Differences in subjective well-being between individuals with distinct Joint Personality (temperament-character) Networks in a Bulgarian sample

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Background: Personality is the major predictor of people's subjective well-being (i.e., positive affect, negative affect, and life satisfaction). Recent research in countries with high-income and strong self-transcendent values shows that well-being depends on multidimensional configurations of temperament and character traits (i.e., Joint Personality Networks) that regulate the way people learn to adapt their habits to be in accord with their goals and values, rather than individual traits. To evaluate the prevalence and the associations of different Joint Personality (temperament-character) Networks with well-being in a low-income country with weak self-transcendent values, we tested their association in Bulgarian adults, a population known to have strong secular-rationalist values but weak self-transcendent values.

Method: The sample consisted of 443 individuals from Bulgaria (68.70% females) with a mean age of 34 years (SD = 15.05). Participants self-reported personality (Temperament and Character Inventory), affect (Positive Affect Negative Affect Schedule), and life satisfaction (Satisfaction with Life Scale). The personality scores were used for profiling through latent profile analysis and latent class analysis based on temperament configurations (i.e., Temperament Profiles) of high/low scores of Novelty Seeking (N/n), Harm Avoidance (H/h), Reward Dependence (R/r), and Persistence (P/s); and character configurations (i.e., Character Profiles) of high/low scores of Self-Directedness (S/s), Cooperativeness (C/c), and Self-Transcendence (T/t).

Results: We found two Temperament Profiles and two Character Profiles that clustered into two distinctive Joint Personality Networks. All individuals in Joint Personality Network 1 had a Reliable (nhRP) Temperament Profile in combination with an Organized (SCt) Character Profile (i.e., a stable temperament and a healthy character configuration). About 71.9% in Joint Personality Network 2 had an

Apathetic (sct) Character Profile in combination with Methodical (nHrp) or Reliable (nhRP) Temperament Profiles, while 28.1% had a Methodical (nHrp) Temperament Profile in combination with an Organized Character Profile (SCt). Few people with high self-expressive values (i.e., high in all three character traits) were found. Individuals with a Joint Personality Network 1 with strong secular-rationalist values reported higher levels of positive affect and life satisfaction ($p < .001$), while individuals with a Joint Personality Network 2 reported higher levels of negative affect ($p < .001$).

Conclusions: Although a stable temperament and a healthy character were separately important for well-being, it was clear that it was the interaction between such temperament and character configuration what yielded greater levels of subjective well-being. Nevertheless, future research needs to investigate this interaction further to evaluate other cultures with variable configurations of personality traits and values.

1 # Differences in Subjective Well-Being between Individuals
2 # with Distinct Joint Personality (Temperament-Character)
3 # Networks in a Bulgarian Sample

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30   **Abstract**

31   **Background:** Personality is the major predictor of people's subjective well-being (i.e., positive
32   affect, negative affect, and life satisfaction). Recent research in countries with high-income and
33   strong self-transcendent values shows that well-being depends on multidimensional configurations
34   of temperament and character traits (i.e., Joint Personality Networks) that regulate the way people
35   learn to adapt their habits to be in accord with their goals and values, rather than individual traits.
36   To evaluate the prevalence and the associations of different Joint Personality (temperament-
37   character) Networks with well-being in a low-income country with weak self-transcendent values,
38   we tested their association in Bulgarian adults, a population known to have strong secular-
39   rationalist values but weak self-transcendent values.
40   **Method:** The sample consisted of 443 individuals from Bulgaria (68.70% females) with a mean
41   age of 34 years (SD = 15.05). Participants self-reported personality (Temperament and Character
42   Inventory), affect (Positive Affect Negative Affect Schedule), and life satisfaction (Satisfaction
43   with Life Scale). The personality scores were used for profiling through latent profile analysis and
44   latent class analysis based on temperament configurations (i.e., Temperament Profiles) of high/low
45   scores of Novelty Seeking (N/n), Harm Avoidance (H/h), Reward Dependence (R/r), and
46   Persistence (P/s); and character configurations (i.e., Character Profiles) of high/low scores of Self-
47   Directedness (S/s), Cooperativeness (C/c), and Self-Transcendence (T/t).
48   **Results:** We found two Temperament Profiles and two Character Profiles that clustered into two
49   distinctive Joint Personality Networks. All individuals in Joint Personality Network 1 had a
50   Reliable (nhRP) Temperament Profile in combination with an Organized (SCt) Character Profile
51   (i.e., a stable temperament and a healthy character configuration). About 71.9% in Joint
52   Personality Network 2 had an Apathetic (sct) Character Profile in combination with Methodical
53   (nHrp) or Reliable (nhRP) Temperament Profiles, while 28.1% had a Methodical (nHrp)
54   Temperament Profile in combination with an Organized Character Profile (SCt). Few people with
55   high self-expressive values (i.e., high in all three character traits) were found. Individuals with a
56   Joint Personality Network 1 with strong secular-rationalist values reported higher levels of positive
57   affect and life satisfaction (p < .001), while individuals with a Joint Personality Network 2 reported
58   higher levels of negative affect (p < .001).
59   **Conclusions:** Although a stable temperament and a healthy character were separately important
60   for well-being, it was clear that it was the interaction between such temperament and character
61   configuration what yielded greater levels of subjective well-being. Nevertheless, future research
62   needs to investigate this interaction further to evaluate other cultures with variable configurations
63   of personality traits and values.
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68   **Introduction**

69   Personality is the major factor and predictor of people's subjective well-being. Some researchers

70   have argued that it is so because personality is related to the way people emotionally react (e.g.,

71   how intensively, duration) to life experiences (Kim-Prieto et al., 2005). However, personality is

72   more than emotional responses to life events or temperamental dispositions, which do not account

73   for environmental learning experiences regulated by our character (i.e., our goals and values)

74   (Cloninger, 2004). Consideration of only a person's temperament limits the concept of personality

75   to traits that are emotion-based and moderately stable (McAdams, 2001). Instead, the science of

76   human well-being (Cloninger, 2004; Cloninger & Cloninger, 2020) needs to: (a) account for both

77   between- and within-individual differences in nonintentional (i.e., temperament) and intentional

78   (i.e., character) domains of personality (Cervone, 2005)—people do not only differ between each

79   other, which describes how people generally are in relation to others; but also differ within

80   themselves in the way their temperament and character traits are organized, as we need to

81   understand in order to predict how and why people behave as they do; (b) consider the large

82   evidence of intraindividual variability across personality profiles (Ryan & Sackett, 2012), (c)

83   account for the dynamics of personality development as a set of learning systems that adapt in a

84   predictable and integrative manner over time (Cloninger et al, 1997; Zwir et al, 2020ab, 2022),

85   and (d) consider recent molecular studies showing that the basic unit of personality are

86   multidimensional profiles of temperament and character, not single traits (Cloninger & Zwir, 2018;

87   Zwir et al., 2020ab, 2022).

88   In this context, Cloninger's biopsychosocial model (Cloninger et al., 1993) decomposes

89   personality in two domains comprised of seven personality dimensions that are based on robust

90   research on the differences in the major brain systems for procedural versus propositional learning.

91   According to Cloninger (2004), the temperament domain reflects the basic organization of

92   independently different brain systems for the activation, maintenance, and inhibition of behavior

93   in response to stimuli. The four temperament dimensions are defined in terms of individual

94   differences in behavioral learning mechanisms shared by all animals, explaining responses to

95   novelty and signals of reward or relief of punishment (Novelty Seeking), responses to signals of

96   punishment or non-reward (Harm Avoidance), responses to social and attachment rewards

97   (Reward Dependence), and the maintained response to previously rewarded behavior with

98   intermittent reinforcement (Persistence). In contrast, the character domain involves individual

99   differences in self-concepts about goals and values (Cloninger, 2004), which depend on brain

100   systems that developed later in evolution (Cloninger, 2009; Zwir et al., 2021). Character is

101   comprised of three dimensions: Self-Directedness (based on the concept of the self as an

102   autonomous individual) allows the individual to engage in purposeful actions because the

103   individual has a "sense of following a meaningful direction in one's life" (Cloninger, 2004, p.

104   120); Cooperativeness (based on the concept of the social self) allows the individual to be tolerant

105   and flexible about choices regarding goals because thought and behavior are based on mutual

106   interests with other persons; and Self-Transcendence (based on the concept of the self with values

107   derived from awareness of being an integral aspect of a larger whole, such as humanity, nature,

108   and possibly the universe and its source) allows the individual to intuitively recognize the values

109   and meaning in all things (see Table 1 for a detailed description of the different personality

110   dimensions). In short, character allows us to act intentionally and interpret the meaning of what

111   we experience, which in turn allows us to self-regulate our emotional reactions and even our habits

112   (Cloninger, 2004; Moreira et al., 2021a). Due to its distinction between nonintentional (i.e.,

113   temperament) and intentional (i.e., character) domains of personality, Cloninger's biopsychosocial

114   model is appropriate for assessment of both within-person learning processes and between-person

115   differences (Cervone, 2005)—that is, the way people differ from others but also the processes that

116   motivate and regulate adaptive processes occurring within the individual.

117   Table 1 should be about here

118   Hence, when individuals are asked to assess their subjective well-being, the recollection of

119   a happy life is not exclusively and unconsciously dictated by how their temperament leads them

120   to emotionally react (Cloninger, 2004). In fact, our recent genomic research shows that most of

121   the genes associated with character are long-non-coding RNA genes that regulate the expression

122   of protein-coding genes, coordinate the co-expression of sets of genes, and influence epigenetic

123   processes. In contrast, most of the genes associated with temperament are protein-coding genes

124   involved in cellular processes of synaptic plasticity, associative conditioning, and related processes

125   of stress reactivity and neurotransmission (Zwir et al., 2020ab). Moreover, the genes encoding

126   human character are associated with one brain network for higher cognitive processes involving

127   intentional self-control and another brain network for self-awareness, whereas the genes encoding

128   human temperament are enriched in highly conserved molecular pathways that are present in all

129   animals and that are activated in experimental animals by associative conditioning in response to

130   extracellular stimuli (Cloninger & Cloninger, 2020). In other words, despite the fact that human

131   personality is moderately heritable (e.g., Gillespie et al., 2003; Ando et al., 2004; Garcia et al.,

132   2013), the path to well-being and a resilient life depends on processes of learning, development,

133   and integration of character development, such as self-actualization and identity formation that are

134   optimized by the self-awareness of human beings, which allows the unique capacities of human

135   self-aware consciousness (Cloninger & Cloninger, 2020). Put in another way, we inherit the way

136   we learn, so nature and nurture are both always important.

137   We have replicated these molecular findings in three large independent genome-wide

138   association studies from Finland, Germany, and South Korea (Zwir et al., 2020ab, 2022).

139   Moreover, in these three independent samples, we uncovered three clusters of similar numbers of

140   people with distinct combinations of Temperament and Character Profiles, which we refer to as

141   Joint Personality (temperament-character) Networks. In short, temperament and character traits

142   are expressions of the activity of three genetic-environmental networks that regulate healthy

143   longevity and dissociable systems of learning and memory by nearly disjoint sets of genetic and

144   environmental influences. Indeed, since personality is a complex adaptive system or a whole-

145   system unit, it should be best studied by analyzing patterns of information rather than single traits

146   (Cloninger et al., 1997; see also Bergman & Wångby, 2014).

147   These three Joint Personality Networks were subsequently confirmed in a Portuguese

148   sample of adolescents, where individuals with a stable or reliable Temperament Profile (low in

149   Novelty Seeking, low in Harm Avoidance, high in Reward Dependence, and high in Persistence)

150   in conjunction with a healthy or Creative Character Profile (high in all three character dimensions)

151   reported fewer clinical problems and greater engagement with school (Moreira et al., 2021b).

152   Among adults, individuals with a Creative (high in all three character traits) or an Organized

153   Character Profile (high in Self-Directedness and Cooperativeness but low in Self-Transcendence)

154   consistently report the highest levels of well-being, healthy longevity, optimal cardiovascular

155   health, including healthy lifestyle as well as reduced risk for chronic diseases (Cloninger, 2004).

156   Having a Creative Character Profile is also linked with better heart rate variability or vagal tone in

157   24-hour recordings of heart rhythms (Zohar et al., 2013). To the best of our knowledge, the three

158   Joint Personality Networks have been replicated in our molecular studies (Zwir et al., 2020ab,

159   2022) and the Portuguese study (Moreira et al., 2021b). In addition, these Joint Personality

160   (temperament-character) Networks closely resemble groups identified in large-scale longitudinal

161   studies of social values: cultural creatives (i.e., post-materialists with strong self-expressive,

162   prosocial, and self-transcendent values corresponding to those with Reliable-Creative Personality

163   Networks), materialists (i.e., with secular-rationalist values corresponding to those with Reliable-

164   Organized Personality Networks), and traditionalists (i.e., those whose values and behavior depend

165   mainly on authority-dependent conventions and habits corresponding to those with temperaments

166   weakly regulated by character) (Ray & Anderson 2000; Inglehart 2018a). We initially identified

167   the three networks in countries with different cultural values and environmental conditions

168   (Finland, Germany, and South Korea). We have replicated our findings in a lower income country

169   (Portugal), but recognize that there is a need to examine other cultures, such as Bulgaria, which

170   has been shown in the World Values Survey to have strong secular-rationalist values typical of

171   egocentric people with a Reliable-Organized Personality Network, but have weak self-expressive,

172   prosocial, and self-transcendent values, which is unlike people in the Reliable-Creative Personality

173   Network (Inglehart, 2018a). The levels of well-being in groups of people with materialist or

174   secular-rationalist values are intermediate to those of people with creative cultural values and those

175   with traditional values (Zwir et al., 2022; Inglehart 2018ab), so Bulgaria represents an interesting

176   contrast to other countries in which we have assessed the associations between well-being and

177   Joint Personality Networks.

178   In this line of thinking, we investigated the prevalence of different Temperament and

179   Character profiles and Joint Personality (temperament-character) Networks and differences in

180   subjective well-being (i.e., positive affect, negative affect, and life satisfaction) between

181   individuals in a population of Bulgarian adults. Importantly, since a culture's distinctive values

182   are often a product of its history, our Bulgarian sample is phenomenologically relevant to the

183   Balkan's history of repeated colonization, which might have ingrained people in Bulgaria with the

184   specific capacity for balancing different and even conflicting values—"Balkan people survived

185   colonization by learning to live 'at the edge of compromise' between their own values and the

186   values of their colonizers", that is, Balkan pluralism (Stoyanov & Fulford, 2021, pp. 171). In fact,

187   as mentioned, Bulgarians have been found to have strong secular-rationalist values and weak self-

188   expressive values in the World Values Survey (Inglehart, 2018ab) so we hypothesized that people

189   with Reliable-Organized Personality Networks would be frequent whereas those with Reliable-

190   Creative Personality Networks would be few in number. In other words, we expected that our

191   Bulgarian sample would be characterized by a very self-directed and cooperative but pragmatic

192   and skeptical outlook on the world (i,e., high Self-Directedness, high Cooperativeness, and low in

193   Self-Transcendence).

194   **Method**

195   **Ethical Statement**

196   The study was approved by the National Ethics Committee of the Bulgarian Association of Health

197   Care Professionals (Protocol No. 2/10.05.2021).

198   **Participants**

199   The sample consisted of 443 individuals from Bulgaria (age range 18 to 65; about 68.70% females)

200   with a mean age of 34 years (SD = 15.05). Subjects provided verbal consent to participate in the

201   study. In contrast to the linear analyses originally conducted with the same data (see Angelova,

202   2020), we used person-oriented analyses by first clustering individuals in distinct Temperament

203   Profiles and Character Profiles (see the Supplementary Material for details). Second, we combined

204   individuals´ Temperament and Character Profiles to cluster them in Joint Personality

205   (temperament-character) Networks that represent personality as a complex adaptive system.

206   **Measures**

207   *Personality*

208   We used the validated official Bulgarian version (Tilov et al., 2012) of the Temperament and

209   Character Inventory (Cloninger et al., 1993) to measure the four temperament traits and the three

210   character traits in Cloninger's biopsychosocial model of personality: Novelty Seeking (e.g., "I

211   often try new things just for fun or thrills, even if most people think it is a waste of time"), Harm

212   Avoidance (e.g., "I often feel tense and worried in unfamiliar situations, even when others feel

213   there is little to worry about"), Reward Dependence (e.g., "I like to discuss my experiences and

214   feelings openly with friends instead of keeping them to myself"), Persistence (e.g., "I often push

215   myself to the point of exhaustion or try to do more than I really can"), Self-Directedness (e.g., "In

216   most situations my natural responses are based on good habits that I have developed"),

217   Cooperativeness (e.g., "I often consider other persons' feelings as much as my own"), and Self-

218   Transcendence (e.g., "I sometimes feel so connected to nature that everything seems to be part of

219   one living organism"). The version used here contains 140 items using a 5-point Likert scale (1 =

220   *strongly disagree*, 5 = *strongly agree*) and had good reliability with the following *Cronbach's*

221   *alphas*: .64 for Novelty Seeking, .84 for Harm Avoidance, .75 for Reward Dependence, .89 for

222   Persistence, .86 for Self-Directedness, .81 for Cooperativeness, and .81 for Self-Transcendence

223   (Angelova, 2020).

224   *Subjective Well-Being*

225   We used the Positive Affect Negative Affect Schedule – Short Form (Watson et al., 1988) to

226   operationalize the affective component of subjective well-being. This is a 20-item scale designed

227   to measure positive affect and negative affect as independent dimensions. Participants are

228   instructed to rate to what extent they have experienced 10 positive (e.g., strong, proud, interested)

229   and 10 negative emotions (e.g., afraid, ashamed, nervous) during the last weeks, using a 5-point

230   Likert scale (1 = *very slightly*, 5 = *extremely*). In the present study, the positive affect scale showed

231   a *Cronbach's alpha* of .85 and the negative affect scale showed a *Cronbach's alpha* of .88

232   (Angelova, 2020).

233   Moreover, we used the Satisfaction with Life Scale (Diener et al., 1985) to operationalize

234   the cognitive component of subjective well-being. This scale has five statements (e.g., "In most

235   ways my life is close to my ideal") that respondents are asked to rate their level of agreement to

236   using a seven-point Likert scale (1 = *strongly disagree*, 7 = *strongly agree*). The Satisfaction with

237   Life Scale showed a *Cronbach's alpha* of .83 in the present study (Angelova, 2020).

238   Hence, subjective well-being was operationalized as composed of three individual

239   variables: positive affect, negative affect, and life satisfaction. Each subjective well-being variable

240   was calculated using the mean of total scores of each of the scales.

241   **Statistical Procedure**

242   For the first phase, explorative analyses, we calculated zero-order correlations between the

243   temperament and character dimensions and the subjective well-being dimensions (see also

244   Angelova, 2020). For the second phase, we used latent profile analysis (LPA) to identify and

245   cluster the study sample into (a) Temperament Profiles, and (b) Character Profiles (see the detailed

246   procedure in the Supplementary Material). These models were estimated using standardized mean

247   scores for each of the four temperament and three character dimensions, respectively (continuous

248   variables). For the third phase, our main set of analyses, we used latent class analysis (LCA) to

249   cluster individuals into Joint Personality (temperament-character) Networks. This model was

250   estimated by combining participants' assigned Temperament Profiles and Character Profiles

251   (categorical variables). For both the LPA and LCA, we determined the optimum number of latent

252   profiles or networks by comparing the fit of a series of models with increasing numbers of profiles.

253   Model fit was compared using the Akaike Information Criterion (Akaike, 1974), Bayesian

254   Information Criterion (BIC; Schwarz, 1978), sample-size adjusted BIC (Sclove, 1987), and

255   entropy (Celeux & Soromenho, 1996). For LPA, we also used an Analytic Hierarchy Process

256   (Akogul & Erisoglu, 2017) to help determine the optimal number of profiles. In both the second

257   and third phases, using standardized scores for all measures (*z-scores*), we conducted a series of

258   MANOVA:s to test differences in personality and subjective well-being (for the full analyses of

259   the second phase, Temperament Profiles and Character Profiles, please see the Supplementary

260   Material). The use of *z-scores* allowed us to compare the relevant variables (personality

261   dimensions or subjective well-being constructs) within each profile or network (e.g., to test if Harm

262   Avoidance among individuals with a specific profile differs from their own levels of Novelty

263   Seeking, if positive affect among individuals with a specific profile differs from their own levels

264   of life satisfaction, and etcetera).

265   **Results**

266   **Phase 1: Correlations between Personality Traits and Subjective Well-Being**

267   Table 2 displays the zero-order correlations between temperament and character traits and

268   subjective well-being. Regarding Temperament, as expected, Harm Avoidance was negatively

269   associated to positive affect (r = -.40, p < .001) and life satisfaction (r = -.29, p < .001), but

270   positively related to negative affect (r = .42, p < .001); and Persistence was positively related to

271   positive affect (r = .56, p < .001) and life satisfaction (r = .31, p < .001). Regarding Character, also

272   as expected, Self-Directedness was positively associated to positive affect (r = .37, p < .001) and

273   life satisfaction (r = .39, p < .001), and negatively related to negative affect (r = -.47, p < .001);

274   Cooperativeness was also positively associated to positive affect (r = .37, p < .001) and life

275 satisfaction ($r = .39$, $p < .001$), and negatively related to negative affect ($r = -.47$, $p < .001$); and

276 Self-Transcendence was positively associated to positive affect ($r = .32$, $p < .001$). The lowest

277 correlation, between personality traits and subjective well-being constructs, was that between

278 Novelty Seeking and negative affect ($r = .01$, $p = .882$). See also Angelova, 2020.

279   Please insert Table 2 about here

280 **Phase 2: Prevalence of Temperament Profiles and Character Profiles and Differences in**

281 **Subjective Well-Being**

282 Before conducting the latent class analyses (LCA) in phase three of our study, we calculated

283 Temperament Profiles and Character Profiles (phase 2) separately using latent profile analyses

284 (LPA). The LPA revealed two Temperament Profiles (profile 1 which included 18.2% of the

285 participants and profile 2 which included 81.8% of the participants) and two Character Profiles

286 (profile 1 which consisted of 23.1% of participants and profile 2 with 76.9% of the participants).

287 For more details, please see Supplementary Materials, here we only summarize the results and

288 derived conclusions.

289   Individuals in both Temperament Profiles reported low levels of Novelty Seeking (n = low

290 Novelty Seeking) and were symmetrically different regarding high/low Harm Avoidance (H =

291 high Harm Avoidance/h =low Harm Avoidance), high/low Reward Dependence (R = high Reward

292 Dependence/r = low Reward Dependence), and high/low Persistence (P = high Persistence/p = low

293 persistence). We labeled Temperament Profile 1 Methodical because individuals with this profile

294 are highly cautious due to high Harm Avoidance (H), orderly due to low Novelty Seeking (n), and

295 objective due to the combination of high Harm Avoidance and low Reward Dependence (Hr).

296 Hence suggesting that individuals with the Methodical (nHrp) Temperament Profile might be

297 described as inhibited (nH = low Novelty Seeking and high Harm Avoidance), aloof (Hr = High

298   Harm Avoidance and low Reward Dependence), privacy-seeking (nr = low Novelty Seeking and

299   Low Reward Dependence), and having difficulties to initiate anything new because of their

300   inhibitions rooted in their tendency to pragmatism and underachievement (p = low Persistence). If

301   such an individual lacks a well-developed Character Profile, they can be perceived and act as

302   obsessional personalities and find situations that require exposure to public attention to be

303   challenging (Cloninger, 2004). They are, however, not afraid of being rejected (Hr = High Harm

304   Avoidance and low Reward Dependence), hence, making them objective. Conversely, we labeled

305   Temperament Profile 2 Reliable because individuals with this Temperament Profile are stable due

306   to low Novelty Seeking and low Harm Avoidance (nh), warmly sociable due to low Harm

307   Avoidance and High Reward Dependence (hR), traditional because of their low Novelty Seeking

308   and high Reward Dependence (nR), and hard-working due to high Persistence (P). Hence, it is

309   highly likely that individuals with a Reliable (nhRP) Temperament Profile can be trusted to carry

310   out what they are expected to do in a predictable and traditional manner and to develop a mature

311   character (Cloninger, 2004). As expected, a post hoc test with Bonferroni correction (see

312   Supplementary Material) showed that positive affect and life satisfaction were higher among

313   individuals with the Reliable (nhRP) Temperament Profile and negative affect was higher among

314   individuals with the Methodical (nHrp) Temperament Profile ($p < .001$).

315   Individuals in both Character Profiles reported low levels of Self-Transcendence (t = low

316   Self-Transcendence) but symmetrically different levels of high/low Self-Directedness (S = high

317   Self-Directedness/s = low Self-Directedness) and high/low Cooperativeness (C = high

318   Cooperativeness/c = low cooperativeness. We labeled Character Profile 1 as Apathetic because

319   individuals with this profile tend to feel victimized and helpless (sc = low Self-Directedness and

320   low Cooperativeness), show very poor judgement (st = low Self-Directedness and low Self-

321   Transcendence), and are distrustful (ct = low Cooperativeness and low Self-Transcendence).

322   Indeed, individuals with an Apathetic (sct = low in all three character traits) Character Profile

323   report the lowest levels of overall well-being and health, report experiencing unhealthy emotions

324   such as anxiety and alienation, and have high rates of mental and physical disorders (Cloninger,

325   2004). In other words, they experience the world from an outlook of separateness, which leads to

326   fear, excessive desire, and false pride or self-reproach. Conversely, we labeled Character Profile 2

327   Organized because individuals with such profile are often perceived as mature leaders (SC = high

328   Self-Directedness and high Cooperativeness), logical (St = high Self-Directedness and low Self-

329   Transcendence), and conventional (Ct = high Cooperativeness and low Self-Transcendence). They

330   are, most of the time, happy and healthy, and seldom need health care (Cloninger, 2004). However,

331   when they face difficult existential challenges, such as severe illness or death, they often lack the

332   necessary outlook of unity and connectedness needed to be resilient through such situations due to

333   low levels of Self-Transcendence (t). As expected, a post hoc test with Bonferroni correction (see

334   Supplementary Material) showed that life satisfaction was higher among individuals with the

335   Organized (SCt) Profile and negative affect was higher among individuals with the Apathetic (sct)

336   Profile ($p < .001$). Positive affect, however, did not differ between individuals with these two

337   Character Profiles. Thus, accentuating that an Organized (SCt) Profile is necessary, but not

338   sufficient for experiencing a happy life.

339   **Phase 3: Joint Personality (temperament-character) Networks**

340   In phase 3, our main set of analyses, we conducted a LCA to investigate the interaction of the

341   distinct Temperament Profiles and Character Profiles as Joint Personality (temperament-character)

342   Networks. We tested four different models with 1 and up to 4 networks (Table 3). All values for

343   Model 2, with two networks, had the best fit to our model (AIC = 840.770, BIC = 861.237, SABIC

344   = 845.370, VLMRT = .0006, LMRT = .0008, and BLRT = <.001). Model 2 consisted of Joint

345   Personality Network 1 which included 68.6% of the participants and Joint Personality Network 2

346   with 31.4% of the participants (see more details in the Supplementary Material).

347   Please insert Table 3 about here

348   Regarding Temperament Profiles, all the individuals in the Joint Personality Network 1 had

349   a Reliable (nhRP) Temperament Profile. In Joint Personality Network 2, as much as 46.8% of the

350   individuals had a Methodical (nHrp) Temperament Profile and 53.2% had a Reliable (nhRP)

351   Temperament Profile. In other words, the number of individuals with the Methodical (nHrp)

352   Temperament Profile and the Reliable (nhRP) Temperament Profile were almost equal in the Joint

353   Personality Network 2; while all individuals allocated to Joint Personality Network 1 had a

354   Reliable (nhRP) Temperament Profile (see Table 4). Regarding Character Profiles, all the

355   individuals in Joint Personality Network 1 had an Organized (SCt) Character Profile. Conversely,

356   28.1% of the individuals clustered in the Joint Personality Network 2 had an Organized (SCt)

357   Character Profile and 71.9% had an apathetic (sct) Character Profile. This means that individuals

358   allocated in the Joint Personality Network 1 had a significantly higher amount of individuals with

359   an Organized (SCt) Character Profile compared to individuals in the Joint Personality Network 2.

360   In sum, while all individuals in the Joint Personality Network 1 had a stable Reliable (nhRP)

361   Temperament Profile in combination with a healthy Organized (SCt) Character Profile, none of

362   the individuals in Joint Personality Network 2 had this stable and healthy personality

363   configuration; instead 71.9% had an Apathetic (sct) Character Profile in combination with

364   Methodical (nHrp) or Reliable (nhRP) Temperament Profiles and the rest (28.1%) had an

365   Organized Character Profile in combination with a Methodical (nHrp) Temperament Profile (see

366   the Supplementary Material for the details).

367   Please insert Table 4 about here

368   ***Differences in Temperament and Character Dimensions within Individuals with Distinct Joint***

369   ***Personality (Temperament-Character) Networks***

370   We found significant differences in personality dimensions within each Joint Personality Network

371   with a Greenhouse-Geisser correction ($F_{(4.78, 1447, 78)}$ = 9.12, p < .001, $\eta^2 p$ = 0.03, *observed power*

372   = 1.0). However, a Bonferroni adjustment test showed that some mean differences were not

373   significant (p > .05). Within Joint Personality Network 1, individuals scored highest in Persistence

374   and lowest in Harm Avoidance. Within Joint Personality Network 2, individuals scored the highest

375   in Harm Avoidance and the lowest in Persistence (see Figure 1). In other words, individuals in

376   Joint Personality Network 1 were driven by, for example, perfectionism, optimism, and risk-

377   taking. Conversely, individuals in Joint Personality Network 2 were driven by, for example,

378   pessimism, fear, shyness, pragmatism, and underachievement.

379   ***Differences in Temperament and Character Dimensions between Individuals with Distinct Joint***

380   ***Personality (Temperament-Character) Networks***

381   The differences in personality dimensions between individuals with distinct Joint Personality

382   Networks were significant (*Wilks' Lambda* = 0.76, $F_{(7, 435)}$ = 20.03, p < .001, *observed power* =

383   1.0). A Bonferroni adjustment test showed that the Joint Personality Networks differed

384   significantly with regards to all temperament and character dimensions except for Novelty Seeking

385   (p = .045). Reward Dependence, Persistence, Self-Directedness, Cooperativeness, and Self-

386   Transcendence were higher in the Joint Personality Network 1 compared to the Joint Personality

387   Network 2, while Harm Avoidance was higher in the Joint Personality Network 2 (see Figure 1).

388   Hence, the method (i.e., LCA) for allocating individuals to different networks depending on their

389   temperament profile and character profile seems valid. Nevertheless, we did not find a significant

390   variation regarding Novelty Seeking, most individuals scored low in this temperament trait. Hence,

391   indicating that individuals in both Joint Personality Networks are reserved, rigid, prudent with

392   their economy, and dislike disorderliness. Moreover, even though individuals in these two Joint

393   Personality Networks differed in Self-Directedness and Cooperativeness, individuals in both

394   networks scored low in Self-Transcendence. Thus, most individuals in this sample are self-

395   concerned, individualistic, skeptical, conventional, and cynical.

396   Please insert Figure 1 about here

397   ***Differences in Subjective Well-Being (Positive Affect, Negative Affect, and Life Satisfaction)***

398   ***within Individuals with Distinct Joint Personality (Temperament-Character) Networks***

399   In Joint Personality Network 1, the test of within-subject effects with Greenhouse-Geisser

400   correction was significant ($F_{(1.72, 508.60)} = 9.80$, $p < .001$, $\eta^2p = 0.03$). The pairwise comparison with

401   Bonferroni adjustment showed that the difference between positive affect and life satisfaction was

402   not significant ($p = 1.000$)—that is, positive affect and life satisfaction were equally high. Negative

403   affect, however, was significantly lower than both positive affect and life satisfaction ($p < .001$).

404   In other words, confirming that individuals in Joint Personality Network 1 experienced positive

405   emotions more frequently and were more satisfied with their life in relation to their own experience

406   of negative emotions (see Figure 2).

407   Regarding Joint Personality Network 2, the test within subject effects with Greenhouse-

408   Geisser correction was also significant ($F_{(1.72, 287.26)} = 17.28$, $p < .001$, $\eta2p = 0.11$). Again, there

409   was no difference between positive affect and life satisfaction ($p = 1.000$)—that is, positive affect

410   and life satisfaction were equally low. However, a Bonferroni post hoc adjustment test indicated

411   that in contrast to the differences within the Joint Personality Network 1, negative affect was

412   significantly higher than both positive affect and life satisfaction ($p < .001$) within individuals with

413   the Joint Personality Network 2. Hence, confirming that individuals in Joint Personality Network

414   2 experienced negative emotions more frequently in relation to their own experience of positive

415   emotions and evaluations of life satisfaction (see Figure 2).

416   ***Differences in Subjective Well-Being (Positive Affect, Negative Affect, and Life Satisfaction)***

417   ***between Individuals with Distinct Joint Personality (Temperament-Character) Networks***

418   The last one-way MANOVA showed that there were significant differences between individuals

419   with distinct Joint Personality Networks (*Wilks' Lambda* = 0.90, $F_{(3, 439)}$ = 15.76, $p < .001$, $\eta^2 p$ =

420   0.10). The test between-subject effects indicated that the differences in life satisfaction, positive

421   affect, and negative affect between individuals in Joint Personality Networks 1 and 2 were

422   significant ($p < .001$). A Bonferroni post hoc correction test showed that individuals with a Joint

423   Personality Network 1 reported higher levels of positive affect and life satisfaction ($p < .001$),

424   while individuals with a Joint Personality Network 2 reported higher levels of negative affect ($p <$

425   .001). See Figure 2.

426   Hence, although a stable temperament and healthy character were separately important for

427   well-being, it was clear that it was the interaction between such temperament and character

428   configuration what yielded greater levels of subjective well-being.

429   Please insert Figure 2 about here

430   **Discussion**

431   In this study we investigated the prevalence of different Temperament and Character profiles and

432   found two Joint Personality (temperament-character) Networks in our Bulgarian sample. We also

433   found differences in subjective well-being across individuals with distinctive networks. The Joint

434   Personality Networks incorporated two Temperament Profiles, Methodical (nHrp) and Reliable

435   (nhRP), and two Character Profiles, Apathetic (sct) and Organized (SCt). All individuals in the

436   Joint Personality Network 1 had a Reliable (nhRP) Temperament Profile and an Organized (SCt)

437   Character Profile. They experienced positive affect to a greater extent and were more satisfied with

438   their lives compared to individuals in Joint Personality Network 2. Within the Joint Personality

439   Network 2 individuals belonged to the following profiles: 46.8% had a Methodical (nHrp)

440   Temperament Profile, 53.2% of them had a Reliable (nhRP) Temperament Profile, 28.1% of them

441   had an Organized (SCt) Character Profile and 71.9% had an Apathetic (sct) Character Profile.

442   Compared to individuals in Joint Personality Network 1, these individuals experienced negative

443   affect to a greater extent and lower levels of positive affect and life satisfaction. Our results agree

444   with studies showing that personality combinations are distinctively associated to individual

445   differences in both affective and cognitive aspects of subjective well-being. For example, in a

446   study among middle age New Zealanders (Spittlehouse et al., 2014), individuals with Character

447   Profiles high in both or either Self-Directedness and Cooperativeness reported higher levels of

448   well-being. Thus, implying that self-directed and communal behavior, rather than self-

449   transcendent behavior, is important for our well-being. However, in this same study, it was shown

450   that self-transcendent values or practices (i.e., self-expressive values) contribute to well-being

451   when self-directed (i.e., high Self-Directedness) and communal values (i.e., high Cooperativeness)

452   are not well developed (Spittlehouse et al., 2014). In another study among university students, the

453   Creative (SCT) Character Profile was associated with the highest levels of life satisfaction,

454   whereas the Apathetic (sct) Character Profile was associated with the lowest levels of life

455   satisfaction (Park et al., 2015). Similar results have been found in Finland (Josefsson et al., 2011),

456   Israel (Cloninger & Zohar, 2011), Sweden (Schütz, Archer & Garcia, 2013), and other countries

457   (e.g., Giakoumaki et al., 2016; Wang et al., 2019).

458   For instance, a study in the Bulgarian army population led to similar results (Dimitrova et

459   al., 2015). Clinical researchers showed that individuals who were patients diagnosed with

460   personality disorders reported low Novelty Seeking, low Persistence, and high Harm Avoidance

461   (i.e., similar to the Methodical Temperament Profile in the present study) and low

462   Cooperativeness, low Self-Directedness, and high Self-Transcendence. Conversely, Self-

463   Transcendence was low in both Character Profiles we found in our study (i.e., the Apathetic Profile

464   and the Organized Profile). On the other hand, healthy military servicemen reported high Novelty

465   seeking, high Persistence, and low Harm Avoidance; which is also in contrast to our study where

466   Novelty Seeking in both Temperament Profiles was low (Dimitrova et al., 2015). Nevertheless,

467   high Novelty Seeking among healthy military recruits seems reasonable (Mommersteeg et al.,

468   2011). Moreover, healthy military servicemen reported high Self-Directedness, high

469   Cooperativeness, and low Self-Transcendence (Dimitrova et al., 2015); which is similar to the

470   Organized Character Profile in the present study. To the best of our knowledge, however, the

471   present study is the first one to investigate Joint Personality (temperament-character) Networks in

472   the Bulgarian population, rather than single traits, and one of the few overall using LPA and LCA,

473   rather than median splits or other clustering methods, to replicate past molecular studies (Zwir et

474   al., 2022). Indeed, LPA and LCA are data-driven and create profiles and networks that are relative

475   to each other, which comes closer to modeling the dynamic nature of within and between group

476   variability of individual patterns of temperament and character and their combination. What is

477   even more, in contrast to other clustering algorithms, the methods used here allow for "model-

478   based clustering" using a probabilistic model that describes data distribution—that is, in contrast

479   to the bottom-up approach of cluster analyses in which clustering is done by finding similarities

480   between cases, LPA and LCA are top-down approaches in which clustering starts with describing

481   data distribution and use a statistical model for data selection and assessment of goodness of fit

482   (Hagenaars & McCutcheon, 2009).

483   In the present study, the Bulgarian participants were classified in two Joint Personality

484   Networks that, besides Novelty Seeking and Self-Transcendence, were almost diametrically

485   different in terms of temperament and character traits. The Joint Personality Network 1 is

486   represented by a more consolidated cohort of people with a Reliable (nhRP) Temperament Profile

487   and Organized (SCt) Character Profile, which describes them as individuals with a stable

488   temperamental disposition and a more mature character. The Joint Personality Network 2 is more

489   heterogeneous as it is represented by all temperament-character configurations but the one in Joint

490   Personality Network 1 (i.e., Reliable-Organized). These findings suggest that, if individuals with

491   a Reliable (nhRP) Temperament Profile, who reported higher levels of subjective well-being

492   compared to those with a Methodical (nHrp) Temperament Profile, have an Apathetic (sct)

493   Character profile; they will still end up with low levels of subjective well-being. Accordingly, if

494   individuals with an Organized (SCt) Character Profile, who reported higher levels of subjective

495   well-being compared to those with an Apathetic (sct) Character Profile, have a Methodical (nHrp)

496   Temperament profile; they will still end up with low levels of subjective well-being. In other

497   words, although a stable temperament and a healthy character were separately important for well-

498   being, it was clear that it was the interaction between such temperament and character

499   configuration what yielded greater levels of subjective well-being in this Bulgarian sample.

500   This conclusion is important because it goes beyond what can be inferred by just studying

501   traits or specific dimensions of personality or even temperament profiles and character profiles

502   separetly. Harm Avoidance for example, is a primary personality trait associated with restraint of

503   behavior (Cloninger, 1987; Láng, 2020). In our Bulgarian sample this was confirmed by a

504   significant association between high Harm avoidance and high negative affect, as well as the fact

505   that individuals with a Methodical (nHrp) Temperament Profile reported higher levels of negative

506   affect than those with a Reliable (nhRP) Temperament Profile. At first sight, this might indicate

507   that low Harm Avoidance is determinant for low negative affect. However, it might only be

508   necessary but not sufficient. After all, individuals with the configuration Reliable-Organized (i.e.,

509   Joint Personality Network 1) emerged as the ones with the lowest levels of negative affect, while

510   those with a Reliable-Apathetic configuration, despite low levels of Harm Avoidance, reported

511   higher levels of negative affect. That being said, in our study, we lacked a network representing

512   cultural creatives, that is, those with a Reliable Temperament Profile and Creative (SCT = high in

513   all character traits) Character Profile. Indeed, most of our Bulgarian population were low in Self-

514   Transcendence. It is plausible to argue that a Creative Character Profile might always help the

515   individual to regulate the emotional reactions and experiences from any type of Temperament

516   Profile. Nevertheless, the path to well-being and a resilient life depends on processes of learning,

517   development, besides the integration of character development (Cloninger & Cloninger, 2020).

518   Put in another way, we inherit the way we learn, so nature and nurture are both always important.

519   Thus, to cope with high levels in Harm Avoidance, character development is extremely important,

520   but targeting the nervous system is also necessary (see for example Cloninger et al., 2019).

521   The lack of a third Joint Personality Network, previously found in Finland, Germany, South

522   Korea, and Portugal, is in fact our most significant finding. We had reasons for expecting such

523   results. After all, our Bulgarian sample is phenomenologically relevant to the Balkan's history of

524   repeated colonization, which might have ingrained people in Bulgaria with the specific capacity

525   for balancing different and even conflicting values, that is, Balkan pluralism (Stoyanov & Fulford,

526   2021). In fact, Bulgarians seem to have strong secular-rationalist values and weak self-expressive

527   or self-transcendent values (Inglehart, 2018ab). Thus, people with a Reliable-Organized Network

528   should be the most frequent configuration whereas those with a Reliable-Creative Network should

529   be few. Furthermore, the absence of a Reliable-Creative Network is perhaps also related to the

530   authoritarian history of Bulgaria. According to Inglehart (2018a) authoritarian systems that

531   suppress self-expression and democracy tend to be individualistic and materialistic and show less

532   development of the creative self-awareness system.

533   **Limitations**

534   In the present study we only had age and gender as demographic variables, education, for example,

535   might be an important factor behind our results. Moreover, self-report scales might result in

536   consciously or unconsciously biased accounts of individuals' experiences and are also biased

537   specifically by social desirability. Nevertheless, the ability of respondents to self-assess accurately

538   is a limitation that self-report measures have in general.

539   **Conclusions**

540   Recent studies provide evidence for the relation between personality as a complex biopsychosocial

541   adaptive system and well-being. These results reveal not only how people differ from each other

542   but also how and why certain people are happier and more satisfied with their life than others. Our

543   results are also an addition to the debate of how and why different cultures might differ regarding

544   the development of these Joint Personality (temperament-character) Networks. We argue that the

545   biopsychosocial model of personality can capture the multi-dimensional complexity of subjective

546   well-being in a variety of socio-cultural contexts. Importantly, adaptive traits can be cultivated to

547   elevate one's levels of well-being (Caspi et al., 2005; Cloninger et al., 2019; Cloninger &

548   Cloninger, 2020). It is fundamental to reveal a broader spectrum and level of analysis to personality

549   in order to provide interventions for personality development as well as a culture that allows

550 individuals to strengthen their well-being by influencing their cognition, emotions, and behavior.

551 That is, a culture that supports cultural creatives (cf. Inglehart, 2008ab) and in that way supports

552 individual and social resilience.

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Descriptors of high and low scorers on the Temperament and Character Inventory (TCI) subscales.

Note: Adapted with permission from Anthropedia Foundation. NS = Novelty Seeking, HA = Harm Avoidance, RD = Reward Dependence, PS = Persistence, SD = Self-directedness, CO = Cooperativeness, ST = Self-Transcendence.

2 Table 1. Descriptors of high and low scorers on the Temperament and Character Inventory (TCI)
3 subscales.

Personality Domain	TCI Scales	TCI Subscales	High Scorers	Low Scorers
TEMPERAMENT	Novelty Seeking	NS1 excitability	exploratory	reserved
		NS2 impulsivity	impulsive	rigid
		NS3 extravagance	extravagant	thrift
		NS4 disorderly	rule-breaking	orderly
	Harm Avoidance	HA1 pessimism	pessimistic	optimistic
		HA2 fearfulness	fearful	risk-taking
		HA3 shyness	shy	outgoing
		HA4 fatigability	fatigable	vigorous
	Reward Dependence	RD1 sentimentality	sentimental	objective
		RD2 openness	warm	aloof
		RD3 attachment	friendly	detached
		RD4 dependent	approval-seeking	independent
	Persistence	PS1 eagerness	enthusiastic	hesitant
		PS2 hard-working	determined	spoiled
		PS3 ambition	ambitious	underachieving
		PS4 perfectionism	perfectionistic	pragmatic
CHARACTER	Self-directedness	SD1 responsibility	responsible	blaming
		SD2 purposefulness	purposeful	aimless
		SD3 resourcefulness	resourceful	helpless
		SD4 self-acceptance	unpretentious	pretentious
		SD5 self-actualizing	self-actualizing	unfulfilled
	Cooperativeness	CO1 social tolerance	tolerant	prejudiced
		CO2 empathy	empathetic	self-centered
		CO3 helpfulness	considerate	hostile
		CO4 compassion	forgiving	revengeful
		CO5 conscience	principled	opportunistic
	Self-transcendence	ST1 self-forgetfulness	engaged	self-concerned
		ST2 transpersonal identification	joyfully connected, altruistic	separate individualistic
		ST3 spiritual acceptance	faithful	skeptical
		ST4 contemplation	contemplative	conventional
		ST5 idealism	idealistic	cynical

4 Note: Adapted with permission from Anthropedia Foundation. NS = Novelty Seeking, HA = Harm
5 Avoidance, RD = Reward Dependence, PS = Persistence, SD = Self-directedness, CO =
6 Cooperativeness, ST = Self-Transcendence.

Correlations between temperament traits, character traits, and subjective well-being constructs (i.e., positive affect, negative affect, and life satisfaction).

Note: Highlighted cells are correlations above .20, which is the recommended minimum effect size representing a practically significant effect for social science data according to Ferguson, 2009) Blue Cells: correlations between temperament and character dimensions; Green Cells: correlations between temperament and subjective well-being constructs; Yellow Cells: correlations between character and subjective well-being constructs. ** < .001.

1 Table 2. Correlations between temperament traits, character traits, and subjective well-being constructs (i.e., positive affect, negative
2 affect, and life satisfaction).

Dimensions	NS	HA	RD	PS	SD	CO	ST	PA	NA	LS
Temperament										
Novelty Seeking (NS)										
Harm Avoidance (HA)	-.22**									
Reward Dependence (RD)	-.02	.01								
Persistence (PS)	-.13**	-.37**	.18**							
Character										
Self-Directedness (SD)	-.22**	-.55**	.17**	.39**						
Cooperativeness (CO)	-.21**	-.24**	.44**	.31**	.46**					
Self-Transcendence (ST)	.10*	-.12*	.15**	.34**	-.03	.21**				
Subjective Well-Being										
Positive Affect (PA)	.04	-.40**	.13**	.56**	.37**	.27**	.32**			
Negative Affect (NA)	.01	.42**	-.03	-.15**	-.47**	-.25**	.06	.01		
Satisfaction with Life (LS)	-.01	-.29**	.11*	.31**	.39**	.21**	.19**	.41**	-.30**	

3 Note: Highlighted cells are correlations above .20, which is the recommended minimum effect size representing a practically significant
4 effect for social science data according to Ferguson, 2009) Blue Cells: correlations between temperament and character dimensions;
5 Green Cells: correlations between temperament and subjective well-being constructs; Yellow Cells: correlations between character and
6 subjective well-being constructs. ** < .001.

Latent class analysis for Joint Personality (temperament-character) Networks.

Note: * = optimum values for fit indices. The model number also indicates the number of networks within each model.

2   Table 3. Latent class analysis for Joint Personality (temperament-character) Networks.

Model	AIC	BIC	SABIC	Entropy	VLMRT	LMRT	BLRT
1	846.638	854.825	848.478				
2	840.770*	861.237*	845.370*	0.270	.0006*	.0008*	<.0001*
3	846.770	879.518	854.130	0.737	.5131	.5131	1.0000
4	852.770	897.799	862.890	0.845*	.5017	.5017	1.0000

3   * = optimum values for fit indices. The model number also indicates the number of networks within

4   each model.

Prevalence of individuals with different Temperament Profiles and Character Profiles clustered in each of the Joint Personality (temperament-character) Networks.

Note. n = low Novelty Seeking, H = high Harm Avoidance, h = low Harm Avoidance, R = high Reward Dependence, P = high Persistence, p = low persistence, S = high Self-Directedness, s = low Self-Directedness, C = high Cooperativeness, c = low Cooperativeness, t = low Self-Transcendence.

1   Table 4. Prevalence of individuals with different Temperament Profiles and Character Profiles clustered in each of the Joint Personality

2   (temperament-character) Networks.

	Profiles	Joint Personality Network 1		Joint Personality Network 2		Total
		n	*%*	*n*	*%*	*N (%)*
Temperament Profiles	Methodical (nHrp)	0	0%	65	46.8%	65 (14.7%)
	Reliable (nhRP)	304	100%	74	53.2%	378 (85.3%)
	Total	304	100%	139	100%	443 (100%)
Character Profiles	Apathetic (sct)	0	0%	100	71.9%	100 (22.6%)
	Organized (SCt)	304	100%	39	28.1%	343 (77.4%)
	Total	304	100%	139	100%	443 (100%)

3   Note. n = low Novelty Seeking, H = high Harm Avoidance, h = low Harm Avoidance, R = high Reward Dependence, P = high
4   Persistence, p = low persistence, S = high Self-Directedness, s = low Self-Directedness, C = high Cooperativeness, c = low
5   Cooperativeness, t = low Self-Transcendence.

Figure 1

Mean differences (*z-scores*) in temperament and character dimensions between and within Joint Personality (temperament-character) Network 1 and 2.
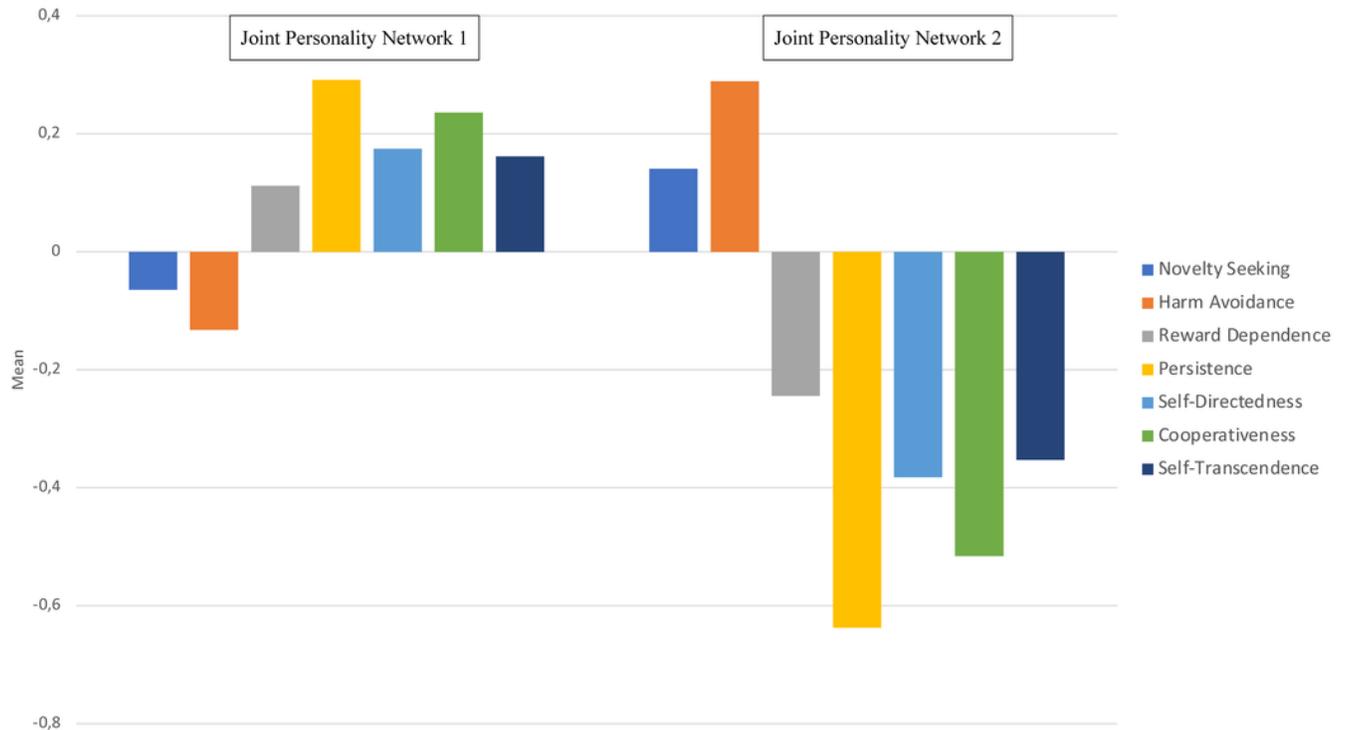
Figure 2

Mean differences (*z-scores*) in subjective well-being between and within Joint Personality (temperament-character) Network 1 and 2.