independent samples (H1). Overall, it can be concluded that the typical profiles of best-fit models exhibit several similarities. There is at least one identifiable profile that can be characterized by high levels of task-oriented coping and lower levels of emotion- and avoidance-oriented styles. There is another profile in which the mean values of the three styles differ only slightly. Only in the Polish sample were both profiles doubled, and the similar profiles differed in the correlations of coping styles beyond a slight difference in the mean values. Besides, it is important to note that there tends to be a considerable amount of task-oriented coping in each profile.

An important methodological note was suggested by one of the anonymous reviewers: some items of CISS could have been influenced by social distancing during the pandemic. Based on our screening, the following items may be affected: „Try to be with other people.”; „Window shop.”; „Go out for a snack or meal.”; „Go to a party.”; „Visit a friend.”; „I spend time with a special person.”; „Go for a walk.”. These items belong to avoidance-oriented coping, particularly to the social diversion subscale (Endler & Parker, 1994). Considering that the pandemic caused by COVID-19 could have affected the avoidance-oriented coping values through the social diversion items, it is important to compare the mean values before and after 2020. However, looking at the data, drastic changes cannot be detected. The mean values for avoidance in the profiles before COVID-19 varied between 27.3 and 46.2, while after, their means varied between 33.2 and 48.8. In sum, COVID-19 did not seem to affect either the profiles or their mean values.

Our second assumption (H2) was that there are gender and age differences between the individuals sharing the different profiles. Our data allowed for only a gender comparison. A significant difference between the profiles can be identified in the preliminary sample, and Sample 2 and Sample 3. In the preliminary analyses, more women than men showed moderate emotion-oriented coping and avoidance in line with high task-oriented coping. In contrast, more men showed profiles with low emotion- and avoidance-oriented coping and a striking task-oriented style.

On the other hand, in the Polish sample, the profiles characterized by an outstandingly high level of task-oriented coping consist of about the same number of men and women. In contrast, the rest of the profiles represent mostly men. In the young adult data collection, the profile with increased levels of emotion-oriented coping and avoidance includes mostly women. In Sample 1 (Hungarian general population), there was no difference between profiles in the gender distributions. According to these analyses, the relationship between gender and coping profiles did not lead to a clear, consistent conclusion.

5. Discussion and conclusion

The present study explored the typical latent patterns of task-,

emotion- and avoidance-oriented trait-based coping styles by applying LPA, a person-centered approach to large, secondary data sets. Furthermore, gender differences were studied among latent profiles. The novelty of our study lies in its focus not on examining the relationship of coping with other variables but on applying the person-centered approach to establish universal profiles by investigating samples distant in space and time.

We identified two profiles in the preliminary study and the other two Hungarian samples and revealed four profiles in the Polish sample. The Polish profiles also followed two basic traces; we assume that slight differences in mean values and correlations among coping styles created sub-profiles. We can conclude that at least one profile in all samples represents individuals with an *outstandingly high level of task-oriented coping*. Furthermore, there was at least one profile where respondents *showed a similar level of all three coping styles*. These profiles seem typical. However, a relatively high level of task-oriented coping compared to the other coping styles appeared as a general characteristic feature of all profiles. Even in cases where it did not prove to be outstanding, the task-oriented style had a moderate or high score.

Oles and Oles (2014) found similar patterns in research with elderly individuals. One profile of the participants showed extremely high task-oriented coping. Besides, they could identify two other patterns, one with low levels of all coping styles and another with medium and high levels of each coping type. In their study, the task-oriented style was always relatively high. Wang et al. (2022) also found a profile in which individuals use different coping strategies to a similar extent, the „adaptive copers” as they labeled this group, and another profile, namely the „problem-avoidant copers” who have extremely high problem-solving abilities along with a high level of problem avoidance.

Based on the coping literature, we assumed one can detect gender differences in the latent profiles. In the first sample, which contains data on the Hungarian general population collected before the pandemic, there was no difference in the gender ratio of the profiles. As for the Polish students’ sample, in the profile where all three coping styles were typical, the gender ratio was balanced, whereas, in the rest of the profiles, there were more male respondents. Even if the results suggesting that more men tend to exhibit task-oriented coping is consistent with the literature (e.g., Ptacek et al., 1994), the difference is still moderate. In the preliminary study and the Hungarian sample collected by students, the rate of women was relatively higher in the profile that showed an increased level of emotion- and avoidance-oriented styles. Our results confirm that women tend to apply these two coping styles more often than men (e.g., Endler & Parker, 1990c). These results should be treated with caution. If a task-oriented style is more typical of men, whereas emotion- and avoidance-oriented coping styles are primarily characteristic of women, higher differences in gender ratios should have been found between the different profiles in all samples. Therefore our results did not support the hypothesis that men tend to be more task-oriented while women tend to be more emotion- and avoidance-oriented.

One limitation is the sample’s narrow age range, as it only comprised adults aged 18 to 40. Young adults exhibit more active coping behavior and employ strategies focusing on the problem (Folkman et al., 1987). It seems likely that task-oriented coping is universally present to an increased extent in most people’s coping repertoire, irrespective of culture, age, and gender. Further research is needed to explore this issue.

The analyzed data can represent young adults from the general population in only two European countries. A further limitation of our study is the sampling procedure. We mainly used Google Scholar to search secondary databases, which do not provide an extensive search. However, the number of online databases is increasing, which offers new opportunities for similar investigations. Furthermore, it would be interesting to investigate these profiles in various generations, cultures, or patient groups to reveal possible commonalities and differences.

As a further step, the relation of these profiles to psychological features such as stress, subjective well-being, or self-esteem could be studied, as did for example, Kavčić et al. (2022).

We could have analyzed the overall data altogether if the language and the time intervals of the data gathering had been similar. However, two data collections were carried out during the COVID-19 pandemic (Sample 2 and Sample 3), while the other data were collected much before. Besides, as the patterns were very similar before and after the pandemic, our results confirm that coping tendencies occur across situations, which seem to confirm the importance of the trait-based approach (Carver & Scheier, 1994).

The perception of some CISS items could have been influenced by social distancing during the pandemic. However, even during a lockdown, all items could have been reformulated to be suitable. For example, instead of „I visit a friend.” one could assess „I contact a friend.”. All of these items belong to the social diversion subscale of avoidance-oriented coping (Endler & Parker, 1994); the distraction subscale items may have also been affected to a certain extent. However, the other two coping styles are not affected at all. The revealed profiles were very similar before and after the pandemic, suggesting that these items did not change a lot. Still, one should consider the modification of items in extreme circumstances.

Applying CISS-48 to examine coping from the person-centered perspective is only one possibility, which is also a limitation of our study. Future research could apply other scales.

The practical importance of the result is that it points out the relevance of the person-centered approach and shifts the focus when examining the individual profiles: the question should not be whether the level of task-oriented coping is high or not; research should concentrate on the level of emotional- and avoidance-oriented styles compared to the level of task-oriented coping, instead. How high a score an individual reaches on the scale in absolute values is influenced by their typical level of coping and their behavior as respondents and their response set (Nagybányai Nagy, 2013). In this sense, the individual level of task-oriented coping can be considered a basis for comparison. The categorization of individuals based on their highest coping score not only leads to information loss but is rather impractical. Our suggested approach to coping scores can enhance the interpretation of questionnaire results both when used in therapy and to increase self-knowledge.

In conclusion, our research supports the *raison d’être* of a person-centered approach to coping styles. The application of profiles can efficiently study variables examined, usually in connection with coping (e.g., locus of control, psychological well-being). We need to admit that applying profile membership as a categorical variable in linear models does not lead to a higher explained variance than applying continuous variables. However, the aim and focus of a study should determine the applied statistical method (e.g., Howard & Hoffman, 2018). This approach can support models in theory, as it can support a deeper understanding of the latent coping patterns, as expressed in some studies already (e.g., Gaudreau & Blondin, 2004; Wang et al., 2022).

Considering typical coping profiles while investigating theoretical relations among constructs or thinking about cases in practice can have utility. Depending on the situation and the controllability of the situation (e.g., Endler et al., 2000), emotion- and avoidance-oriented coping should be strengthened or discouraged in practice, as task-oriented coping is high in most cases. A limitation of our research is that we did not investigate the profiles related to mental health-related variables. That could be an important further step, as well as applying other scales and methods examining coping behaviors and strategies.

Ethics statement

The authors of the original studies declared that their studies were conducted in line with the relevant and current ethical standards. Furthermore, according to the Tri-Council Policy Statement (Government of Canada, 2019), "Research Ethics Board review is not required for research that relies exclusively on secondary use of anonymous information" (p. 17). In this study, we only used anonymous information.

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Author contributions

Luca Nagy: conceptualization, formal analysis, resources, data curation, writing – original draft, project administration, funding acquisition.

Katalin Balázs: conceptualization, methodology, formal analysis, data curation, writing – review & editing, supervision.

Data availability

The authors do not have permission to share data.

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