Time perspective and mental health continuum: What are the time perspective profiles of flourishing, moderately mentally healthy, and languishing individuals?

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Abstract

Time perspective (TP) refers to individuals’ ways of constructing, reconstructing, and relating the psychological concepts of past, present, and future, and provides individuals with a coherence of experiences over time. In the present study, the relationships among five TPs (past negative, past positive, present fatalistic, present hedonistic, and future) were studied in a student sample (N = 280) using a person-oriented approach, as well as their relationships with continuous measures of emotional, psychological, and social well-being and three categories on the mental health continuum (flourishing, moderately mentally healthy, and languishing). A cluster analysis resulted in seven TP profiles, including balanced, present hedonistic, risk-taking, negative, diffuse/future-oriented, present-oriented, and diffuse. Individuals with the balanced profile (high scores for past positive and future and low scores for past negative and present fatalistic, along with below-average scores for present hedonistic) reported the highest levels of well-being, while individuals with the negative TP profile (very low past positive, low present hedonistic and future, high past negative, and above-average present fatalistic) reported the lowest levels of well-being. The results also showed that flourishing individuals tended to have the balanced TP profile while languishing individuals tended to have the negative TP profile more often than could be expected by chance. Moderately mentally healthy individuals had rather diverse TP profiles.

Key words: Time perspective, Mental health continuum, Time perspective profiles, Balanced time perspective, ZTPI.
iety, lack of emotional stability, neuroticism and in general worse moods (e.g., lower energetic arousal and hedonic tone), while PP is associated with happiness, self-esteem, lower anxiety, lower depression and friendliness among others (Zimbardo & Boyd, 1999; Stolarski, Matthews, Postek, Zimbardo & Bitter, 2014; van Beek, Berghuis, Kerkhof, & Beekman, 2010; Zhang, Howell, & Stolarski, 2013). Furthermore, PF is associated with avoidance coping and increased levels of depression and anxiety, lower level of responsibility, and helplessness (Boyd & Zimbardo, 2005; van Beek et al., 2010), while PH has been associated with a limited sense of control, a preference for behaviors with immediate rewards, risky sexual behavior, substance abuse, and risky driving as well as openness for new experiences (Keough, Zimbardo, & Boyd, 1999; Rothspon & Read, 1996; Zimbardo & Boyd, 1999; van Beek et al., 2010; Zimbardo, Keough, & Boyd, 1997). The F subscale is associated with an awareness of the effect of present actions on future outcomes, such as engaging in physical activity, education, practicing safe sex, and healthy eating (Crockett, Weinman, Hankins & Marteau, 2009; Brown & Jones, 2004; D'Alessio, Guarino, De Pascalis, & Zimbardo, 2003; Luszczynska, Gibbons, Piko, & Tekoelz, 2004; Rothspon & Read, 1996), as well as scoring higher on measures of conscientiousness, which indicates greater persistence and goal-orientated behavior (van Beek et al., 2010).

Although researchers have most often examined the associations of individual TPs with different psychological outcomes or how TPs reflect certain dispositional characteristics (see e.g., Boniwell & Zimbardo, 2004; Zimbardo & Boyd, 2008), Zimbardo and Boyd (1999; 2008) anticipated that a balanced TP (BTP) profile, wherein one can flexibly switch among different TPs depending on the situational demands, would be of greater importance for individual's well-being than would “living life as a slave to any particular temporal bias” (Boniwell & Zimbardo, 2004, p. 10). The BTP profile was suggested as being “most psychologically and physically healthy for individuals and optimal for societal functioning” (Zimbardo & Boyd, 1999, p. 1285). Specifically, the BTP profile has been theorized to be a combination of high scores on the PP, PH, and F subscales and low scores on the PN and PF subscales (Boniwell & Zimbardo, 2004; Zimbardo & Boyd, 2008). Some researchers using various strategies and statistical methods have suggested different operationalizations of the BTP profile. Drake, Duncan, Sutherland, Abernethy, and Henry (2008) designated individuals scoring below the 33rd percentile on PN and PF and above it on PP, PH and F subscales as their BTP profile sub-sample. According to their analyses, 13 of 260 individuals (5%) were found to have the BTP profile. Stolarski, Bitter, and Zimbardo (2011) suggested a new operationalization of the BTP: deviation from a balanced time perspective (DBTP). Zhang et al. (2013) suggested that this method of indicating the BTP is superior to the cut-off or cluster analysis approach because it allows for more accurate evaluation of BTP. Specifically, DBTP values close to zero indicate an almost perfect BTP, whereas large positive values indicate maladaptive time perspective (i.e., an unbalanced BTP). However, the focus herein was on TP profiles in general, making the DBTP an unsuitable measure. TP profiles are perhaps best determined using person-oriented methods (e.g., cluster analysis, latent class analysis; Bergman, Magnusson, & El-Khoury, 2003; Bergman, 1998) because they allow for identifying different subgroups of individuals with similar patterns of scores in the TP components.

The person-oriented approach applied herein derives from the holistic-interactionistic research paradigm, wherein an individual is regarded as a complex system, functioning and developing as a totality but also comprising various subsystems at different levels (Magnusson, 1985, 1998, 2001). In the person-oriented approach, the focus is on obtaining information about the studied subsystem as a whole; in other words, the key aspects of the subsystem are regarded as indivisible from the person as a whole, and thus both the whole and its parts should be studied and interpreted simultaneously. In this way, the variables (i.e., subsystems) included in a profile are believed to reflect the studied system (Bergman, 1998; Bergman et al., 2003; Magnusson, 1998). This has parallels to Zimbardo and Boyd’s (2008) mention of a holistic present perspective indicating that “the past, the present, the future, the physical, the mental, and the spiritual elements in life are not separate but closely interconnected [within each individual]” (p. 110). With this background, it is expected that the different TPs interact and are formed during development in such a way that typical TP patterns may better reflect the structure of TP than, for instance, linear relationships between the components or a single score.

Boniwell, Osin, Linley, and Ivanchenko (2010) expanded on the search for the BTP profile by examining not only the BTP but also other possible TP profiles using the ZTPI. In addition to the five hypothetical TP profiles devised by Zimbardo and Boyd (1999; 2008; Boyd & Zimbardo, 2005)—labeled as present hedonistic (high PH and low F), future-oriented (low PH and high F), balanced (high PH and high F), risk-taking (high PH and high PF), and fatalistic (high PF, low PH, and low F)—Boniwell et al. (2010) included the two past TPs (PP and PN) not used by Zimbardo and Boyd to describe any of the hypothetical TP profiles, and applied a person-oriented approach using a hierarchical cluster analysis to identify TP profiles in two student samples (British and Russian). In both samples, they found five distinct TP profiles: the hedonistic/present-oriented profile, which included individuals with above-average scores on the PH and PP subscales, average scores on the PF subscale, and below-average on the PN and F subscales; the future-oriented profile, which included individuals with above-average scores on the F scale and below-average scores on the remaining TP subscales; the BTP profile, which included individuals with above-average/high scores on the PP and F subscales, below-average scores on the PH scale, and low scores on the PF and PN subscales; the negative TP profile, which included individuals with extremely high scores on the PN scale and extremely low scores on the PP scale, alongside above-average scores on the PF scale and below-average scores on the PH and F subscales; and the diffuse/risk-taking TP profile, which emerged only in the Russian sample and included individuals with above-average scores on the PF and PN subscales alongside above-average scores on the remaining TP subscales. Although Boniwell
et al. (2010) found as many profiles as had been suggested by Boyd and Zimbardo, the TPs making up these profiles only partially corresponded to those making up the hypothetical profiles. This indicates a need for more research to verify the established TP profiles. Furthermore, based on the results of the two samples—British and Russian—Boniwell et al. found that the profiles created via cluster analysis had more definitive characteristics compared to those formed according to cut-off criteria (e.g., above or below the 33rd percentile for different TPs), since cluster analysis allows for exploring the prevailing TP profiles in the sample or population. Additionally, the differences among the clusters on a number of variables were clearer than were the differences among the profile groups selected by the cut-off criteria. However, the cluster analysis used by Boniwell et al. and Zhang et al. (2013) lacked appropriate statistical criteria for evaluating the fit of the cluster structure, among other limitations.

As such, in the present study, the aim is to deepen knowledge of the typical TP profiles by using an advanced form of cluster analysis that allows to validate cluster solutions in a more sophisticated way, including assessment of the variance explained, homogeneity coefficients, and the statistical significance of the cluster solution. In addition, the present study examined how these TP profiles are associated with continuous measures of emotional, psychological, and social well-being as well as different categories of the mental health continuum (MHC)—including flourishing, moderately mentally healthy and languishing. These relationships have not been investigated, and deserve attention.

Well-being currently lacks a unified definition, and often well-being and mental health are used interchangeably. Ryan and Deci (2001) defined well-being as “optimal psychological functioning and experience” (p. 142), and that “well-being is not the absence of mental illness” (p. 142), which implicitly suggests that well-being is related to mental health. The World Health Organization views mental health as a complete state in which different features—physical, mental, and social well-being—interact in order to produce a state that is more than merely the absence of disease. Although physical, mental, and social well-being are often studied separately, it seems important to integrate mental and social well-being at the very least when studying TPs, since Zimbardo and Boyd (1999) conceptualized TP “as a foundational process in both individual and societal functioning” (p. 1271).

Keys (2002) suggested a model of mental health called the mental health continuum (MHC), which incorporates three indicators of an individual’s mental health: emotional well-being (EWB), psychological well-being (PWB), and social well-being (SoWB) (Keys, 2002; Keys et al., 2008). In incorporating EWB—operationalized as the predominance of positive affect over negative affect, which accords with the definition of overall satisfaction with life (and therefore synonymous with subjective well-being)—into his model, Keys considered both the hedonic and eudemonic paradigms of well-being (Ryan & Deci, 2001). Subjective well-being (SWB) is a key approach within the hedonic paradigm and refers to individuals’ cognitive and affective evaluations of their own life (Diener, 1994). PWB relates to the second research paradigm, eudemonism, which suggests that well-being is the actualization of human potential. Specifically, PWB comprises six dimensions: self-acceptance, personal growth, purpose in life, positive relations with others, environmental mastery, and autonomy (see Keyes, 2002; Keyes & Ryff, 2000; Keyes et al., 2008). Keyes (2002) argued that both EWB and PWB are rather private and personal evaluations of one’s functioning in life, and do not take into account the person in the social context (Keyes, 2002). Therefore, Keyes (2002) suggested that positive functioning also ought to include social challenges and tasks. Thus, he conceived SoWB, which comprises five dimensions: social coherence, social integration, social actualization, social contribution, and social acceptance (see Keys, 2002).

Because the MHC is a continuum, one end represents the presence of positive or complete mental health, called flourishing, and the opposite end represents incomplete mental health, labeled languishing, with moderately mentally healthy in between. Flourishing is characterized by experiencing positive emotions, high satisfaction with life, and high psychological and social functioning. Languishing individuals report low levels of well-being, characterized by few or a complete lack of positive emotions and a self-perception of low psychological and social functioning in life (Keyes, 2002).

Several researchers have examined the relationship between separate TPs and different aspects of well-being. A number of studies have shown that there are consistent relationships between different TPs and SWB (Boniwell et al., 2010; Drake et al., 2008; Zhang & Howell, 2010; Zhang et al., 2013). Specifically, having high PN scores is positively associated with negative affect and negatively associated with current life satisfaction, general life satisfaction, meaning in life, mindfulness, SWB, PWB, and SoWB. Having high PP scores is, in contrast, positively associated with these factors (Boniwell et al., 2010; Drake et al., 2008; Seema & Sircova, 2013; Stolarski et al., 2011; Stolarski et al., 2014; Vowinckel et al., 2015; Zhang et al., 2013; Zimbardo & Boyd, 1999). The power of time was also noted by Lyubomirsky, Sheldon, and Schkade (2005) in their sustainable happiness model, which proposes that savoring positive life experiences and interpreting negative events in a more positive light can benefit our behavioral decisions and mental evaluations and thereby sustain happiness and life satisfaction. In other words, a positive take on past experiences can promote SWB. Previously identified relations of PH and F with the different aspects of well-being are inconsistent. Vowinckel et al. (2015) noted positive relations of PH with EWB, PWB, and SoWB, and weak and nonsignificant relations of F with these aspects of well-being. In contrast, Zhang et al. (2013) reported significant positive correlations of PH and F with two aspects of well-being (life satisfaction and positive affect), while Boniwell et al. (2010) reported significant positive correlations of PH and F with positive affect and life satisfaction, respectively, but nonsignificant correlations of PH and F with life satisfaction and positive affect, respectively.

With regard to the BTP profile, individuals with this profile scored significantly higher on subjective happiness and mindfulness scales as compared to the rest of the sam-
ple (Drake et al., 2008). Boniwell et al. (2010) found that individuals with BTP profiles reported the highest levels of well-being in both the British and Russian samples, including increased positive affect, better affect balance, and higher scores on a self-actualization measure. In terms of well-being, the BTP profile was followed by the hedonistic and future-oriented profiles, while the negative TP profile reported the lowest levels of well-being (including increased levels of negative affect and lower scores on life satisfaction, purpose in life, and optimism). Individuals with low scores on the DBTP indicating more balanced TP, reported higher scores on SWB, vitality and gratitude and positive mental health in general (Zhang et al., 2013; Vowinckel et al., 2015).

In summary, although relationships between TPs and different aspects of well-being have been established, they have most often involved the independent contributions of TPs to different aspects of well-being, an approach that has been criticized by Boniwell and Zimbardo (2004). Only a few studies have investigated different TP profiles (e.g., Boniwell et al., 2010) and validated these profiles by investigating their differences for a number of important variables. Thus, the main purpose of the present study was to further investigate the typical TP profiles and clarify how these profiles relate to continuous measures of EWB, PWB, and SoWB. The secondary purpose was to examine whether individuals belonging to different MHC categories—flourishing, moderately mentally healthy, or languishing—are prone to having a specific TP profile. To my knowledge, no previous studies have been conducted on the relationship between the TP profiles and the various MHC categories.

Based on the research summarized above, at least five TP profiles are expected to emerge: (1) a BTP profile, involving high levels of PP and F as well as average PH; (2) a negative TP profile, involving high levels of PN and low levels of PP and F; (3) a present hedonistic TP profile, involving high levels of PH and low levels of F; (4) a future-oriented TP profile, involving a high level of PF and low levels of PH and F; and (5) a risk-taking TP profile, involving above-average levels of PH and PF. It is expected that individuals with the BTP profile would have the highest levels of well-being and that flourishing individuals would tend to have this profile. In contrast, it was expected that individuals with the negative TP profile would report the lowest levels of well-being and that languishing individuals would tend to have this profile. No specific TP profile was expected to be found among moderately mentally healthy individuals.

Method

Sample

Participants were undergraduate and postgraduate students of Lund University. The sample included 295 students; of these, 15 were excluded because they left a significant portion (40–80%) of the items unanswered (n = 10) or had outlying data (n = 5). Thus, the final sample size was 280 students (Mage = 25.15, SD = 6.39, range 19–57); of them, 249 (88.9%) were women. Two hundred twenty-one (78.9%) were undergraduates and 59 (21.1%) were postgraduates.

Procedure

Students recruited for the study at Lund University were asked to participate in research about time perception and well-being. Those who agreed to participate received written information about the study and were invited to contact the study leader with questions or concerns about the study. The participants’ identities were anonymous. It took about 10 minutes to complete the questionnaire. Written informed consent was obtained from all participants. Along with the questionnaire, participants also received an empty envelope and were instructed to put the form in the envelope and seal it, which was then collected by the test administrator. Participants received no financial compensation for their participation.

Measurements

Time perspective. The ZTPI (Zimbardo & Boyd, 1999) is a 56-item questionnaire with five subscales: PP (e.g., “It gives me pleasure to think about my past”), PN (e.g., “I think about the bad things that have happened to me in the past”), PH (e.g., “I do things impulsively”), PF (e.g., “Since whatever will be will be, it really doesn’t matter what I do”), and F (e.g., “I complete projects on time by making steady progress”). Each item is assessed on a 5-point Likert scale from 1 (very untrue of me) to 5 (very true of me). A Swedish version of the ZTPI was validated by Carelli, Wiberg, and Wiberg (2011). Carelli et al. translated the ZTPI into Swedish and then expanded on it by dividing the F subscale into “future positive” and “future negative.” The Swedish version of the ZTPI thus contains 64 self-report items, of which eight items are new and measure the future negative TP. The Swedish version of the ZTPI has been demonstrated to have high test-retest reliability (ranging from .60 to .85) for the different TPs. In order to facilitate comparison with other studies, only the F subscale (i.e., the future positive subscale as described in the Swedish version) was used in the present article. The obtained Cronbach’s alpha values in this study were as follows: .77 for PP, .83 for PN, .77 for PH, .64 for PF, and .72 for F.

Mental health. The aspects of the MHC were assessed with the long-form version of the MHC scale suggested by Keyes (2002), which comprises 41 items. This scale comprises seven items assessing EWB, Ryff & Keyes’ (1995) 18-item Psychological Well-being Scale, and 15 items derived from Keyes’ model of SoWB. EWB comprises two components, a cognitive component referring to life satisfaction, and an affective component referring to evaluations of positive affect. Life satisfaction is measured by using a single item—“Evaluate your life as a whole for the last 30 days”—for which answers are given on a nine-point scale ranging from 1 (terrible) to 9 (delightful). Positive affect was measured using six items (e.g., “In the last month, how often have you felt happy?”), and answers are given on a five-point scale ranging from 1 (always) to 5 (never). The internal consistency of the positive affect scale was found to be high (.91) in Keyes...
PWB was measured by Ryff & Keyes’ (1995) 18-item Psychological Well-being scale. This scale comprises six subscales: autonomy (e.g., “I have confidence in my opinions, even if they are contrary to the general consensus”), environmental mastery (e.g., “I am quite good at managing the many responsibilities of my daily life”), personal growth (e.g., “For me, life has been a continuous process of learning, changing, and growth”), self-acceptance (e.g., “I like most aspects of my personality”), purpose in life (e.g., “Some people wander aimlessly through life, but I am not one of them”), and positive relationships (e.g., “I have not experienced many warm and trusting relationships with others”; reverse coded). Responses are made on a 7-point Likert-type scale from 1 (“strongly disagree”) to 7 (“strongly agree”). The three-item subscales showed modest internal consistency in the present study (though very similar to the original, see Ryff and Keys, 1995), ranging from .40 for the purpose in life subscale to .65 for the environmental mastery subscale. The internal consistency of the combined 18-item scale was .78.

SoWB was assessed using 15 items described in Keyes’s (1998) model of SoWB, including three items in each of the subscales of social acceptance (e.g., “I believe that people are kind”), social actualization (e.g., “The world is becoming a better place for everyone”), social contribution (e.g., “I have something valuable to give to the world”), social coherence (e.g., “I find it easy to predict what will happen next in society”), and social integration (e.g., “I feel close to other people in my community”). Participants rate each item on a 7-point Likert-type scale from 1 (“strongly disagree”) to 7 (“strongly agree”). Keyes (1998, 2002) reported highly variable internal consistency for the subscales, ranging from .41 for the social acceptance subscale to .73 for the social integration subscale; for the total scale, the Cronbach’s alpha was .81. Similar internal consistency coefficients were obtained in the present study, ranging from .44 for the social acceptance subscale to .70 for the social contribution subscale and .80 for the entire scale.

The criteria for flourishing and languishing as suggested by Keyes (2002), which are as follows, were used. All well-being scales were divided by the number of constituent items, standardized, and broken into tertiles. Individuals with scores in the highest tertile on one of the two EWB scales and six of the 11 subscales of the PWB and SoWB scales were classified as flourishing. In contrast, participants with scores in the lowest tertile of one of the two EWB scales and six of the 11 subscales of the PWB and SoWB scales were classified as languishing. Individuals who did not meet either of these two criteria were considered moderately mentally healthy.

Statistical Procedures

The preliminary and correlational analyses were performed using SPSS version 22 (SPSS Inc., Chicago, IL, USA). Pearson correlations and ANOVAs were conducted to investigate the relationships between the TP subscales, TP profiles, and the well-being scales. Preliminary data checks were conducted to examine possible attrition and to ensure that there were no violations of the assumptions of linearity, normality, and homogeneity of variances. Although the dataset had some missing values, no item exceeded 5% missingness. A non-significant result using Little’s MCAR test was found, $\chi^2 (650) = 618.56, p = .81$, indicating that the missing values were missing completely at random; therefore, the missing values were replaced using the multiple imputation procedure (Baraldi & Enders, 2010). Inspection of histograms showed no clear deviations from normality. Although the well-being scales showed some negative skewness (not for LS, -31 for PA, -39 for PWB, and -37 for SoWB), this is considered common; additionally, the TP subscales showed both some positive and negative skewness ranging from -59 for PP to .26 for PN. The skewness, however, was clearly within the commonly used range of -1 to 1 (Hair et al., 1998); therefore, no transformations were performed. Levene’s test for equality of variance was conducted to ensure that homogeneity of variance was met.

A cluster analysis within the framework of the LICUR procedure (Bergman, 1998) was used to identify TP profiles such that all subjects belonging to one cluster are considered to have a similar typical profile. The SLEIPNER statistical package was used to conduct the cluster analysis (Bergman et al., 2003), which has several advantages compared to traditional statistical tools for cluster analysis. Specifically, it includes an analysis of the explained variance of cluster solutions, the homogeneity coefficients of the clusters, and an explicit procedure to test the statistical significance of the cluster solution (i.e., use of Monte Carlo simulations to create random data for comparison). This last benefit is particularly important because cluster analysis has been criticized for producing cluster solutions for any set of data, including those that are randomly generated (for a literature review and a discussion of the various methods for evaluating the results from person-oriented analyses, see Bergman et al., 2003). The homogeneity of the clusters refers to the extent to which the cluster means of the variables represent the individual profiles belonging to each cluster. The averaged squared Euclidean distances were computed between all members of each cluster, which represented the homogeneity coefficient ($h_C$). For the total cohort (i.e., a one-cluster solution), the $h_C$ is 2.00 for standardized variables. As a rule of thumb, clusters with values of below 1.00 are considered reasonably homogenous and therefore highly desirable.

The cluster analysis was conducted in three steps. First, multivariate outliers were identified and removed by means of the RESIDUE module of SLEIPNER. Second, the remaining subjects were cluster-analyzed using Ward’s (1963) agglomerative hierarchical method. Four criteria guided identification of an appropriate number of clusters to extract: (1) the size of the explained error sum of squares (EESS) for the chosen cluster solution should preferably not be less than 67%, and at the very least exceed 50%; (2) a pronounced drop in EESS and an increase in error sum of squares (ESS) should occur when a cluster solution with one less cluster is extracted; (3) the number of clusters should not be more than 15 and no less than five; and (4) the cluster solution should be theoretically meaningful.
The three well-being scales and subscales. The strongest inter-correlations were found between PP and PN, r = -.50, and PN and PF, r = .37 (both p < .001). Furthermore, PN was moderately negatively related to all well-being scales, while PP was moderately positively related to them. PF was negatively related to PWB and SoWB, and F was positively related to PWB and SoWB; however, both of these components had weak and nonsignificant relationships to life satisfaction and positive affect. PH was positively related to positive affect as well as PWB total and two of its subscales (self-acceptance and positive relations with others); it was negatively related to the PWB subscale purpose in life. No significant correlation was found between PH and life satisfaction or SoWB. Overall, PH had the weakest correlations with the well-being aspects compared to other TPs.

Table 1.  
Means (and SDs) and Pearson Intercorrelations between the Zimbardo Time Perspective Inventory Subscales

|       | 1   | 2     | 3    | 4    | 5    | M (SD) |
|-------|-----|-------|------|------|------|--------|
| 1. Past Positive  | --  | -.50*** | .18** | -.13* | .23*** | 3.85 (0.65) |
| 2. Past Negative   | --  | .05   | .37*** | -.08 | 2.92 (0.76) |
| 3. Present Hedonistic | --  | .33*** | -.17** | 3.36 (0.51) |
| 4. Present Fatalistic | --  | -.30*** | 2.68 (0.58) |
| 5. Future          | --  |       |       |       | 3.42 (0.56) |

Note. *p < .05; **p < .01; ***p < .001.

Table 2.  
Means (and SDs) for the Well-Being Scales and Pearson Correlations between the Zimbardo Time Perspective Inventory Subscales and Well-Being Scales

|            | Past Positive | Past Negative | Present Hedonistic | Present Fatalistic | Future | M(SD) |
|------------|---------------|---------------|--------------------|--------------------|--------|-------|
| Life satisfaction | .30***        | -.36***       | .10                | -.11               | .08    | 6.33 (1.54) |
| Positive affect     | .41***        | -.39***       | .25***             | -.13               | .07    | 3.53 (0.57) |
| Psychological well-being, total | .43***        | -.56***       | .13*               | -.29***            | .23*** | 5.26 (0.68) |
| Self-acceptance    | .51***        | -.55***       | .14*               | -.21***            | .19*** | 5.42 (1.02) |
| Positive relations with others | .40***        | -.42***       | .13*               | -.14*              | .06    | 5.34 (1.23) |
| Autonomy            | .07           | -.29***       | .10                | -.11               | .08    | 4.80 (1.10) |
| Environmental mastery | .31***        | -.51***       | .05                | -.24***            | .20*** | 4.98 (1.14) |
| Purpose in life     | .08           | -.05          | -.15**             | -.26***            | .26*** | 5.42 (0.98) |
| Personal growth     | .23***        | -.28***       | .08                | -.22***            | .24*** | 5.66 (0.97) |
| Social well-being, total | .37***        | -.47***       | -.01               | -.39***            | .19*** | 4.73 (0.81) |
| Social coherence    | .09           | -.29***       | -.00               | -.25***            | .02    | 4.09 (1.17) |
| Social actualization | .26***        | -.27***       | -.04               | -.25***            | .16**  | 4.75 (1.10) |
| Social integration  | .46***        | -.44***       | .08                | -.29***            | .15*   | 5.24 (1.08) |
| Social contribution | .26***        | -.40***       | .00                | -.26***            | .19**  | 5.21 (1.24) |
| Social acceptance   | .16**         | -.23***       | -.10               | -.26***            | .11    | 4.19 (1.14) |

Note. *p < .05; **p < .01; ***p < .001.
Cluster Analyses

Following the rationale outlined in the Method section, a cluster analysis was performed to identify the TP profiles. Before the cluster analysis, 11 multivariate outliers were removed as a residue, giving a final sample of 269 participants. Regarding the decision for the cluster solution, the four criteria mentioned previously were examined. First, the EESS for the seven-, six- and five-cluster solutions were 54.6%, 51.9% and 48.5%, respectively; thus, the EESS for the five-cluster solution was unsatisfactory, while those for the seven- and six-cluster solutions were satisfactory, albeit rather low. Second, increases were noted in ESS of 6.2, 7.4, and 8.9 for the seven-, six- and five-cluster solutions, respectively, indicating a gradual increase as the number of clusters decreased, whereas a sharp increase would indicate a clearer cut-off. The range of solutions was well within the range of the third criterion.

The final criterion, the theoretical meaningfulness of the cluster solution, decisively pointed towards a seven-cluster solution, because for the six-cluster solution, the clusters of the seven-cluster solution that were suggested to be merged were Cluster 2 (a distinctive hedonistic TP profile) and Cluster 6 (a rather diffuse cluster labeled the present-oriented TP profile). Although individuals in these two clusters reported similar scores on the PF and F subscales, they differed markedly in the remaining three TPs. The clusters of the seven-cluster solution were reasonably homogeneous, with homogeneity coefficients of about one or below (see Figure 1). The data simulation showed that the explained EESS was significantly higher than would be expected by chance (p < .01), indicating that the cluster solution was statistically significant.

Table 3 shows the means and SDs for the TP subscales of the typical TP profiles as well as the results of the one-way ANOVA.

Table 3
Means (and SDs) for the Time Perspective Scales for the Typical Time Perspective Profiles

| Variable             | Cluster profiles | Total F | Partial η² | Post hoc |
|----------------------|-----------------|---------|------------|----------|
|                      | Cl 1 | Cl 2 | Cl 3 | Cl 4 | Cl 5 | Cl 6 | Cl 7 |          |
| Past Positive        |      |      |      |      |      |      |      |          |
| (Past Positive)      | 4.3  | 4.5  | 4.0  | 2.9  | 4.3  | 3.9  | 3.5  | 3.9       |
|                      | (0.3) | (0.4) | (0.4) | (0.3) | (0.4) | (0.4) | (0.6) |          |
| Past Negative        | 2.1  | 2.1  | 3.4  | 3.6  | 3.2  | 2.9  | 3.0  | 2.9       |
|                      | (0.4) | (0.3) | (0.6) | (0.6) | (0.5) | (0.5) | (0.7) |          |
| Present              | 3.1  | 4.0  | 3.9  | 3.1  | 3.3  | 3.6  | 3.0  | 3.4       |
| Hedonistic           | (0.4) | (0.3) | (0.3) | (0.4) | (0.3) | (0.3) | (0.5) |          |
| Present              | 2.1  | 2.8  | 3.4  | 3.0  | 2.8  | 2.9  | 2.2  | 2.7       |
| Fatalistic           | (0.4) | (0.5) | (0.4) | (0.4) | (0.3) | (0.3) | (0.6) |          |
| Future               | 3.9  | 2.9  | 3.6  | 3.2  | 3.8  | 2.9  | 3.4  | 3.4       |
|                      | (0.4) | (0.6) | (0.2) | (0.4) | (0.2) | (0.3) | (0.5) |          |

Note. All F-scores significant at p < .001.

Figure 1.
Graphical illustration of the typical TP profiles with a 7-cluster solution.

Note. All variables were transformed to z+3 scores. hc = homogeneity coefficient.
Four distinct clusters emerged with distinct TP profiles. Cluster 1 (n = 58, 22%) was interpreted as the BTP profile and included participants who reported above-average scores on PP and F, low scores on PN and PF, and below-average scores on PH. Cluster 2 (n = 19, 7.1%) was interpreted as the hedonistic TP profile and included participants who reported high scores on PP and PH, low scores on PN and F, and slightly above-average scores on PF. Cluster 3 (n = 29, 10.8%) was interpreted as the risk-taking profile because it included participants who reported above-average scores on all TP subscales, with the highest scores (about 1 SD above average) on the PH and PF. Cluster 4 (n = 49, 17.5%) was interpreted as the negative TP profile because it included participants who reported very low scores on PP and high scores on PN, below-average scores on PH and F, and above-average scores on PF. The remaining three clusters, Cluster 5, 6, and 7 were less distinct: Cluster 5 (n = 32, 11.9%) could be interpreted as the diffuse/future-oriented TP profile, as it included participants who reported average scores on F as well as on PP and PN, alongside average scores on PH and slightly above-average on PF. Cluster 6 (n = 46, 17.1%) could be interpreted as the present-oriented TP profile, and included participants who reported above-average scores on PH and PF, average scores on PP and PN, and low scores on F. Cluster 7 (n = 38, 14%) was more difficult to interpret and was therefore labeled the diffuse TP profile; it included participants who reported average scores on PN and F and below average scores on PP, PH, and PF.

**Associations with the Well-Being Scales**

The trustworthiness of the cluster solutions was further studied by examining whether cluster membership was associated with the external variables in a way that fits with the theory. One-way ANOVAs with Tukey's HSD post hoc tests were conducted to evaluate differences among the clusters for these variables. As shown in Table 4 and Figure 2, there were significant and large differences among the clusters for all variables. Participants

Table 4

| Variable                  | Cluster profiles | Total | F    | Partial η² | Post hoc |
|---------------------------|------------------|-------|------|------------|----------|
|                           | Cl 1  | Cl 2  | Cl 3  | Cl 4  | Cl 5  | Cl 6  | Cl 7  |       |          |
| Life satisfaction         | 7.0   | 6.8   | 6.5   | 5.5   | 6.1   | 6.5   | 6.1   | 6.3   | 5.0     | .10      | Cl 4 < Cl 1, 2, 6. |
| Positive affect           | 3.7   | 3.9   | 3.7   | 3.1   | 3.5   | 3.6   | 3.5   | 3.5   | 10.8    | .20      | Cl 4 < all clusters. |
| Psychological well-being, total | 5.7   | 5.6   | 5.3   | 4.7   | 5.3   | 5.2   | 5.3   | 5.3   | 15.6    | .26      | Cl 1 > Cl 3, 4, 5, 6, 7; |
| Self-acceptance           | 6.1   | 6.1   | 5.7   | 4.4   | 5.4   | 5.4   | 5.3   | 5.5   | 24.5    | .36      | Cl 1, 2 > Cl 4, 5, 6, 7; |
| Positive relations with others | 5.8   | 6.2   | 5.5   | 4.4   | 5.3   | 5.4   | 5.3   | 5.4   | 9.1     | .17      | Cl 4 < all clusters; |
| Autonomy                  | 5.1   | 5.3   | 4.9   | 4.6   | 4.7   | 4.6   | 5.0   | 4.8   | 2.6     | .05      | — |
| Environmental mastery     | 5.7   | 5.6   | 4.8   | 4.3   | 5.1   | 4.8   | 4.8   | 5.0   | 10.2    | .19      | Cl 1 > Cl 3, 4, 6, 7; |
| Purpose in life           | 5.7   | 4.7   | 5.2   | 5.3   | 5.6   | 5.2   | 5.6   | 5.4   | 4.1     | .09      | Cl 1 > Cl 2; Cl 5, 7 > Cl 2. |
| Personal growth           | 6.0   | 5.6   | 5.7   | 5.0   | 5.7   | 5.7   | 5.9   | 5.7   | 6.2     | .12      | Cl 4 < Cl 1, 3, 5, 6, 7 |
| Social well-being, total | 5.3   | 5.1   | 4.6   | 4.0   | 4.8   | 4.6   | 4.8   | 4.7   | 14.7    | .25      | Cl 4 < Cl 3, 4, 5, 6, 7; |
| Social coherence          | 4.5   | 4.4   | 3.7   | 3.7   | 3.9   | 4.1   | 4.2   | 4.1   | 3.5     | .07      | Cl 1 > 3, 4 |
| Social actualization      | 5.2   | 4.9   | 4.7   | 4.0   | 4.9   | 4.7   | 4.8   | 4.7   | 5.6     | .11      | Cl 4 < Cl 1, 5, 6, 7 |
| Social integration        | 5.9   | 6.0   | 5.2   | 4.2   | 5.4   | 5.1   | 5.2   | 5.2   | 16.3    | .27      | Cl 1, 2 > Cl 6, 7; Cl 1 > 3; |
| Social contribution       | 5.8   | 5.5   | 5.3   | 4.4   | 5.3   | 5.2   | 5.2   | 5.2   | 7.4     | .15      | Cl 4 < Cl 1, 2, 5, 7 |
| Social acceptance         | 4.7   | 4.4   | 3.8   | 3.8   | 4.1   | 4.0   | 4.3   | 4.2   | 4.0     | .09      | Cl 1 > Cl 3, 4, 6 |

Note. All F-scores are significant at p < .001 except for the social coherence (p = .003) and autonomy subscales (p > .05)
included in the negative TP profile reported the lowest levels of well-being, scoring especially low on two of the six PWB subscales (self-acceptance and positive relations with others) and three of the five SoWB subscales (social integration, actualization, and social contribution). The BTP profile reported the highest levels of all well-being variables except for positive affect, though differences were smaller than were those found for the negative TP profile, and were often nonsignificant when compared to the hedonistic TP profile, with one exception—individuals included in the hedonistic TP profile scored very low on purpose in life.

Figure 2.
Standardized \((z + 3)\) mean well-being scores of the seven typical TP profiles.

\[ \begin{array}{ccccccc}
\text{CI 1} & \text{CI 2} & \text{CI 3} & \text{CI 4} & \text{CI 5} & \text{CI 6} & \text{CI 7} \\
\end{array} \]

Note. LS = life satisfaction; PA = positive affect; PWB = psychological well-being; SoWB = social well-being.

Time Perspective and Mental Health Categories

Following the rationale outlined in the Method section, participants were grouped into mental health categories based on their MHC scores. Of the 269 participants, 46 (17.1%) met the criteria for flourishing, 57 (21.2%) met the criteria for languishing, and 166 (61.7%) met the criteria for moderately mentally healthy.

To examine the TP profiles that flourishing, moderately mentally healthy, and languishing individuals have, the EXACON procedure in SLEIPNER was used, which enabled examination of whether an observed pattern occurs significantly more often than would be expected by chance. Such patterns are called types. The TP profiles and MHC categories were cross-tabulated and exact tests on single cells in two-way contingency tables using hypergeometric probabilities were performed. The results revealed two significant types. Flourishing individuals appeared to have the BTP profile about twice as often as would be expected by chance (observed: 26, expected: 10; \( \chi^2 = 25.8, p < .001 \) after Bonferroni correction). About 46% (26 of 57 individuals) of languishing individuals had the negative TP profile; the second, third, and fourth most prevalent profiles were present-oriented (Cluster 6; 16%), diffuse (Cluster 7; 16%), and diffuse/future oriented (Cluster 5; 12%), respectively. None of the languishing individuals had the BTP profile. Finally, as expected, no significant types were found among the moderately mentally healthy individuals, who were found to have diverse TP profiles including 23% in the BTP profile (Cluster 1), 18% in the present-oriented TP profile (Cluster 6), and 15% in the diffuse (Cluster 7) TP profile, among others.

Discussion

The main purpose of the present study was to clarify the typical TP profiles by using an advanced form of cluster analysis, and to examine how these profiles were associated with continuous measures of EWB, PWB, and SoWB. Furthermore, the study examined how these different profiles were associated with MHC categories, specifically what TP profiles that flourishing, moderately mentally healthy, and languishing individuals were most likely to have.

As expected, a BTP profile (21.6% of the sample) was found, which included individuals with high scores on PP and F, low scores on PN and PF, and below-average scores on PH. The profile corresponded very well with the profile found by Boniwell et al. (2010), though less well with the hypothetical profile suggested by Zimbardo and Boyd (1999; 2008). Both in the present study and in the British sample of Boniwell et al. (2010), individuals with the BTP reported below-average scores on PH, suggesting that the individuals with this profile focus less on daily excitement and risk-taking, but at the same time seem to enjoy life, given their high levels of life satisfaction and positive affect. In line with the results from other studies (e.g., Boniwell et al., 2010; Drake et al., 2008, Vowinckel et al., 2015) this profile was associated with higher levels of PWB; individuals with the BTP profile had especially high scores on purpose in life and personal growth, which was what primarily differentiated this profile from the present hedonistic TP profile. Furthermore, individuals with the BTP profile scored high on SoWB, with especially high scores on being accepted by their communities and seeing themselves as contributing to society. Additionally, as expected, the BTP profile was most common among flourishing individuals, which further validates the distinctiveness of the profile from other relatively well-functioning profiles such as the present hedonistic or future-oriented profiles, and supports Zimbardo and Boyd’s (1999) notion that the BTP profile is “psychologically healthy for individuals and optimal for societal functioning” (p. 1285).

The present hedonistic TP profile (7.1% of the total sample) included individuals who scored high on PP and PH, low on PN and F, and slightly above average on PF. This profile corresponds very well with the present hedonistic TP profile found in Boniwell et al. as well as Boyd and Zimbardo’s
theoretical definition. Although Kazakina (1999; as cited in Boniwell & Zimbardo, 2004) argued that a future TP is fundamental to well-being and positive functioning, the results of the present study were in line with the results by Drake et al. (2008) and Vowinckel et al. (2015), among others, and therefore appear to contradict that notion once again. Individuals who belonged to the present hedonistic TP profile reported high levels of well-being, especially life satisfaction and positive affect, despite their scores for the F being lower than those of the negative TP profile, which reported very low well-being. This result emphasizes the importance of studying TP profiles instead of individual TPs. Boniwell and Zimbardo (2004) notified that a combination of high scores on PP and PH in the same individual is associated with a greater likelihood of the individual developing enjoyable personal relationships, which is a key factor in both psychological and subjective well-being (Diener & Seligman, 2002). The results of the present study are in line with this notion, in that individuals with the present hedonistic TP profile reported the highest scores on positive relations with others. However, it is important to note that individuals with this TP profile reported the lowest levels of purpose in life as compared to the other profiles, which in combination with low scores on the F scale confirms the general description of the profile as individuals who enjoy their lives but have little commitment and unclear life goals (Boyd & Zimbardo, 2005).

The risk-taking profile found in the Russian students’ sample but not in the British sample in the study by Boniwell et al. (2010) was found in the present study, including individuals (10.8%) with above average scores on all TP subscales, with the highest scores being for PF and PH. Although Boyd and Zimbardo (2005; Zimbardo & Boyd, 2008) hypothesized high scores for only PF and PH for this profile, it is interesting to note that this profile is the only one that included individuals with above-average scores on all TPs. This makes this profile totally unexpected from a variable-oriented perspective. These individuals also reported high levels of positive affect, but low levels of social well-being, with especially low scores on social coherence and social acceptance. One of the possible explanations suggested by Boniwell et al. as to why this profile did not emerge in the British sample was cultural differences between the two samples, with Russians being more fatalistic than the British. However, this explanation does not hold for the Swedish sample. Furthermore, the cultural invariance of TP profiles has been reported by Sircova et al. (2015) across 24 countries, which suggests that TPs have similar structures among different cultures. Notably, the risk-taking TP profile resembles the intense-affect profile found in Bergman and Daukantaitė’s (2009) study, who were searching for typical patterns of subjective well-being. This cluster included women with high scores on both positive and negative affect, which is unexpected from a variable-oriented perspective, along with above-average life satisfaction. Interestingly, women in the intense-affect cluster scored high on the monotony avoidance subscale, indicating their higher need for change and action, thrill seeking, and avoiding routine.

As expected, a negative TP profile (17.5%) was found, which included individuals with very low PP, low F and high PN and PF. The profile in the present study corresponds well with the profile found in Boniwell et al. (2010), but only roughly with the fatalistic profile suggested by Boyd and Zimbardo (2005). Although Boniwell et al. proposed that their negative TP profile was comparable to the fatalistic profile, it is possible that this profile was not defined by Boyd and Zimbardo (2005) since they did not include the past-orientation TPs in their theoretical profiles, and the distinctiveness of this profile mainly derives from its past orientation. This is the case in both the present study and Boniwell et al., who also found that individuals with the negative TP profile exhibited extremely low scores (about 1.5 SD below average) on PP and high scores (about 1 SD above average) on PN, while scores on the other TPs did not differ much from the average. Although the BTP profile showed higher scores for all aspects of well-being as compared to the other profiles, the most striking differences among the profiles were found for the negative TP profile and all other profiles. Individuals with the negative TP profile reported very low scores on all well-being measures, which is in line with Boniwell et al.’s (2010) results. Furthermore, other studies that examined the relation of TPs with different psychological outcomes found that individuals who reported high PN tended to report low well-being, including high scores on depression and anxiety and low scores on optimism and self-esteem (e.g., Boniwell et al., 2010; Boyd & Zimbardo, 2005; Zimbardo & Boyd, 1999; van Beek et al., 2010). The results also suggest an intriguing thought—namely, that for general well-being, it is more important to not have the negative TP profile than to have the BTP profile. This line of reasoning is in accordance with a study by Robinson-Whelen Kim, MacCallum and Kiecolt-Glaser (1997) in studying optimism and pessimism in older adults. They concluded that it is more important for well-being to not to be pessimistic than it is to be optimistic. Furthermore, as expected, the negative TP profile was most common among languishing individuals.

The remaining three clusters were less distinct in terms of their combinations of TPs. They also corresponded less clearly with the profiles found by Boniwell et al. (2010), although the diffuse/future-oriented TP profile corresponded rather well with hypothesized profile suggested by Boyd and Zimbardo (2005), except of the elevated scores on PF. Notably, these three profiles showed differing levels of well-being, with the highest levels of life satisfaction and positive affect reported by the present-oriented TP profile as compared to other two profiles (the diffuse/future oriented and diffuse), while individuals included in the latter two profiles reported higher scores on both PWB and SoWB compared to the present-oriented TP profile. Further research with more diverse samples is needed to answer whether those profiles are truly less distinctive as compared to the above-mentioned profiles or whether variables that would have better distinguished these profiles were simply not included. Considering mental well-being as a continuum suggests the potential for people to move along the continuum. This is an important notion, not only for research applications, but also for clinical applications, since it might function as
an intervention tool allowing clinicians to define where on the MHC an individual is at a given time, as well as which aspects of mental well-being (social, psychological, or emotional) must be addressed. What causes individuals to shift towards the positive node (i.e., the node of flourishing) might be highly individualized. However, to consider mental health as a continuum implicitly suggests the involvement of time, and given that individuals’ TP can be changed with practice and awareness (Zimbardo & Boyd, 2008) as well as psychological interventions (Zimbardo, Sword & Sword, 2012; van Beek, Kerkhof, & Beekman, 2009), the findings on flourishing and languishing individuals’ TP profiles hint at what might underlie shifts towards each node of the continuum.

I might be accused of choosing too many clusters, as the cluster solution did not correspond to the number of theoretical profiles suggested by Boyd and Zimbardo (2005; Zimbardo & Boyd, 2008) or the empirical TP profiles found by Boniwell et al. (2010). However, as it is pointed out above, clear criteria were used for selecting the cluster solution. Furthermore, as it is noted in the result section, choosing fewer clusters would have resulted in more heterogeneous clusters, which to some degree might have resulted in less theoretical meaningfulness. Furthermore, it is important to note that, as argued by Bergman (1988), we cannot expect everyone in a sample to belong to one of these typical patterns. Additionally, TPs, although rather stable, can be affected by different situational factors (Zimbardo & Boyd, 1999) or flaws in the instrument used to measure TPs. These reasons may all have contributed to less distinct or more diffuse TP profiles.

Furthermore, Zhang et al. (2013) and Stolarski, Wiberg, and Osin (2015) criticized use of cluster analysis for identifying the BTP. Their main critique of the method was that it identifies few persons with BTP and diminishes comparability between the samples because, as Zhang et al. (2013) noted, cluster analysis and the cut-off method are “sample-dependent”; this dependency can therefore result in BTP profiles that differ from the hypothetical profile suggested by Zimbardo (2002). Regarding the first point, it is unlikely that many individuals would have the BTP profile because it is considered the ideal, “emphasizing harmony rather than a pre-determined norm” (Stolarski et al., 2011, p. 348). Furthermore, the majority of participants in research on TPs and TP profiles are young people, mostly students, which may reduce the number of individuals with the BTP profile. Since young adults’ lives are more turbulent, given their insecure employment and relatively unstable romantic relationships (Fincham & Cui, 2011), this together with other factors (e.g., economic and political crises in different countries) may influence their evaluation of TPs such that they choose a more pragmatic routine, such as living each day as it comes (Sircova et al., 2015). Regarding the second point, both cluster analysis and simpler analyses (e.g., correlational analyses) seem to be rather sample-dependent (as defined by Zhang et al., 2013), as indicated by the numerous mixed results mentioned in this study as well as in other studies. Using Zhang et al.’s (2013) definition of “sample-dependence,” the present study, in line with Boniwell et al.’s (2010) results, further support the notion that individuals with the BTP profile reported below-average PH, meaning that they deviated from the theoretically defined BTP profile.

Limitations

The study has some weaknesses. First, the data were entirely self-reported. The main shortcomings of such data concern shared-method variance, conscious distortion, social comparison, and situational and contextual factors that to some degree limit the conclusions. Second, the study was cross-sectional and correlational, meaning that the directionality of the relationships between TP and the aspects of well-being could not be assessed. Third, the sample comprised only students, the majority of whom were women, which limits the ability to generalize the results to more diverse populations.

Conclusions and Future Directions

Despite the above mentioned limitations, the study had some important findings. Primarily, the results uncovered a variety of trustworthy typical TP patterns. The seven clusters provided a classification with reasonably homogeneous TP subgroups, and the cluster solution indicated significant structures. Furthermore, the differences between the clusters in terms of the five TPs and the three aspects of well-being (EWB, PWB, and SoWB) were in many cases large, highly significant, and corresponded with theoretical expectations. The advanced form of cluster analysis allowed to validate the cluster solutions in a more sophisticated way, including evaluation of the amount of variance explained, homogeneity coefficients, and the statistical significance of the cluster solution. Moreover, the TP profiles found in the present study corresponded better to the TP profiles, especially the BTP profile, derived empirically by Boniwell et al (2010) than to those suggested by theory. However, the mismatch should be further evaluated in larger and more representative samples.

Furthermore, although a BTP is promoted as key to the good life (see Zimbardo & Boyd, 1999; 2008; Zhang et al., 2013), the results of both the present study and Boniwell et al. (2010) suggest that other TP profiles could contribute to the same. Thus, it would be of great importance to further study whether individuals with those profiles continue reporting high well-being over time. Furthermore, longitudinal research is needed to examine individuals’ TP trajectories across the lifetime and various situations. Do people switch to a different TP profile when facing difficult situations or economic/political crises and do they switch back when these situations change?
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