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Mind the balance, be contented: Balanced time perspective mediates the relationship between mindfulness and life satisfaction

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ABSTRACT

Both mindfulness and Balanced Time Perspective (BTP) are well confirmed and robust predictors of various aspects of well-being. In the present paper we argue that BTP may be considered one of the potential links between mindfulness and life satisfaction. We collected data from three samples, applying three different measures of mindfulness, as well as the Zimbardo Time Perspective Inventory and the Satisfaction with Life Scale. BTP was calculated using the Deviation from a Balanced Time Perspective index. Results have shown that BTP might mediate the relationship between mindfulness and life satisfaction. This effect was replicable across all three samples and for each of the mindfulness measures, however the causal relation between these constructs must be further examined in future studies. The results shed new light on the bases of BTP as well as mindfulness.

1. Introduction

Mindfulness has become central for both positive psychology and individual differences (e.g., Brown & Ryan, 2003; Giluk, 2009). The increasing popularity of this construct seems to be mainly a result of its well-confirmed benefits for health and well-being (Keng, Smoski, & Robins, 2011; Khoury et al., 2013) combined with the fact that mindfulness can be cultivated, resulting in highly desirable changes in important life outcomes (Shapiro, Oman, Thoresen, Plante, & Flinders, 2008). Personality psychologists have attempted to identify mindfulness' nomological network, aiming to uncover potential mechanisms through which mindfulness exerts its salubrious effects. For instance, Schutte and Malouff (2011) showed that emotional intelligence mediated between mindfulness and higher positive affect, lower negative affect, and greater life satisfaction, and Coffey and Hartman (2008) showed that emotion regulation, nonattachment, and rumination mediated between mindfulness and psychological distress. In the present paper we focus on the construct of Balanced Time Perspective, analyzing its mediating role between three measures of mindfulness and life satisfaction.

Shapiro, Carlson, Astin, and Freedman (2006) note that mindfulness is composed of three components: intention (why we do what we do), attention (self-regulated and present-oriented), and attitude (open hearted, friendly, curious). As a non-judging, present-oriented mode of consciousness that involves the awareness of awareness itself, of one's own cognition and affect other stimuli and sensations that are present in the moment (e.g., Bishop et al., 2004), mindfulness may enhance self-knowledge by increasing the amount of information one consciously receives, and by simultaneously attenuating ego-protective defense mechanisms that usually act to prevent information that contradicts positive and/or accustomed self-perception from entering conscious awareness (Carlson, 2013). As a certain kind of relating to the present moment, mindfulness can also be seen as a time perspective (TP) (Seema & Sircova, 2013; Zimbardo & Boyd, 2008).

1.1. Time perspective

Zimbardo and Boyd (1999) define TP as "*the often nonconscious process whereby the continual flows of personal and social experiences are assigned to temporal categories, or time frames, that help to give order, coherence, and meaning to those events*" (p. 1271). This perceptual process is dynamic, yet individuals usually put a relative emphasis or develop a habitual focus on one of the time frames, which results in the emergence of a relatively stable bias (Boniwell & Zimbardo, 2004), reflected in individual TP profile. In their conceptual model, Zimbardo and Boyd (1999) distinguished five TPs: Past Positive, Past Negative, Present Fatalistic, Present Hedonistic, and Future.

Our time is limited, and over-using one temporal category leads to under-using others. For instance, one may remain permanently focused on the future, achieving impressive career successes, but fail to achieve happiness, due to a developed inability to live in the present. Such temporal bias could be a consequence of a number of factors, including individual experiences, culture, religion, social class, education (Zimbardo &

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Boyd, 2008), personality (Dunkel & Weber, 2010), and traumas (Sword, Sword, Brunskill, & Zimbardo, 2014). The most adaptive attitude towards temporal frames has been labeled Balanced Time Perspective (BTP; Zimbardo & Boyd, 1999). The authors defined balance as "*the mental ability to switch effectively among TPs depending on task features, situational considerations, and personal resources, rather than be biased towards a specific TP that is not adaptive across situations*" (Zimbardo & Boyd, 1999, p. 1285).

Stolarski, Bitner, and Zimbardo (2011) provided a continuous indicator of BTP labeled Deviation from the BTP (DBTP). The method has been described as the most optimal among available methods of assessment of BTP using the Zimbardo Time Perspective Inventory (Stolarski, Wiberg, & Osin, 2015; Zhang, Howell, & Stolarski, 2013) and thus was applied in the present study.

1.2. BTP as a link between mindfulness and well-being.

There is increasing evidence that individual differences in TP are linked to well-being, even controlling for standard dimensions of personality (Zhang & Howell, 2011). TP predicts a variety of relevant criteria including life satisfaction (Boniwell, Osin, Linley, & Ivanchenko, 2010), health behaviors (Daugherty & Brase, 2010), mental health (Vowinckel, Westerhof, Bohlmeijer & Webster, in press) and transient moods (Stolarski, Matthews, Postek, Zimbardo, & Bitner, 2014). Each TP dimension is more or less strongly related to well-being (see Cunningham, Zhang, & Howell, 2015), but the most consistent effects were observed for BTP (e.g., Zhang et al., 2013).

Zimbardo and Boyd (1999) emphasize the fact that the temporal framing process is usually nonconscious and point out that most people rarely take a metacognitive perspective towards their perceptions of own past, future, and present (Zimbardo & Boyd, 2008). However, to develop a BTP one needs to become aware of TP, in order to increase flexibility in adapting to a current situation. Lennings (1998) highlighted the fundamental role of a strong sense of time awareness while describing the (most adaptive) actualizer temporal profile. Boniwell and Zimbardo (2004) followed his argumentation, stating that flexibility and 'switchability' are essential components of a BTP, and allow 'balanced' individuals to operate in a temporal mode appropriate to the situation in which they find themselves.

As Dreyfus (2011) argues, mindful attention must not necessarily be directed towards an object that is 'located' in the present moment. Hence, objects of mindful attention can also be (in) the past or the future. Since mindfulness is synonymous, or at least intrinsically associated with skills of self-regulation of attention, including flexibility, sustaining and switching of attention (Bishop et al., 2004) and 'in an optimally balanced time perspective, the past, present and future components blend and flexibly engage, depending on a situation's demands and our needs and values' (Zimbardo, 2002, p. 62), mindfulness is likely to be a fruitful context for facilitating the emergence and maintenance of BTP (cf. Drake, Duncan, Sutherland, Abernethy, & Henry, 2008; Vowinckel, 2012).

Empirical evidence supports the above reasoning. Mindfulness is positively associated with psychological flexibility (Fledderus, Bohlmeijer, Smit, & Westerhof, 2010), deautomatization of cognitive processes (Kang, Gruber, & Gray, 2013) and increased self-control (Leonard et al., 2013). BTP seems to emerge from these processes: a flexible switching between particular temporal perspectives is its core, whereas automatic and non-reflective, externally induced time horizon foci are typical for unbalanced TP profiles (Zimbardo & Boyd, 1999, 2008). Indeed, BTP and mindfulness are positively associated (Drake et al., 2008; Seema & Sircova, 2013; Vowinckel et al., in press).

1.3. The present study

In the present study we tested the potential role of BTP in the relationship between mindfulness and life satisfaction. In three studies applying different measures of mindfulness we examined whether the construct of BTP may shed new light on the mindfulness–satisfaction link.

2. Method

2.1. Measures

Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985) in the Polish (Jankowski, 2015) and Dutch (Steverink, Westerhof, Bode, & Dittmann-Kohli, 2001) translations were used. SWLS consists of five items scored with a seven-point (studies 1 and 2) or 5-point (study 3) Likert-type response format measuring global cognitive judgments of satisfaction with one's life.

Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003) in the Polish translation by Jankowski (2014) was used to measure dispositional mindfulness in study 1. MAAS consists of 15 items scored with a six-point Likert-type response format.

Freiburg Mindfulness Inventory (FMI; Walach, Buchheld, Buttenmüller, Kleinknecht, & Schmidt, 2006) in the Polish translation by Radoń (submitted for publication) was used to measure mindfulness in study 2. FMI consists of 14 items scored with a four-point Likert scale.

The Five Facet Mindfulness Questionnaire — Short Form (FFMQ—SF; Bohlmeijer, Ten Klooster, Fledderus, Veehof, & Baer, 2011) in Dutch version (Bohlmeijer et al., 2011) was used in study 3. FFMQ—SF contains 24 items rated on a five-point scale. We used the composite score of its five subscales.

The Zimbardo Time Perspective Inventory (ZTPI; Zimbardo & Boyd, 1999) in a Polish (Kozak & Mażewski, 2007) or Dutch (Vowinckel, 2012) version was used to measure TP. It comprises a total of 56 items rated on a five-point Likert scale and divided into five subscales: Past Negative, Present Hedonistic, Future, Past Positive, and Present Fatalistic.

Deviation from the Balanced Time Perspective (DBTP; Stolarski et al., 2011) based on the ZTPI scores was applied as an indicator of BTP (Zhang et al., 2013). Lower DBTP scores indicate a higher level of balance.

2.2. Participants and procedures

In study 1, participants were 219 undergraduate students (160 female) aged 18–40 years ($M = 21.2$, $SD = 2.5$) from two universities located in Warsaw. Most subjects were studying psychology and were tested in small groups (20–30 people) in classrooms just before class.

In study 2, participants were 191 subjects (138 female), aged 18–56 years ($M = 24.9$, $SD = 7.0$) invited via social media (mainly Facebook) and university website; all participants were native Polish speakers. Data were collected online using LimeSurvey survey tool (www.limesurvey.org).

In study 3, 124 participants (67 female), aged 19–43 years ($M = 24.3$, $SD = 3.4$) tested online were recruited among psychology students and via social networks. They were native German speakers ($n = 65$) studying in the Netherlands and native Dutch speakers ($n = 56$).

3. Results

3.1. Study 1

The correlation analysis revealed that life satisfaction was positively related to mindfulness and negatively to DBTP. Two hierarchical regressions were performed to test whether DBTP predicted unique variance in life satisfaction beyond mindfulness. The model with mindfulness as a sole predictor of life satisfaction was significant and accounted for 5% of the variance; entering DBTP into the regression model accounted for an additional 11% of the variance. Next, we conducted a second regression to investigate whether mindfulness predicted unique variance

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in life satisfaction beyond DBTP. We found that DBTP accounted for 14% of the variance in SWLS, while mindfulness accounted for an additional 2% of the variance.

In order to test the hypothesis that BTP would mediate the relationship between mindfulness and life satisfaction, we used the INDIRECT software by Preacher and Hayes (2008). The analysis (Fig. 1) revealed partial mediation. The total effect of mindfulness on life satisfaction ($\beta = .22$, $p < .001$) was significantly reduced upon the inclusion of the DBTP ($\beta = .14$, $p < .05$; indirect effect = .08, bias corrected 95% confidence interval [BC95%CI] from .02 to .16).

3.2. Study 2

In study 2 analyses were conducted in the very same way as in study 1. The results showed that mindfulness, BTP, and life satisfaction correlated in the same way as in study 1 (Table 1). Furthermore, regression analyses yielded similar results as in study 1; the variance in life satisfaction was uniquely explained by DBTP in 27% and mindfulness by 5%, whereas the shared variance between DBTP and mindfulness explained 13% of life satisfaction. Also, testing the mediation hypothesis showed results in line with those from the study 1 (Fig. 1). The total effect of mindfulness on life satisfaction ($\beta = .42$, $p < .001$) was significantly reduced upon the inclusion of the DBTP ($\beta = .23$, $p < .001$; indirect effect = .19, BC95%CI from .11 to .30).

3.3. Study 3

In study 3 analyses were conducted in the very same way as in previous studies. They yielded similar results as those observed in studies 1 and 2 regarding intercorrelations (Table 1), regressions, and mediation. Specifically, regression analyses showed that the variance in life satisfaction was uniquely explained by DBTP in 11% and mindfulness by 11%, whereas the shared variance between DBTP and mindfulness explained 9% of life satisfaction. Mediation analysis (Fig. 1) revealed that the total effect of mindfulness on life satisfaction ($\beta = .45$, $p < .001$) was significantly reduced upon the inclusion of the DBTP ($\beta = .34$, $p < .001$; indirect effect = .11, BC95%CI from .04 to .23).

It needs to be acknowledged that the conducted mediational analyses do not determine the causal relation between the tested constructs. In fact, one may also consider the reversed relations in the way that mindfulness mediates the relationship between DBTP and life satisfaction. Thus, we decided to test such models. In all three studies the indirect effects were significant, though weaker in comparison to these reported above (for study 1 −.03, BC95%CI from −.08 to −.04; for study 2 −.09, BC95%CI from −.15 to −.05; for study .3 −.10 BC95%CI from −.19 to −.045).

Table 1
Descriptive statistics, correlations and alphas of variables from studies 1, 2 and 3.

	DBTP	MAAS	FMI	FFMQ-SF	SWLS
DBTP 1		−.23*			−.38*
2			−.35*		−.52*
3				−.32*	−.45*
SWLS		.22*	.42*	.45*	
M 1	2.35	59.65			21.97
(SD)	(.69)	(10.60)			(5.52)
2	2.31		34.81		22.00
	(.80)		(7.33)		(6.30)
3	2.21			81.12	18.20
	(.69)			(9.95)	(3.83)
α 1		.82			.80
2			.83		.86
3				.80	.84

Note: DBTP — Deviation from Balanced Time Perspective, MAAS — Mindful Attention Awareness Scale, FMI — Freiburg Mindfulness Inventory, FFMQ-SF — Five Facet Mindfulness Questionnaire — Short Form, SWLS — Satisfaction with Life Scale. The numbers (1, 2, 3) in the left column refer to studies 1, 2, 3 respectively. DBTP is a joint indicator of BTP, and thus calculating Cronbach α was not possible.

* $p < 0.001$.

4. Discussion

In previous studies BTP has been linked to various measures of subjective well-being. From a theoretical perspective, awareness of one's own TPs should strongly facilitate BTP or probably even enable its emergence. Mindfulness can be interpreted as an individual difference variable that defines general individual degree of conscious awareness and ability to self-regulate attention. Therefore, we expected mindfulness to predict BTP which is known to predict subjective well-being (Zhang et al., 2013). Indeed, our results support the hypothesis that BTP may play a notable role in the relationship between mindfulness and life satisfaction.

BTP and mindfulness shared a considerable portion of variance (5–12%), thus, the expectation that these constructs are related was confirmed. The novel finding is that this covariance partly explains the well-established link between mindfulness and well-being. The mindful 'temporal balancing' may be an important correlate of mindfulness associated with its desirable influences, here manifested in elevated life satisfaction. It is worth noting that the effect was observed for each of the three applied measures of mindfulness and across three independent samples, providing initial evidence for a generalized character of this mechanism.

The presented results are in line with previous research and clinical observations. For instance, Seema and Sircova (2013) stated that mindfulness is a TP and, simultaneously, it is the awareness of one's TPs as well as a central aspect of BTP. A similar conclusion could be derived from

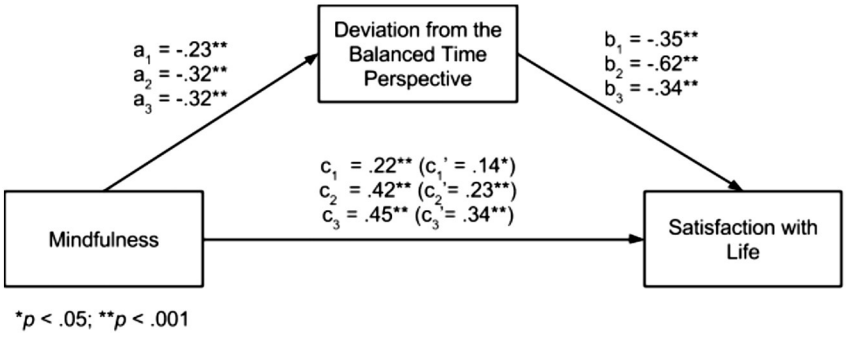

Fig. 1. Relationships between mindfulness, BTP and life satisfaction from three studies. a*b represents indirect effect, c′ is the direct and c is the total effect of mindfulness on life satisfaction (numbers accompanying letters refer to studies 1, 2, and 3, respectively).

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practical applications of TP theory — both TP-based therapy (Sword et al., 2014) and coaching practice (Boniwell & Osin, 2015) build their interventions on a process of facilitating awareness of a client's/patient's TP in order to foster an ability to 'manage' their TP focus. According to Zimbardo, Sword, and Sword (2012), such 'temporal management' is effective if one develops a deeper sense of being in the present, i.e., the holistic present TP. Such a highly adaptive, novel TP dimension could be described in terms of meta-temporal perspective, which brings past memories and future goals to the present moment and integrates all these time horizons into an enhanced experience of self-coherence and continuity. Mindfulness can be considered as an individual disposition facilitating this development of meta-cognitive temporal self-regulation ability. This ability may provide foundations for the development of BTP, which in turn results in elevated life satisfaction. If so, the present results might be important for clinical interventions: mindfulness training could provide a practical means of increasing BTP and characteristics influenced by BTP.

It is worth emphasizing that both mindfulness and BTP proved their incremental validity in predicting life satisfaction. Thus, although 'temporal balancing' seems to be one of the mechanisms mediating mindfulness and life satisfaction, it is certainly not the only one. On the other hand, features other than the 'mindful' aspect of BTP (e.g., unpleasant life events reflected in Past Negative level) also seem to play a significant role in development and/or maintenance of life satisfaction. In other words, mindfulness is by no means reducible to BTP, and basing on our theoretical considerations we believe that the overlap between these constructs results mainly from the 'attention' aspect of trait mindfulness, whereas 'attitude' and 'intention' components (Shapiro et al., 2006) seem by definition far less related to temporal balance. However, the opposite is also true: BTP is a complex construct, and although being mindful may support its development, its nature and adaptive consequences go beyond those resulting from individual differences in trait mindfulness.

As the mediation effects were only partial, it is more than probable that some other mechanisms mediate the association between mindfulness and life satisfaction. For instance, the analogic mediating effect of emotional intelligence reported by Schutte and Malouff (2011) proved even stronger. Future studies should then analyze BTP together with other possible intermediate links, e.g., relationship quality, self-coherence or emotional intelligence, in order to uncover a possibly complete set of mediators of the relationship between mindfulness and well-being.

Although we used three different measures of trait mindfulness in order to strengthen empirical support for our reasoning, our results are still limited due to broadness of the concept. For several reasons, such as the complexity of the concept, as well as intercultural differences in its interpretation, measuring mindfulness is an ongoing challenge for scientific psychology (e.g., Bergomi, Tschacher, & Kupper, 2013; Dreyfus, 2011; Grossman & Van Dam, 2011). Eight self-report measures of mindfulness are available that assess a variety of different aspects and facets of the overall concept (Bergomi et al., 2013). Furthermore, the traditional Buddhist conceptualization of mindfulness, in which it is one of eight intertwined elements that compose the noble eightfold path, which leads to the end of suffering (Bodhi, 2006), is hard, if not impossible, to measure using psychometric methods.

It should also be noted that the method we used to assess BTP is not the only one, though it is considered to be one of the most valid (Stolarski et al., 2015; Zhang et al., 2013).

There have been various attempts to provide an indicator of 'temporal balance'. Drake et al. (2008) proposed a cut-off point method and Boniwell et al. (2010) used a cluster analysis approach. The above methods refer to ZTPI, while for an alternative instrument for measuring BTP, see the (modified) Balanced Time Perspective Scale (BTPS: Webster, 2011; mBTPS: Vowinckel et al., in press). The main problem with all these methods, including DBTP, is that they provide 'static' indicators of balance, i.e., they do not take into account the ability to dynamically switch between particular time horizons, emphasized in the BTP definition. However, according to Zimbardo and Boyd (2008) the 'optimal' ZTPI profile makes the three 'positive' TPs (i.e., Past Positive, Present Hedonistic and Future) sufficiently accessible, and, at the same time, it prevents from frequently taking the 'maladaptive' TPs (Past Negative and Present Fatalistic).

Our studies have the limitations characteristic of cross-sectional design and self-report measurement. Single-measurement studies do not allow to conclude about mediation, understood as an illustration of a chain of cause-and-effect. A test for reverse causation revealed that although the alternative models are weaker, they remain significant, and thus the interpretation proposed here should be treated with proper caution. It would be then desirable to test for the effects of mindfulness training on TP profile, and also determine whether eventual shifts towards BTP could explain beneficial effects of such trainings on various aspects of well-being. Another limitation is related to the issue of generalizability of the present results: although we obtained consistent results in three different samples, and using various measures of mindfulness, the study did not involve a standard replication procedure. The process of data collection differed between samples (paper-pencil vs. online survey); studies 1 and 2 were conducted on Polish samples, whereas study 3 on a sample comprising both Dutch and German participants. On the one hand these issues should be treated as limitations, but on the other hand a stability of the partial mediation effect across such differentiated samples may be also interpreted as evidence for its generalizability. In the present paper we focused solely on the cognitive aspect of well-being, i.e., life satisfaction. Future studies should verify whether the proposed model could be extrapolated to the affective component of subjective well-being (i.e., positive/negative affect) and to aspects of eudaimonic well-being.

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