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Adaptability and psychological flexibility: Overlapping constructs?

Daniel Waldeck[1], Luca Pancani[2], Andrew Holliman[3], Maria Karekla[4], & *Ian Tyndall[5]

[1] Department of Psychology, Coventry University, UK.

[2] Department of Psychology, University of Milano-Biccoca, Italy

[3] Institute of Education, University College London, UK

[4] Department of Psychology, University of Cyprus, Cyprus

[5] Department of Psychology, University of Chichester, UK

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Author email contact details: Daniel Waldeck, ac8416@coventry.ac.uk; Luca Pancani, lucapancani15@gmail.com, Andrew Holliman, a.holliman@ucl.ac.uk; Maria Karekla, mkarekla@ucy.ac.cy; Ian Tyndall, I.Tyndall@chi.ac.uk;

*Corresponding Author:

Dr. Ian Tyndall

Department of Psychology, University of Chichester, College Lane, Chichester, West Sussex,

PO19 6PE, UK. Email: I.Tyndall@chi.ac.uk

Abstract

Adaptability is purported to be a key mental resource and refers to an individual's cognitive, behavioral, and emotional regulation (or adjustment) in situations of change, novelty, and uncertainty. Psychological flexibility refers to a person's capacity to allow experience and acceptance of negative thoughts and feelings with mindful awareness guided by a commitment to goal-driven action according to their self-chosen values. It is important to disentangle these cognate constructs—adaptability and psychological flexibility—so that the unique variance attributable to each can be estimated, and interventions and resources can be directed with greater precision. The current study explored the potential overlap between adaptability and psychological flexibility by conducting an online cross-sectional survey (n = 205), with measures of adaptability, psychological flexibility, wellbeing, and psychological distress. A confirmatory factor analysis suggested considerable overlap, but sufficient discrimination between the two constructs. Structural equation modelling showed that adaptability was related to psychological wellbeing, but not related to psychological distress after accounting for the effects of psychological flexibility.

Keywords: adaptability, psychological flexibility, acceptance and commitment therapy, wellbeing.

Introduction

The ability to adjust (or adapt) one's behaviors in response to changing (and potentially challenging) environments is known to promote positive psychological wellbeing outcomes (Martin et al., 2013; Zhou & Lin, 2016). Specifically, according to the tripartite model, adaptability refers to an individual's cognitive, behavioral, and emotional regulation (or adjustment) in situations of change, novelty, and uncertainty (Martin et al. 2012). Cognitive adjustment reflects changes or modifications in thinking in response to novel situational demands. Behavioral adjustment refers to modifications in the type, magnitude, and intensity of behavior to deal with new and uncertain circumstances (see Martin et al., 2013), while affective adjustment builds upon Gross's (1998) perspective that typical emotional response tendencies may be modulated in order to respond more effectively to novelty and uncertainty in the person's environment. As the focus of adaptability is typically on novelty and uncertainty (Ployhart & Bliese, 2006) within transition phases in a variety of life domains (e.g., adolescence, education, career change), rather than adversity, trauma, or exceptionally difficult circumstances, it has been argued that, while related, it is distinct from other constructs involving emotional self-regulation resources such as resilience, coping, and buoyancy (see Martin et al., 2013, for a review).

Resilience is sometimes conceptualized as a buffering response to severe or chronic adversities that could damage or hinder a person's developmental process (e.g., Masten, 2001). Buoyancy reflects a capacity to work through everyday difficulties or challenges (e.g., failing a driving test, upcoming university exam). Coping is traditionally viewed (e.g., Lazarus & Folkman, 1984) and defined as an individual's perceptions or appraisal that they do not have the resources to deal with specific situational demands, often adversity-related.

Thus, while adaptability appears similar to these other constructs, it is sufficiently distinct in terms of scope.

Adaptability has been associated with a range of psychological wellbeing outcomes . For example, while Dyson and Renk (2006) referred to adaptation rather than adaptability per se, they reported a negative relationship between adaptation and levels of stress and depressive symptoms in a sample of first year university students. Within the context of workplace settings, Maggiori, Johnston, Krings, Massoudi, and Rossier (2013) found a positive correlation between career adaptability and both general and professional wellbeing. Moreover, Martin et al. (2013) showed that adaptability was a predictor of subjective wellbeing (positive) and psychological distress (negative) in a sample of Australian adolescents. Furthermore, Martin et al. reported that adaptability explained singular variance beyond other factors such as self-regulation and buoyancy, thus supporting that wellbeing is distinctly influenced by cognitive, behavioral, and affective adjustments to uncertainty and novelty. Thus, adaptability would seem an important resource for an individual's healthy psychological functioning in different contexts.

Psychological Flexibility

Another key self-regulation construct that may overlap with the concept of adaptability, is psychological flexibility. Psychological flexibility refers to the "ability to contact the present moment more fully as a conscious human being, and to change or persist in behavior when doing so serves valued ends" (Hayes et al., 2006, p. 6). It is a broad construct comprising six distinct sub-component processes: acceptance, cognitive defusion, self-as-context, present moment awareness, values clarification, and committed action (Hayes et al., 2006). Psychological inflexibility, on the other hand, refers to a behavioral pattern of excessive control of a person's thoughts, feelings, and emotions, with a tendency to avoid

unpleasant internal experiences at the expense of more effective or valued actions (Hayes et al., 2006; Levin et al., 2014). Similarly, psychological inflexibility comprises six sub-processes: experiential avoidance, cognitive fusion, self-as-content, lack of present moment awareness, lack of values, and lack of commitment to action (Levin et al., 2014). The target in Acceptance and Commitment Therapy (ACT) is to facilitate psychological flexibility and reduce psychological inflexibility (Hayes et al., 2012).

Kashdan and Rottenberg (2010) argued that psychological flexibility (typically considered the opposite end of spectrum to psychological inflexibility; but see Makriyianis et al., 2019; Rolffs et al., 2018; for arguments for viewing psychological inflexibility and flexibility as distinct processes) contributes to psychological wellbeing via the capacity to flexibly *adapt* responses or behavior in order to meet the demands of a particular situation or personal goals (see also Morris & Mansell, 2018, for a review of rigidity/flexibility and psychopathology). Thus, it seems that a core feature of psychological inflexibility is a lack of adaptability in the face of challenging situations or contexts. No research to date has directly examined the relation between adaptability and psychological flexibility. This is somewhat surprising considering that Hayes et al. (1996) suggested that "one cost [of psychological inflexibility] is that a stenotopic condition - a narrow range of *adaptability* to changes in environmental conditions - ensues" (p. 1160).

Similar to research findings on lower levels of adaptability in adolescents (e.g., Martin et al., 2012, 2013), low levels of psychological flexibility in children (e.g., Simons & Verboon, 2016) and adolescents (e.g., Greco et al., 2008; Muris et al., 2017) correlates with poorer mental health and wellbeing outcomes, which may propagate into adulthood. For example, Markriyianis et al. (2019) found that exposure to self-reported adverse childhood experiences (ACEs) lowered psychological flexibility, and this in turn increased levels of depression and anxiety in university students.

Adaptability & Psychological Flexibility

Similar to adaptability being considered a separate construct to coping, buoyancy and resilience, psychological flexibility is also proposed to be associated but different from coping (Karekla & Panayiotou, 2011). Indeed, Gloster et al. (2011) reported that psychological flexibility was a sufficiently unique construct within a broad study of psychological wellbeing and psychopathology measures adding unique variance beyond well-validated measures of depression, anxiety, and stress as well as anxiety sensitivity and neuroticism. Furthermore, there is also recent evidence that mindfulness (a component of psychological flexibility) is positively associated with adaptability (Elphinstone et al., 2019). There appears good theoretical reason, then, to examine the potential overlap between adaptability and psychological flexibility, given that both appear distinct from more well-established self-regulatory constructs such as coping and resilience (e.g., Gloster et al., 2011; Karekla & Panayiotou, 2011; Martin et al., 2013), but also that both consider cognitive, behavioral, and emotional responses to life events. Indeed, as there is a need for more intervention work to improve one's levels of adaptability (see Holliman, Collie, & Martin, 2020), an overlap between these two constructs may suggest potential pathways for interventions (e.g., ACT-based processes) to improve how one adapts in challenging or novel situations (e.g., navigating the stress of starting study at university). This is important, as levels of psychological flexibility have been shown to be malleable and amenable to change with process-based intervention techniques (e.g., Gloster, et al., 2017; Hayes et al., 2006; Levin et al., 2012). In other words, little is known at present about how to enhance levels of adaptability whereas much is known about how to improve psychological flexibility; thus, interventions that successfully enhance psychological flexibilty could potentially be adapted to increase adaptability in novel and uncertain situations.

The relation between measures of the constructs

Psychological flexibility—at least as measured by the Acceptance and Action Questionnaire-II (AAQ-II Bond et al., 2011) which is used in the present study because it is by far the most widely employed instrument in the literature —focuses more directly on one's emotions/feelings (rather than behaviors and cognitions) and its perceived impact on one's quality of life. For example, while items from the Adaptability Scale (Martin et al., 2012) focus more on 'situations' of novelty/uncertainty and one's perceived ability to self-regulate under these conditions (e.g., "When uncertainty arises, I am able to minimize frustration or irritation so I can deal with it best."), the AAQ-II focuses more explicitly on the overall impact of emotions on one's life (e.g., "Emotions cause problems in my life."). Given that both constructs fall under the self-regulation umbrella and capture affective dimensions, one would expect there to be overlap. However, given adaptability's focus on 'situations' of novelty/uncertainty, specifically, and the AAQ-II's focus on affect (solely) and its link with one's perceived quality of life (more general than situational analysis) they are likely to be separable.

The Present Study

The current paper investigates the conceptual overlap between adaptability and psychological flexibility. As both constructs incorporate a focus on self-regulation of novel and/or stressful events, it is important to disentangle these cognate constructs so that the unique variance attributable to each can be estimated, and interventions and resources can be directed with greater precision. Moreover, our secondary aim within this paper was to establish the predictive validity of adaptability and psychological flexibility once the overlap was tested. It has been argued that when assessing psychological wellbeing outcomes it is important to include measures of both wellbeing and distress (Hone et al., 2014). Therefore, we have included a measure of psychological distress and positive psychological functioning (i.e., wellbeing) to capture more of a range of wellbeing outcomes. Given that prior research

has demonstrated that adaptability and psychological flexibility are significant predictors of psychological wellbeing outcomes, we expected similar associations for psychological distress and wellbeing (positive functioning).

Method

Participants

Participants (n = 233) were recruited from a variety of online platforms (e.g., www.reddit.com/samplesize; www.socialpsychology.org), completed the survey via Bristol Online Surveys software, and were entered in a £50 monetary prize draw as compensation. We screened for potential inattentive responders (see Meade & Craig, 2012) by asking participants to select strongly disagree on a bogus item (flag variable). 28 participants were removed from the dataset as they did not answer correctly (e.g., selected 'agree' in response to the item), which left a total sample of 205. Of the remaining participants, the majority identified as female (67.8%). Ages ranged from 18 to 71 years (M = 31.91 years, SD = 13.79). Most participants were currently residing in the USA (54.2%), the United Kingdom (14.8%), or Canada (7.9%), and identified themselves as white/Caucasian (74.6%). Regarding occupation, participants were either employed (48.3%), in full-time study (31.2%), unemployed (16.6%), with 3.9% refusing to answer. Those who were employed worked in a broad array of occupations including education (20.3%), health and social care (18.7%), engineering (5.6%), computing (4.8%), arts and entertainment media (4.3%), among many others. Ethical clearance was obtained from the Institutional Ethics Committee prior to the collection of data.

Measures

Adaptability.

Adaptability was assessed using the Adaptability Scale (Martin et al., 2012). The scale comprises nine items that assess cognitive-behavioral (e.g., "I am able to adjust my thinking or expectations to assist me in a new situation if necessary"), and affective factors (e.g., "When uncertainty arises, I am able to minimize frustration or irritation so I can deal with it best"). A 7-point Likert scale was used for each item, with participants rating themselves from 1 (strongly disagree) to 7 (strongly agree). Prior research has shown that the scale functions well when the dimensions of adaptability (i.e., cognitive-behavioral; affective) are combined into a global factor considering they are highly interrelated (e.g., Martin et al., 2013). Prior research has also provided evidence of good reliability, structural and construct validity for this scale (e.g., Collie et al., 2017; Martin et al., 2015). In this study, Cronbach's Alpha was .90.

Psychological Flexibility.

Psychological flexibility was assessed using the seven-item Acceptance and Action Questionnaire-II (AAQ-II; Bond et al., 2011). A 7-point Likert scale from 1 (never true) to 7 (always true) was adopted for each item. The AAQ-II was chosen for this study as it the most widely utilised measure of psychological flexibility in the empirical literature. Prior research has demonstrated good reliability of the scale (e.g., Bond et al., 2011). However, the discriminant validity has recently been questioned (see Discussion section). In this study, Cronbach's alpha was .93.

Psychological Distress.

We used the Depression Anxiety and Stress Scales (DASS-21; Henry & Crawford, 2005; Lovibond & Lovibond, 1995) to assess psychological distress. A 4-point Likert scale

from 0 (did not apply to me at all) to 3 (applied to me very much or most of the time) was adopted for each item. The DASS-21 has been shown to have strong reliability and structural validity in assessing a general psychological distress factor (see Henry & Crawford, 2005). In this study, Cronbach's alpha was .94.

Wellbeing (positive functioning).

Psychological wellbeing (i.e., self-perceived success in relationships, self-esteem, purpose, and optimism) was assessed using the 8-item Flourishing Scale (Diener et al., 2010; $\alpha = .90$). A 7-point Likert scale from 1 (strongly disagree) to 7 (strongly agree) was adopted for each item. Previous research has shown strong reliability and validity for this scale (Diener et al., 2010; Howell & Buro, 2015). In this study, Cronbach's alpha was .90.

Analysis Plan

A confirmatory factor analysis (CFA) was conducted to test the degree of overlap between adaptability, measured by the Adaptability Scale (Martin et al., 2012), and psychological flexibility, measured by the Acceptance and Action Questionnaire-II (Bond et al., 2011). Following the CFA, three path analysis models were run to test the possible relationships among the four variables of interest[1]. Specifically, Model 1 (M1) tested whether and how the two hypothesized outcomes (i.e., psychological distress and well-being) were influenced by psychological flexibility and adaptability, which were found to be correlated. Model 2 (M2) was equivalent to M1, but psychological distress was treated as an exogenous independent variable, predicting all the other three variables in the model. This allowed for testing of the relationships between our two focal predictors (i.e., psychological flexibility and adaptability) and well-being, controlling for psychological distress. Given the cross-

[1] We also included age and gender as predictors of each factor to control for their influence. However, as neither were central to our design we do not include these in the results for this brief report.

sectional nature of the study design, a further model (M3) tested the same causal relationships as in M1, but in the opposite direction (i.e., predictors replaced outcomes and *vice versa*). As the three models were just-identified (meaning they had 0 degrees of freedom), their fit was perfect and they could not be compared using any inferential test. Thus, fit indices were not reported and the models were descriptively compared based on the proportion of explained variance, which was computed as the ratio between the sum of all the r_s-squared and the maximum amount of variability. All the analyses were run using the software Mplus, version 7 (Muthén & Muthén, 2012).

Results

All questions were subject to forced-choice responding. Therefore, there was no missing data within the dataset. Means, standard deviations, and bivariate correlations among the key variables are presented in Table 1. Adaptability had a significant large positive correlation with psychological flexibility ($r = .52$, $p < .001$).

< Insert Table 1 about here >

Testing the Overlap

Following indications by Martin et al. (2012), two first-order factors of adaptability (i.e., cognitive-behavioral and affective adaptability), as well as a second-order factor of global adaptability, were estimated on the Adaptability Scale's items. Moreover, a psychological flexibility factor was estimated on the AAQ-II items. The correlation between global adaptability and psychological flexibility was also estimated.

Before conducting the CFA, the Mardia test (Mardia, 1970) was used to check the multivariate normality of data. Results showed high values of multivariate skewness (57.62) and kurtosis (366.97) that significantly differed at level $p < .001$ from those estimated based

on 200 replications (skewness: $M = 23.57$, $SD = 1.27$; kurtosis: $M = 285.47$, $SD = 3.08$), indicating multivariate non-normal distribution of the data. Thus, maximum likelihood with robust standard errors and a mean- and variance-adjusted chi-square statistic (i.e., MLMV) was used as the estimation method.

The results of the CFA are graphically reported in Figure 1. The chi-square test was associated with a significant probability, $\chi^2(102) = 202.10$, $p < .001$, and the SRMR exceeded the recommended level of .08, SRMR = .128. However, the chi-square test is strongly influenced by the sample size (Bentler & Bonnet, 1980) and the SRMR has no penalty for model complexity, we relied on other indices. The other indices showed acceptable values, RMSEA = .069, RMSEA 95% C.I. [.052, .086], CFI = .917, TLI = .902, indicating a good fit of the model (Brown, 2015; Kline, 2015). Standardized item loadings ranged from .65 to .87, whereas the cognitive-behavioral factor and the affective factor loaded .92 and .65 on the global adaptability factor, respectively. A large positive correlation, $r = .52$, $p < .001$, was observed between global adaptability and psychological flexibility (i.e., inverse of negative correlation with psychological inflexibility in Figure 1).

< Insert Figure 1 about here >

Path Analysis Models

The results of the three models are graphically displayed in Figure 2. In M1, psychological flexibility negatively predicted psychological distress and positively predicted well-being. Moreover, adaptability significantly and positively influenced well-being, but not psychological distress. The relationship between psychological distress and well-being was negative and their explained variance were .41 and .43, respectively.

In M2, all the regression coefficients were significant. The relationships between the two focal predictors and well-being were comparable to those found in M1. Psychological

distress significantly and negatively predicted all the other three variables in the model. Concerning the explained variance, psychological flexibility, well-being, and adaptability showed r_s-squared equal to .55, .43, and .21, respectively.

As for M2, the regression coefficients estimated in M3 were all significant. Specifically, both psychological flexibility and adaptability were negatively predicted by psychological distress and positively predicted by well-being, and their r_s-squared were .61 and .29, respectively.

Although an inferential test could not be performed, the three models were descriptively compared using the ratio between the sum of all the r_s-squared and the total amount of variability. The overall explained variance was 28.1% for M1, 31.7% for M2, and 24.7% for M3.

< Insert Figure 2 about here >

Discussion

The goal of the present study was to examine the extent of the overlap between adaptability and psychological flexibility. It also aimed to examine the predictive validity of adaptability and psychological flexibility on psychological outcomes (wellbeing and distress). Results from the confirmatory factor analysis suggest that there is an overlap between adaptability and psychological flexibility but that the constructs are also sufficiently distinct when assessed with the two scales used in the current study. Consistent with previous accounts, adaptability predicted psychological wellbeing (Hirschi, 2009; Martin et al., 2013; Zhou & Lin, 2016). Similarly, psychological flexibility was associated with greater

psychological wellbeing which replicates the effects noted in the empirical literature (e.g., Bond et al., 2011; Gillanders et al., 2014; Gloster et al., 2017).

The results from the path analyses indicated that adaptability was not a significant predictor of psychological distress after accounting for the effects of psychological flexibility. This might imply that effects pertaining to adaptability are more prevalent to wellbeing rather than distress. Indeed, there is limited research focusing on adaptability and psychological distress, thus further research is required to explore these effects further. However, although we did not account for such results in our initial hypotheses, the findings are somewhat unsurprising considering that the construct validity of the AAQ-II has recently been questioned (e.g., Tyndall et al., 2019; Rochefort et al., 2018). For example, Tyndall et al. (2019) reported that the AAQ-II had poor discriminant validity from psychological distress. Thus, the AAQ-II appears to be overinflated with the *outcome* of psychological flexibility/inflexibility rather than the *process* (see Wolgast, 2014). Similarly, the AAQ-II has been demonstrated to have concerns over item sensitivity (Ong et al., 2019). Therefore, researchers may consider adopting additional more recently developed measures of psychological flexibility (e.g., Francis et al., 2016; Rolffs et al., 2018) when further exploring this line of research. It should be noted that recent data suggests that the AAQ-II performs similarly to such recently developed measures of psychological flexibility (see Ong et al., 2020). As such, researchers may consider including a battery of psychological flexibility measures in order to examine the relationship between adaptability and psychological flexibility in greater depth.

Limitations and Future Directions

The present paper has some limitations that should be noted. All measures collected were self-report and poses the risk of potential biased responding and common method variance (Podsakoff et al., 2012). Despite taking steps to screen out inattentive responders,

such limitations constrain the inferences that can be made from our data. For example, we cannot generalize our findings to explain everyday behavior and can only make inferences based on consistency of scoring across these specific measures of the constructs. Moreover, it could be argued that using a cross-sectional design (in a general population sample) is particularly disadvantageous to the adaptability measures. Specifically, the data collected appears more specific to novel and uncertain situations, and so may be expected to be more 'predictive' of distress and wellbeing under particular (e.g., acute stress) conditions that are unlikely to be captured in the applied design. This study, however, is focused on exploring an initial proof-of-concept, and as such we acknowledge that further research is required to examine the relationship between adaptability and psychological inflexibility using longitudinal designs. Therefore, we recommend that future researchers consider using cross-lagged designs to capture changes in exposure to stressors/demands that may better elucidate (dynamic and situated) processes of adaptability and psychological flexibility.

It is important to note that there could be alternative explanations for our findings. For example, the association between our predictors (flexibility and adaptability, respectively) and wellbeing outcomes could potentially be explained by a shared factor of high positive affectivity or low negative affectivity. However, we included psychological distress as a control variable (as a proxy for affectivity), and noted that the relationship between flexibility and wellbeing was maintained. As such, in the context of this study, we deem it unlikely that the results are due to a shared factor. However, future researchers may consider including control variables such as affectivity (e.g., the international positive and negative affect schedule; Thompson, 2007) when exploring this line of research further to rule out such explanations for these associations.

The size of our sample was somewhat small for the analyses that were conducted in this study. However, this is a preliminary proof-of-concept paper so the focus was on

exploring initial effects which future researchers can then test for reliability and validity, and as such a smaller sample size was sufficient for our purposes. It should be noted, however, that our sample size is consistent with other empirical studies which have tested the overlap between psychological flexibility and related constructs (e.g., Karekla & Panayiotou, 2011; Marshall & Brockman, 2016) as well as studies which examine the relationship between adaptability and wellbeing outcomes (e.g., Collie & Martin, 2017; Holliman, Revill-Keen, et al., 2020).

The diversity of our sample can be considered a strength, however, we did not have sufficient statistical power to examine differences by country of origin or racial identity. As such, the results of this study are limited in regards to the application to different demographic groups. However, there was no theoretical reason to expect any demographic differences in this study. Future researchers may consider collecting data from large samples from multiple countries to examine any potential cross-cultural effects.

Conclusion

The present study supports the findings in the literature that adaptability is a predictor of positive psychological wellbeing outcomes (e.g., Martin et al., 2013). Moreover, we found that adapability and psychological flexibility have considerable overlap, but can be considered unique constructs. We also found preliminary evidence that adaptability is not a significant predictor of psychological distress after accounting for the effects of psychological inflexibility. However, considering the recent debate about the construct validity of the AAQ-II, further examination is required to elucidate the predictive validity of psychological flexibility in this context before any firm conclusions can be made. This paper provides an initial proof-of-concept, which we hope that researchers will take forward to examine the mechanisms of adaptability and psychological flexibility further.

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Table 1. Means, standard deviations, and correlations between study variables (*N*=205).

Variables	1	2	3	4
1. Adaptability				
2. AAQ-II	.54**			
3. DASS-21	-.41**	-.73**		
4. Wellbeing	.46**	.59**	-.55**	
Mean	47.51	24.16	36.94	39.76
SD	9.00	10.16	26.39	9.81

Note: ** p <.001.

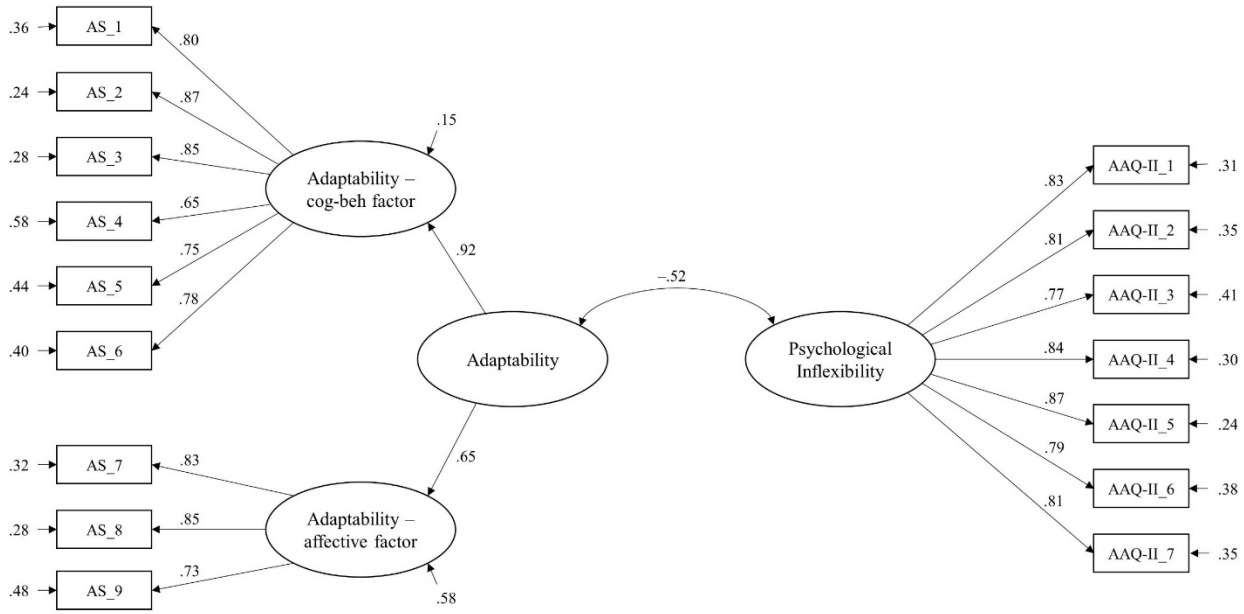
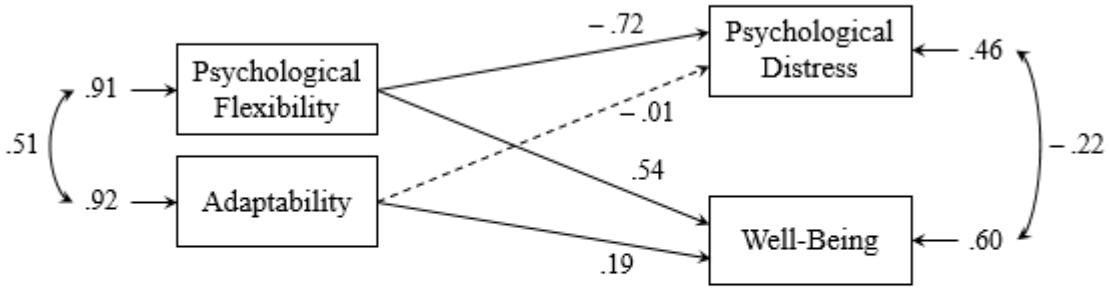


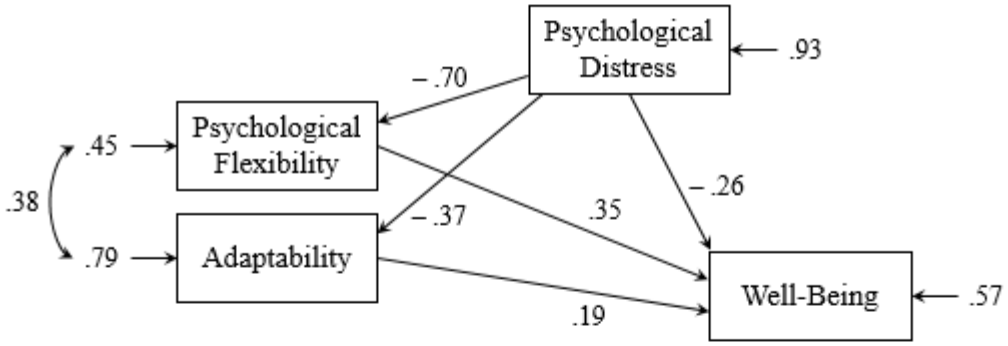
Figure 1 – The results of the confirmatory factor analysis: standardized coefficients are displayed (note: Psychological Inflexibility is just the inverse of Psychological Flexibility).

Note. Fit indices: $\chi^2(102) = 202.10$, $p < .001$; RMSEA = .069, 95% C.I. [.052, .086]; CFI = .917; TLI = .902; SRMR = .128.

A) Model 1 (M1): Unique predictive links



B) Model 2 (M2): Psychological distress as a control for shared method variance



C) Model 3 (M3): Psychological flexibility and adaptability as outcomes

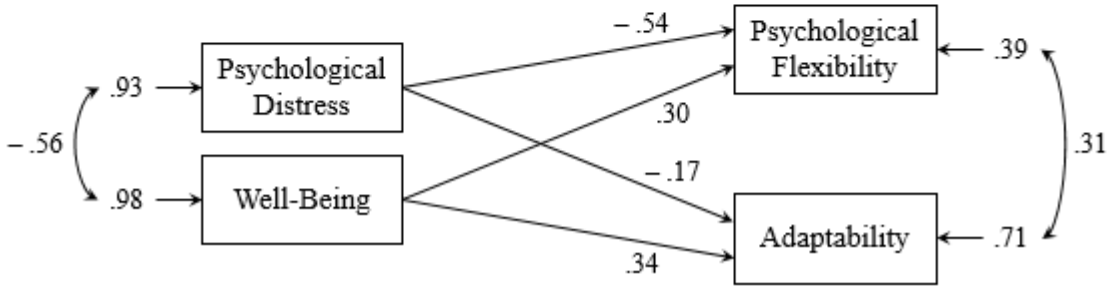


Figure 2 – The results of the three path analysis models: standardized coefficients are displayed.

Note. Dotted lines represent non-significant regression paths ($p > .05$). The path models were fully saturated and therefore demonstrated perfect fit.