The affective profiles in the USA: happiness, depression, life satisfaction, and happiness-increasing strategies

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ABSTRACT

Background. The affective profiles model categorizes individuals as self-fulfilling (high positive affect, low negative affect), high affective (high positive affect, high negative affect), low affective (low positive affect, low negative affect), and self-destructive (low positive affect, high negative affect). The model has been used extensively among Swedes to discern differences between profiles regarding happiness, depression, and also life satisfaction. The aim of the present study was to investigate such differences in a sample of residents of the USA. The study also investigated differences between profiles with regard to happiness-increasing strategies.

Methods. In Study I, 900 participants reported affect (Positive Affect Negative Affect Schedule; PANAS) and happiness (Happiness-Depression Scale). In Study II, 500 participants self-reported affect (PANAS), life satisfaction (Satisfaction With Life Scale), and how often they used specific strategies to increase their own happiness (Happiness-Increasing Strategies Scales).

Results. The results showed that, compared to the other profiles, self-fulfilling individuals were less depressed, happier, and more satisfied with their lives. Nevertheless, self-destructive individuals were more depressed, unhappier, and less satisfied than all other profiles. The self-fulfilling individuals tended to use strategies related to agentic (e.g., instrumental goal-pursuit), communal (e.g., social affiliation), and spiritual (e.g., religion) values when pursuing happiness.

Conclusion. These differences suggest that promoting positive emotions can positively influence a depressive-to-happy state as well as increasing life satisfaction. Moreover, the present study shows that pursuing happiness through strategies guided by agency, communion, and spirituality is related to a self-fulfilling experience described as high positive affect and low negative affect.

INTRODUCTION

Besides being markers of well-being (*Diener, 1984*), positive (PA) and negative affect (NA) have been shown to reflect stable emotional-temperamental dispositions (e.g., *Watson & Clark, 1994*; *Tellegen, 1993*). *Larsen & Ketelaar (1991)*, for example, showed that individuals who experience high levels of PA, compared to individuals who experience low levels of PA, attend and react more intensely to positive stimuli. Likewise, individuals who experience high levels of NA, compared to individuals who experience low levels of NA, attend and react more intensely to negative stimuli (see also *Norris, Larsen & Cacioppo, 2007*; *Lucas, 2008*; *Lucas & Diener, 2008*). One of the most used instruments to measure affect is the Positive Affect and Negative Affect Schedule (PANAS; *Watson, Clark & Tellegen, 1988*) which was developed on the idea that PA and NA represents two orthogonal independent dimensions: high PA versus low PA and high NA versus low NA (see also *Watson & Tellegen, 1985*).

Presenting affect as being composed of two systems, each one of them categorized as high and low, leads to four different combinations beyond the two-system approach (*Garcia, 2011*; for a point of view on two-system theories see *Keren & Schul, 2009*). In this line of thinking, Archer and colleagues have developed the affective profile model through self-reported affectivity using the PANAS, generating four different profiles: self-fulfilling (high PA, low NA); high affective (high PA, high NA); low affective (low PA, low NA); and self-destructive (low PA, high NA) (e.g., *Norlander, Bood & Archer, 2002*; *Bood, Archer & Norlander, 2004*; *Norlander, Johansson & Bood, 2005*; *Archer et al., 2007*; *Karlsson & Archer, 2007*; *Palomo et al., 2007*; *Palomo et al., 2008*; *Archer, Adolfsson & Karlsson, 2008*).

Self-fulfilling individuals report feeling more energetic and optimistic than the other three affective profiles (*Archer et al., 2007*), while all four profiles react differently to stress and have different exercise habits and blood pressure. Self-fulfilling and high affective individuals show the best performance during stress, have a more active life, and lower blood pressure than individuals with low affective and self-destructive profiles (*Norlander, Bood & Archer, 2002*; *Norlander, Johansson & Bood, 2005*). Nevertheless, *Kunst (2011)* showed that high affective profiles, as self-destructive profiles, were strongly associated with increased posttraumatic stress disorder symptoms severity (for similar results among psychiatric patients see *Zöller & Archer, 2009*; *Zöller, Karlsson & Archer, 2009*). Moreover, while low affective profiles have responded maladaptively to induced stress, compared to self-fulfilling and high affective individuals (*Norlander, Bood & Archer, 2002*), they have at the same time reported less stress in their life, as the self-fulfilling profiles (*Norlander, Johansson & Bood, 2005*). Thus, the affective profile model offers something unique over and above the single dimensional framework by taking into account how both dimension interact. These interactions can be used to investigate individual differences in cognitive and emotional aspects of health and well-being (for a review see *Garcia et al., 2013a*).

Most past research using the affective profile model among adults has focused on measures of ill-being. Nevertheless, other important aspects of mental health are positive measures of well-being (*Cloninger, 2004*; *Cloninger, 2006*). Happiness, for example, can be usefully understood as the opposite end of depression (e.g., *Joseph et al., 2004*; *Russell*

& *Feldman Barrett, 1999*; *Watson et al., 1999*; *Yik, Russell & Feldman Barrett, 1999*). Life satisfaction, another positive measure of well-being (*Diener, 1984*; *Bradburn, 1969*; *Diener et al., 1999*; *Pavot, 2008*), refers instead to a comparison process in which individuals assess the quality of their lives on the basis of their own self-imposed standard (*Pavot & Diener, 1993*).

Recent studies among adolescents have, indeed, focused on differences among profiles with respect to different measures of well-being, personality and self-regulation (e.g., *Garcia & Siddiqui, 2009a*; *Garcia & Siddiqui, 2009b*; *Garcia et al., 2010*; *Garcia, 2009*; *Garcia, 2011*; *Garcia, 2012a*; *Garcia & Archer, 2012*; *Garcia et al., 2012*; *Garcia, 2013*). Garcia and colleagues have found that, compared to the other profiles, individuals with a self-fulfilling profile reported higher satisfaction with life, higher psychological well-being, lower depressive symptoms, and scored higher in personality traits related to agentic values (i.e., autonomy, responsibility, self-acceptance, intern locus of control, self-control). Nevertheless, low affective individuals, compared to self-destructives, have reported being more satisfied with life and experiencing higher levels of psychological well-being (e.g., *Garcia & Siddiqui, 2009b*). These specific findings are also in line with the observations that low affectives and self-fulfilling individuals, report less stress in their lives (*Norlander, Johansson & Bood, 2005*). Moreover, *Garcia (2012a)* also showed that high affective and self-destructive profiles, compared to self-fulfilling and low affectives, scored higher on Neuroticism. This is not surprising, because Neuroticism is almost synonymous with negative affectivity (*Watson & Clark, 1984*; *Tellegen, 1985*)—both the high affective and self-destructive profiles have high levels of NA as a common characteristic, PA is instead suggested as strongly positively related to Extraversion. These differences in personality and well-being among profiles are suggested to, in accordance to *Higgins*' (*1997*) prevention and promotion focus principles, result in differences in how individuals increase their happiness levels (i.e., by approaching happiness or avoiding unhappiness). Although there are current measures of happiness-increasing strategies, this suggestion has not been investigated in earlier research using the affective profiles model.

Happiness-increasing strategies

In order to intentionally pursue happiness, people seem to use different strategies. *Tkach & Lyubomirsky (2006)* have identified, using an open-ended survey first, 53 happiness-increasing strategies used by residents of the USA (for studies using this scale among Swedes see, *Garcia, 2012b*; *Nima, Archer & Garcia, 2012*; *Nima, Archer & Garcia, 2013*). *Tkach & Lyubomirsky (2006)* found, using factor analysis, eight factors: Social Affiliation (e.g., "Support and encourage friends"), Partying and Clubbing (e.g., "Drink alcohol"), Mental Control (e.g., "Try not to think about being unhappy"), Instrumental Goal Pursuit (e.g., "Study"), Passive Leisure (e.g., "Surf the internet"), Active Leisure (e.g., "Exercise"), Religion (e.g., "Seek support from faith") and Direct Attempts (e.g., "Act happy/smile, etc.").

Results have shown that these happiness-increasing strategies accounted for 52% of the variance in happiness, while the Big Five personality traits, which traditionally have

been linked to happiness, accounted for 46%. Further, even after controlling for the contribution of personality, the happiness-increasing strategies accounted for 16% of the variance in happiness. However, these relationships might not be a direct one. For example, Extraversion, which is strongly related to high PA (*Larsen & Ketelaar, 1991*), is related to the use of the Social Affiliation strategy, which, in turn, is related to happiness. *Tkach & Lyubomirsky (2006)* suggested that the efficacy of the happiness-increasing strategies is also likely to vary to some extent. However, the strategy that was the most robust predictor of low levels of happiness was Mental Control, which was closely related to Neuroticism. This strategy is defined as ambivalent intentional efforts aimed, on one side and avoidance of negative thoughts and feelings as well as proneness towards contemplation of negative aspects of life on the other. Regarding the affective profiles, if the profiles differ in the way they pursue happiness (i.e., approaching happy experiences versus preventing unhappy experiences), then it could be expected that the profiles differ in the use of the strategies described here. For example, it could be expected that high PA profiles should score higher in strategies such as Social Affiliation and Active Leisure due to the close positive relationship between Extraversion and PA. High NA profiles could be expected to score higher in strategies such as Mental Control, because the positive relationship between Neuroticism and NA.

The present study

To the best of our knowledge, the affective profiles model has been mostly used among Swedish participants. Some cultures explain the world as good and controllable and others emphasize negative emotions as normal (*Myers & Diener, 1995*; *Diener, Suh & Oishi, 1997*). In this context, it is interesting to notice that the right to pursuit individual happiness is listed as an absolute right in the United States of America's Declaration of Independence (*Tkach & Lyubomirsky, 2006*). The model, however, has shown identical results in the few studies using other populations (for three studies using Dutch, Indonesian, and Iranian, participants, respectively see *Kunst, 2011*; *Adrianson et al., 2013*; *Garcia & Moradi, 2013*).

The aim of the present study was to investigate differences in happiness, depression, life satisfaction and use of strategies to increase happiness among affective profiles in residents of the United States of America (US residents).

STUDY I

Method

Ethics statement

This research protocol was approved by the Ethics Committee of the University of Gothenburg and written informed consent was obtained from all the study participants.

Participants and procedure

The participants ($N = 900$, age *mean* $= 28.72$ *sd.* $= 19.10$, 550 males and 350 females) were US residents recruited through Amazons' Mechanical Turk (MTurk; https://www.mturk. com/mturk/welcome). MTurk allows data collectors to recruit participants (workers) online for completing different tasks in change for wages. This method for data collection

online has become more common during recent years and it is an empirical tested valid tool for conducting research in the social sciences (see *Buhrmester, Kwang & Gosling, 2011*). Participants were recruited by the following criteria: US resident and ability to speak and write fluently in English. Participants were paid a wage of two American dollars for completing the task and informed that the study was confidential and voluntary. The participants were presented with a battery of self-reports comprising the affect and happiness measures, as well as questions pertaining to age and gender.

Instruments

Positive Affect and Negative Affect Schedule (*PANAS; Watson, Clark & Tellegen, 1988*). The PANAS instructs participants to rate to what extent they generally have experienced 20 different feelings or emotions (10 PA and 10 NA) during the previous weeks, using a 5-point Likert scale (1 = *very slightly*, 5 = *extremely*). The 10-item PA scale includes adjectives such as strong, proud, and interested. The 10-item NA scale includes adjectives such as afraid, ashamed and nervous. *Cronbach's α* were .87 for PA and .89 for NA in the present study.

The Short Depression-Happiness Scale (*Joseph et al., 2004*). This instrument consists of six items, three items measuring happiness (e.g., "I felt happy") and three reverse-coded items measuring depressive states (e.g., "I felt my life was meaningless"). Participants rate how frequently they feel the way described in the item on a four-point scale: "*never*", "*rarely*", "*sometimes*", "*often*". In the present study, *Cronbach's α* was .85 for the happiness scale and .76 for the depression scale.

Statistical treatment

We used participants' self-reported affect measured by the PANAS from both Study I and II ($N = 1,400$) in order to classify participants in the four affective profiles. Participants' PA and NA scores were divided into high and low (*cut-off points*: low PA = 3.0 or less; high PA = 3.1 or above; low NA = 1.8 or less; and high NA = 1.9 or above).

For Study I, the two independent variables of the study were gender and affective profiles: self-fulfilling ($n = 241$; 153 males, 88 females), low affective ($n = 236$; 137 males, 99 females), high affective ($n = 180$; 115 males, 65 females), and self-destructive ($n = 243$; 145 males, 98 females). The dependent variables were PA, NA, happiness, and depression.

Results and discussion

A Multiple Analysis of Variance (MANOVA) indicated a significant effect for gender ($F(4, 889) = 4.32$; $p = .002$, $Eta^2 = 0.02$, *power* = 0.93) as well as for affective profile ($F(12, 2673) = 162.19$; $p < .001$, $Eta^2 = 0.42$, *power* = 1.00). The interaction of gender and affective profile was not significant ($p = .236$). A between-subjects ANOVA showed significant gender effects for happiness ($F(1, 892) = 7.60$; $p = 0.006$), whereby the female participants expressed a higher level of happiness ($M = 9.66$, $SD = 2.13$) than the male participants ($M = 9.35$, $SD = 2.33$).

A between-subjects ANOVA indicated significant affective profile effects for PA ($F(3, 892) = 513.78$; $p < .001$), NA ($F(3, 892) = 503.58$; $p < .001$), happiness ($F(3, 892)$

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Table 1 Mean scores in PA, NA, happiness and depression for each affective profile in Study I.

	Self-fulfilling $n = 241$	High affective $n = 180$	Low affective $n = 236$	Self-destructive $n = 243$
Positive Affect	$3.66 \pm 0.44^{c,d}$	$3.59 \pm 0.41^{c,d}$	$2.37 \pm 0.52^{a,b}$	$2.36 \pm 0.50^{a,b}$
Negative Affect	$1.27 \pm 0.21^{b,d}$	$2.20 \pm 0.51^{a,d}$	$1.24 \pm 0.21^{b,d}$	$2.45 \pm 0.61^{a,b,c}$
Happiness	$10.65 \pm 1.77^{b,c,d}$	$10.02 \pm 1.94^{a,c,d}$	$9.37 \pm 2.22^{a,b,d}$	$7.99 \pm 2.12^{a,b,c}$
Depression	$4.80 \pm 1.75^{b,c,d}$	$5.92 \pm 1.85^{a,d}$	$5.75 \pm 2.21^{a,d}$	$7.57 \pm 2.35^{a,b,c}$

Notes.

Values represent mean scores $\pm$ SD. $p < 0.01$.

[a] Bonferroni test: compared to self-fulfilling.

[b] Bonferroni test: compared to the high affective.

[c] Bonferroni test: compared to the low affective.

[d] Bonferroni test: compared to the self-destructive.

$= 68.20; p < .001$), and depression ($F(3, 892) = 71.50; p < .001$). A Bonferroni correction to the alpha level of .01 showed that the self-destructive group had significantly higher scores in NA and depression as well as lower scores in happiness in comparison to the other affective profiles. The self-fulfilling group differed significantly from the self-destructive profiles in all measured variables: PA, NA, happiness and depression. As expected, the high affective ones differed significantly from the self-fulfilling group in all variables except PA and the low affective ones differed significantly from the self-fulfilling group in all variables except NA. Which is not so strange since both the self-fulfilling group and the high affective group are characterized as high in PA and the same goes for self-fulfilling individuals and low affective individuals who are characterized by low NA. For further details, see Table 1.

STUDY II

Method

Participants and procedure

As in Study I, participants ($N = 500$, age *mean* $= 34.08$ *sd.* $= 12.55$; 217 male and 283 female) were recruited from MTurk by the following criteria: US resident and ability to both speak and write fluently in English. Participants were paid a wage of two American dollars for completing the task and informed that the study was confidential and voluntary. The participants were presented with a battery of self-reports comprising the affect, life satisfaction, and happiness-increasing strategies measures, as well as questions pertaining to age and gender.

Instruments

The same instrument as in Study I was used in Study II to measure PA and NA (i.e., the PANAS). *Cronbach's* α were .88 for PA and .90 for NA in Study II.

Satisfaction with Life Scale (Diener et al., 1985). The instrument consists of 5 statements (e.g., "In most of my ways my life is close to my ideal") for which participants are asked to indicate degree of agreement in a 7-point Likert scale (1 = *strongly disagree*, 7 = *strongly agree*). The life satisfaction score was established by summarizing the 5 statements for each participant. *Cronbach's* α were .90 in the present study.

Happiness-Increasing Strategies Scales (Tkach & Lyubomirsky, 2006). In the present study, participants were asked to rate (1 = *never*, 7 = *all the time*) how often they used the strategies identified by *Tkach & Lyubomirsky (2006)*. The happiness-increasing strategies are organized in eight clusters: Social Affiliation (e.g., "Support and encourage friends"; *Cronbach's* $\alpha = 0.79$), Partying and Clubbing (e.g., "Drink alcohol"; *Cronbach's* $\alpha = 0.74$), Mental Control (e.g., "Try not to think about being unhappy"; *Cronbach's* $\alpha = 0.43$), Instrumental Goal Pursuit (e.g., "Study"; *Cronbach's* $\alpha = 0.76$), Passive Leisure (e.g., "Surf the internet"; *Cronbach's* $\alpha = 0.63$), Active Leisure (e.g., "Exercise"; *Cronbach's* $\alpha = 0.65$), Religion (e.g., "Seek support from faith"; *Cronbach's* $\alpha = 0.70$), and Direct Attempts (e.g., "Act happy/smile, etc."; *Cronbach's* $\alpha = 0.56$).

Statistical treatment

As detailed in Study I, both samples were used in the classification of the four affective profiles. The number of participants in each profile for Study II were as follows: 158 self-fulfilling (75 males, 83 females), 92 low affective (42 males, 50 females), 123 high affective (54 males, 69 females), and 127 self-destructive (46 males, 81 females). The affective profiles and gender were the independent variables; PA, NA, life satisfaction, and the happiness-increasing strategies were the dependent variables. An important observation here is the gender distribution between profiles. For example, in Study I there were more self-destructive males than females, while in Study II there were more self-destructive females than males. This difference might mirror the gender distribution across Study I (550 males and 350 females) and Study II (217 male and 283 females). Across both samples of females, the prevalence of the self-destructive profile was 28%, while among men was 25%. The prevalence of this profile reported here among males and females is the same that was observed among Swedes (E Schütz et al., unpublished data).

Results and discussion

First a MANOVA (3 × 2 factorial design) was applied with affective profiles and gender as independent variables and with PA, NA and life satisfaction as dependent variables. The analysis did not indicate any significant interaction effect ($p = 0.14$), but did indicate a significant effect for gender ($F(3, 490) = 4.91$; $p < 0.01$, $Eta^2 = 0.03$, $power = 0.91$) as well as for affective profiles ($F(9, 1476) = 119.15$; $p < 0.001$, $Eta^2 = 0.42$, $power = 1.00$). Secondly, a MANOVA (1 × 2 factorial design) was applied with affective profiles and gender as independent variables and with happiness-increasing strategies as dependent variables. The analysis did not indicate any significant interaction effect ($p = 0.93$), but did indicate a significant effect for gender ($F(8, 485) = 5.85$; $p < 0.001$, $Eta^2 = 0.09$, $power = 1.00$) as well as for affective profiles ($F(24, 1461) = 8.64$; $p < 0.001$, $Eta^2 = 0.12$, $power = 1.00$).

A between-subjects ANOVA was conducted in order to test gender differences in PA, NA and life satisfaction. The result indicated significant gender effects for: NA ($F(1, 492) = 10.89$; $p < 0.01$), whereby the female participants expressed a higher level of NA ($M = 1.94$, $SD = 0.83$) than the male participants ($M = 1.72$, $SD = 0.67$). This specific result stands in contrast to the results from Study I, which showed that females

reported higher happiness than males. Nevertheless, this is a well-known paradox in the literature—females seem to experience positive and negative emotions equally intensively, explaining why female often report both experiencing more negative moods and depressive symptoms and also higher levels of happiness than males (*Fujita, Diener & Sandvik, 1991*). A between-subjects ANOVA was conducted to investigate gender differences in happiness-increasing strategies. The result indicated significant gender effects for: Social Affiliation ($F(1, 492) = 17.67$; $p < 0.001$), the female participants expressed a higher level of Social Affiliation ($M = 3.43$, $SD = 0.56$) than the male participants ($M = 3.27$, $SD = 0.65$); Instrumental Goal Pursuit ($F(1, 492) = 6.60$; $p < 0.01$), the female participants expressed a higher level of Instrumental Goal Pursuit ($M = 3.33$, $SD = 0.81$) than the male participants ($M = 3.19$, $SD = 0.82$); Religion ($F(1, 492) = 23.18$; $p < 0.001$), the female participants expressed a higher level of Religion ($M = 3.08$, $SD = 1.13$) than the male participants ($M = 2.63$, $SD = 1.04$); Passive Leisure ($F(1, 492) = 9.25$; $p < 0.01$), the female participants expressed a higher level of Passive Leisure ($M = 3.30$, $SD = 0.55$) than the male participants ($M = 3.16$, $SD = 0.60$); Direct Attempts ($F(1, 492) = 4.06$; $p < 0.05$), the female participants expressed a higher level of Direct Attempts ($M = 3.66$, $SD = 0.58$) than the male participants ($M = 3.60$, $SD = 0.64$). The differences presented here are a replication of the original study conducted by *Tkach & Lyubomirsky (2006)*: females focus on behaviour such as maintaining relationships (i.e., Social Affiliation), pursuing career goals (i.e., Instrumental Goal Pursuit), performing religious activities (i.e., Religion), and watching TV (i.e., Passive Leisure) more frequently than males when they try to increase their happiness. As suggested by *Tkach & Lyubomirsky (2006*, pp. 214*)*, the gender differences replicated here "are consistent with the gender differences reported for behaviors used to combat bad moods (*Thayer, Newman & McClain, 1994*)".

In order to test differences in life satisfaction for each of the four affective profiles a between-subjects ANOVA was conducted The result indicated significant effects for life satisfaction ($F(3, 492) = 49.26$; $p < 0.001$). Further, a between-subjects ANOVA was conducted in order to test differences in happiness-increasing strategies for each of the four affective profiles. The mean scores of life satisfaction as well as for happiness-increasing strategies for all four affective profiles are presented in Table 2.

A Bonferroni test, with alpha level set to .01, was conducted to compare the mean differences in life satisfaction as well as for happiness-increasing strategies between affective profiles. The results showed, replicating earlier findings, among Swedes, that the self-destructive group had lower scores in life satisfaction compared to all the other affective profiles. The self-fulfilling group had higher scores in life satisfaction compared to all the other affective profiles. Regarding happiness-increasing strategies, the results showed that the self-destructive group had lower scores in all happiness-increasing strategies except for Mental Control. For further details, see Table 3.

GENERAL DISCUSSION

The aim of this set of studies was to examine the connections between the four types of affective profiles (self-fulfilling, high affective, low affective, self-destructive) to happiness

Table 2 Means in life satisfaction and happiness-increasing strategies among affective profiles in Study II.

	Self-fulfilling N = 158	High affective N = 123	Low affective N = 92	Self-destructive N = 127
Positive Affect	3.76 ± 0.49	3.59 ± 0.42	2.44 ± 0.52	2.30 ± 0.51
Negative Affect	1.25 ± 0.21	2.37 ± 0.58	1.20 ± 0.21	2.53 ± 0.67
Life Satisfaction	5.17 ± 1.24	4.11 ± 1.32	4.42 ± 1.51	3.15 ± 1.49
Social Affiliation	3.56 ± 0.53	3.51 ± 0.42	3.28 ± 0.63	3.02 ± 0.67
Partying and Clubbing	2.12 ± 0.71	2.29 ± 0.75	2.18 ± 0.67	2.00 ± 0.64
Mental Control	2.12 ± 0.47	2.43 ± 0.50	2.20 ± 0.42	2.59 ± 0.49
Instrumental Goal Pursuit	3.47 ± 0.77	3.51 ± 0.67	3.07 ± 0.85	2.92 ± 0.83
Religion	3.11 ± 1.19	2.94 ± 1.04	2.88 ± 1.11	2.57 ± 1.02
Passive Leisure	3.22 ± 0.56	3.38 ± 0.51	3.17 ± 0.60	3.17 ± 0.63
Active Leisure	3.39 ± 0.54	3.28 ± 0.55	3.10 ± 0.65	2.90 ± 0.65
Direct Attempts	3.91 ± 0.50	3.68 ± 0.49	3.60 ± 0.60	3.27 ± 0.64

and depression (Study I), satisfaction with life and happiness-increasing strategies (Study II) in US residents. The results showed that the self-fulfilling group reported a significantly higher level of happiness and a significantly lower level of depression than all the three other groups (high affective, low affective, self-destructive). Furthermore, the self-destructive group reported a significantly higher level of depression and lower level of happiness than all the other three groups (self-fulfilling, high and low affective). The results also show that the high affective and low affective reported higher level of happiness and lower level of depression than the self-destructive group. But at the same time these groups (high and low affective) also showed significantly lower levels of happiness and significantly higher levels depression than the self-fulfilling group. As suggested by *Garcia (2011)*, low PA among low affectives seems to influence happiness negatively as high NA influences happiness negatively among high affectives. The results presented here are corresponding to the results found in research with Swedish populations showing that high PA is related to less stress, depression, and anxiety (e.g., *Garcia et al., 2012*; *Lindahl & Archer, 2013*; *Nima et al., in press*). Moreover, self-fulfilling, high affective and low affective participants all have higher life satisfaction compared with self-destructive participants. This result also replicates findings among Swedish pupils where self-fulfilling, high and low affective participants showed higher level of life satisfaction compared with self-destructives (e.g., *Garcia & Archer, 2012*). As suggested by *Lindahl & Archer* (*2013*; see also *Archer & Kostrzewa, 2013*; *Archer et al., 2013*), positive affect might serve as an anti-depressive factor and, as suggested here, also as a protective factor for happiness and life satisfaction.

The self-fulfilling participants showed significantly higher results than all other profiles on the direct attempts strategy, suggesting that in order to increase their happiness the self-fulfilling individuals are more prone to directly attempt to smile, get themselves in a happy mood, improve their social skills, and work on their self-control. Indeed, *Garcia (2012a)* showed that self-fulfilling individuals score higher in personality traits related

Table 3 Mean differences in life satisfaction and happiness-increasing strategies between affective profiles.

Affective profiles	Self-fulfilling N = 158	High affective N = 123	Low affective N = 92	Self-destructive N = 127
Self-fulfilling				
Positive Affect		0.17*	1.32*	1.46*
Negative Affect		−1.12*	0.05 ns	−1.28*
Life Satisfaction		1.05*	0.75*	2.01*
Social Affiliation		0.05 ns	0.28*	0.54*
Partying and Clubbing		−0.16 ns	−0.06 ns	0.12 ns
Mental Control		−0.31*	−0.09 ns	−0.47*
Instrumental Goal Pursuit		−0.04 ns	0.39*	0.54*
Religion		0.17 ns	0.23 ns	0.54*
Passive Leisure		−0.16 ns	0.05 ns	0.05 ns
Active Leisure		0.11 ns	0.29*	0.49*
Direct Attempts		0.24*	0.31*	0.64*
High affective				
Positive Affect	−0.17*		1.15*	1.29*
Negative Affect	1.11*		−1.17*	−0.16 ns
Life Satisfaction	−1.05*		−0.31 ns	0.96*
Social Affiliation	−0.05 ns		0.24 ns	0.50*
Partying and Clubbing	0.16 ns		0.11 ns	0.29*
Mental Control	0.31*		0.23*	−0.16 ns
Instrumental Goal Pursuit	0.04 ns		0.43*	0.58*
Religion	−0.17 ns		0.05 ns	0.36 ns
Passive Leisure	0.16 ns		0.21 ns	0.20 ns
Active Leisure	−0.11 ns		0.18 ns	0.38*
Direct Attempts	−0.23*		0.07 ns	0.40 ns
Low affective				
Positive Affect	−1.32*	−1.15*		0.14 ns
Negative Affect	−0.05	−1.17*		−1.32*
Life Satisfaction	−0.75*	0.31 ns		1.26*
Social Affiliation	−0.28*	−0.24 ns		0.26*
Partying and Clubbing	0.06 ns	−0.11 ns		0.18 ns
Mental Control	0.09 ns	−0.23*		−0.40*
Instrumental Goal Pursuit	−0.39*	−0.43*		0.15 ns
Religion	−0.23 ns	−0.05 ns		0.31 ns
Passive Leisure	−0.05 ns	−0.21 ns		−0.00 ns
Active Leisure	−0.29*	−0.18 ns		0.20 ns
Direct Attempts	−0.31*	−0.07 ns		0.33*

to agentic values (i.e., autonomy, responsibility, self-acceptance, intern locus of control, self-control) as measured by the Temperament and Character Inventory (*Cloninger, Svrakic & Przybeck, 1993*). Moreover, self-fulfilling individuals scored lower than high NA individuals (high affectives and self-destructives) in the strategy of mental control.

Table 3 (*continued*)

Affective profiles	Self-fulfilling N = 158	High affective N = 123	Low affective N = 92	Self-destructive N = 127
Self-destructive				
Positive Affect	−1.46*	−1.29*	−0.14*	
Negative Affect	1.28*	0.16 ns	1.33*	
Life Satisfaction	−2.01*	−0.96*	−1.26*	
Social Affiliation	−0.54*	−0.50*	−0.26*	
Partying and Clubbing	−0.12 ns	−0.29*	−0.18 ns	
Mental Control	0.47*	0.16 ns	0.39*	
Instrumental Goal Pursuit	−0.54*	−0.58*	−0.15 ns	
Religion	−0.54*	−0.36 ns	−0.31 ns	
Passive Leisure	−0.05 ns	−0.20 ns	0.00 ns	
Active Leisure	−0.49*	−0.38*	−0.20 ns	
Direct Attempts	−0.64*	−0.40*	−0.33*	

Notes.

ns = non significant.

* $p < 0.01$ with Bonferroni correction.

The mental control scale has been defined as ambivalent behavior, that is, the individual using this happiness-increasing strategy make efforts to avoid negative experiences by suppressing negative thoughts and feelings but also ruminating about negative aspects of life (*Tkach & Lyubomirsky, 2006*). These tendencies may not only prolong unhappiness, suppressing negative thoughts actually may end up in maintaining these thoughts and thereby aggravate negative affect (*Tkach & Lyubomirsky, 2006*), which may explain why these tendencies are more frequent among high affective and self-destructive than self-fulfilling individuals.

Compared to low PA individuals (i.e., low affectives and self-destructives), the self-fulfilling individuals also reported using three of the other happiness-increasing strategies more often: social affiliation, instrumental goal pursuit, active leisure. Social affiliation activities comprise communal (i.e., cooperation) values to guide behavior such as: supporting and encouraging friends, helping others, trying to improve oneself, interacting with friends, and receiving help from friends (*Tkach & Lyubomirsky, 2006*). Instrumental goal pursuit includes activities directed to achieving goals by trying to reach one's full potential, studying, organizing one's life and goals, and striving for the accomplishment of tasks (*Tkach & Lyubomirsky, 2006*). Finally, the use of active leisure comprises a propensity for wellness through fitness and flow, that is, exercising and working on hobbies or activities in which the individual uses her/his strengths and becomes absorbed by the activity itself (*Tkach & Lyubomirsky, 2006*). In other words, both instrumental goal pursuit and active leisure comprises agentic (i.e., autonomous, self-directed) values guiding behavior in order to approach well-being. Indeed, among Swedes (*Nima, Archer & Garcia, 2012*; *Nima, Archer & Garcia, 2013*), these three strategies (social affiliation, instrumental goal pursuit, and active leisure) have been found to be positively related to subjective well-being. Agency and cooperation are also related to

mental health, dysfunction and suffering (*Cloninger & Zohar, 2011*; *Garcia, Anckarsäter & Lundström, 2013*; *Garcia et al., 2013b*; *Garcia, Nima & Archer, in press*) and are suggested to help the individual become happier and healthier (*Cloninger, 2013*; see also *Johansson et al., 2013*, who showed that increases in agency and cooperation are associated to improvement in depression). Moreover, compared to the self-destructives, the self-fulfilling individuals reported more frequently seeking support from faith, performing religious activities, praying, and drinking less alcohol (i.e., the religion happiness-increasing strategy). Indeed, *Cloninger (2013)* has suggested that while agency and cooperation might lead to happiness and health, spiritual values might be needed for becoming a self-fulfilled individual that lives in harmony with the changing world. See Fig. 1 for a summary of the results.

Limitations and future research

One limitation of the present set of studies is that the results are based on MTurk workers' self-reports. Nevertheless, consistent with earlier research suggesting MTurk as a valid tool for collecting data using personality scales (*Buhrmester, Kwang & Gosling, 2011*), other researchers have found that health measures using MTurk data shows satisfactory internal reliability and test-retest reliability (*Shapiro, Chandler & Mueller, 2013*). Furthermore, the prevalence of depression among MTurk workers matches the prevalence of this illness in the general population which makes MTurk a valid tool even for clinical research (*Shapiro, Chandler & Mueller, 2013*). The measures used here are validated and reliable measures of happiness, depression, life satisfaction, and affect; however, there are other established measures that could have been used for the measurement of depression (e.g., The Patient Health Questionnaire; *Kroenke, Spitzer & Williams, 2001*). The Short Depression-Happiness Scale (*Joseph et al., 2004*), used in Study I, was found appropriate firstly because it was developed as a short easy-to-distribute scale based on the increasing awareness of the therapeutic potential of the positive psychological perspective (e.g., *Cloninger, 2006*; *Joseph & Linley, 2004*; *Keyes & Lopez, 2002*). This scale has shown good psychometric properties of internal consistency reliability (*Cronbach's α between .77–92*), test-retest reliability ($r = .68$ in a 2-week interval), and convergent and discriminant validity with measures of depression (Beck's Depression Inventory), happiness (Oxford's Happiness Inventory) and personality (NEO Five Factor Inventory) (*Joseph et al., 2004*).

The lack of studies in adult populations using the affective profiles model and positive measures of well-being did not permit comparison of the results presented to other than earlier research among adolescents and young adults, thus, showing the need for further studies on adults regarding these factors. The reliability coefficients for some of the happiness-increasing strategies were low (e.g., Direct Attempts showed an *Cronbach's $\alpha = .56$*). In studies among Swedes these scales have been modified through factor analyses (*Nima, Archer & Garcia, 2013*). Although most of the scales in the present study showed alphas above .63, further studies focusing in the validation of these scales are needed. Furthermore, specific emotions vary widely across the lifespan. Findings among men and women in the US, for example, show that as people age they become less stressed
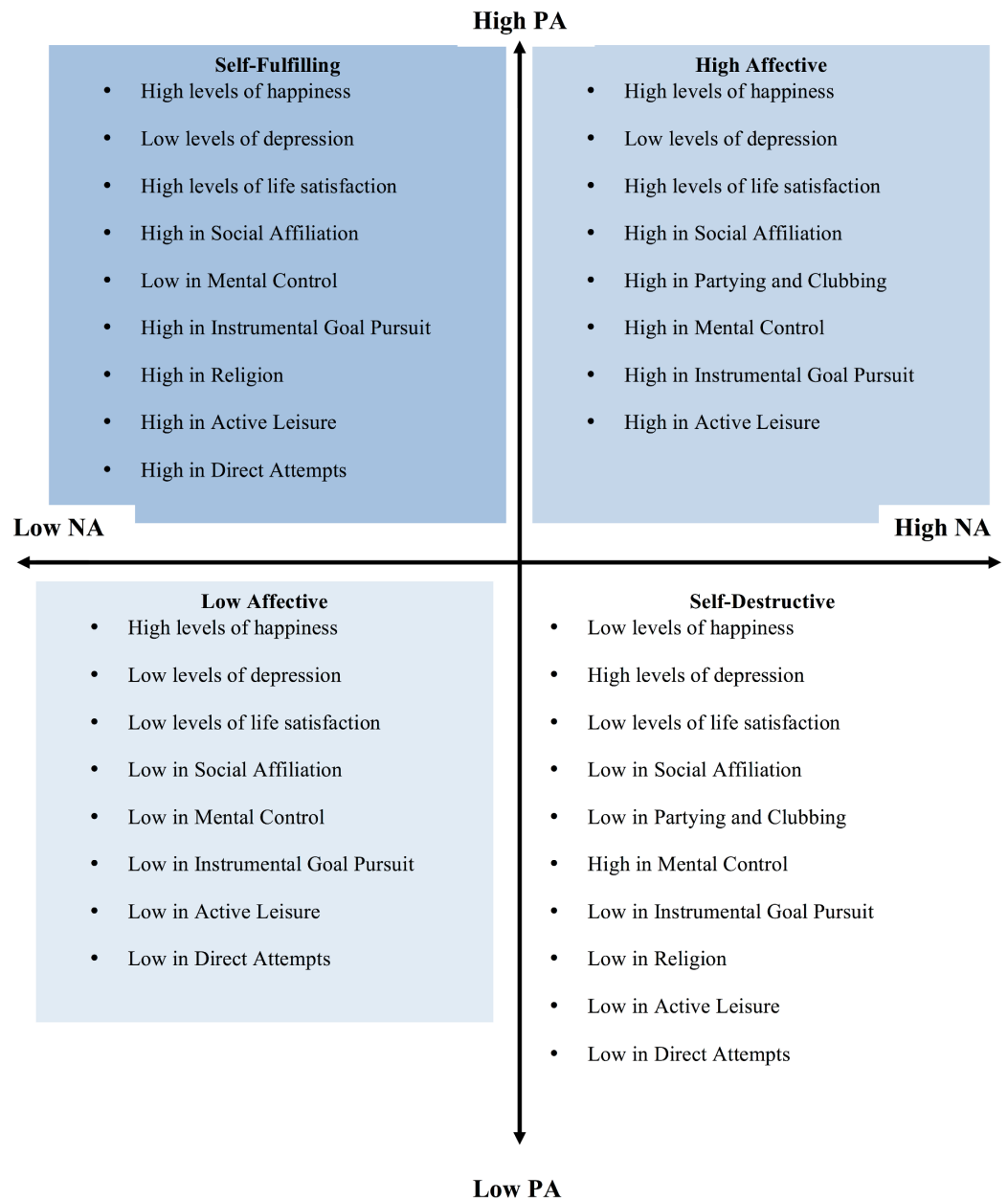
High PA

Self-Fulfilling
- High levels of happiness
- Low levels of depression
- High levels of life satisfaction
- High in Social Affiliation
- Low in Mental Control
- High in Instrumental Goal Pursuit
- High in Religion
- High in Active Leisure
- High in Direct Attempts

High Affective
- High levels of happiness
- Low levels of depression
- High levels of life satisfaction
- High in Social Affiliation
- High in Partying and Clubbing
- High in Mental Control
- High in Instrumental Goal Pursuit
- High in Active Leisure

Low NA   **High NA**

Low Affective
- High levels of happiness
- Low levels of depression
- Low levels of life satisfaction
- Low in Social Affiliation
- Low in Mental Control
- Low in Instrumental Goal Pursuit
- Low in Active Leisure
- Low in Direct Attempts

Self-Destructive
- Low levels of happiness
- High levels of depression
- Low levels of life satisfaction
- Low in Social Affiliation
- Low in Partying and Clubbing
- High in Mental Control
- Low in Instrumental Goal Pursuit
- Low in Religion
- Low in Active Leisure
- Low in Direct Attempts

Low PA

Figure 1 Summary of the results from Study I and II showing the differences between affective profiles in happiness, depression, life satisfaction, and the happiness-increasing strategies.

and angry, although worry seems to persist as a negative emotion in people's lives during middle age (*Stone et al., 2010*). Positive emotions such as happiness and enjoyment along with negative emotions such as sadness, however, show very limited change with age (*Stone et al., 2010*). Although the present study did not aim to investigate variations in specific emotions with respect to age, further studies exploring increases/decreases in PA and NA are needed.

Finally, since median splits distort the meaning of high and low, it is plausible to criticize the validity of the procedure used here to create the different affective profiles—scores just-above and just-below the median become high and low by fiat, not by reality (*Schütz, Archer & Garcia, 2013*). Nevertheless, a recent study (*MacDonald & Kormi-Nouri, 2013*) used *k*-means cluster analysis to test if the affective profiles model emerged as theorized by Archer and colleagues. The affective profile model was replicated using the *k*-means cluster analysis and the four affective profiles emerged as the combinations of high vs. low affectivity. The procedure used by these researchers is useful for person-oriented analyses (see *Bergman, Magnusson & El-Khouri, 2003*), thus, suggesting the original procedure by Archer as valid.

CONCLUSION

The present set of studies expands earlier results among Swedes to a relative large sample of US residents. The results suggest that the affective profiles model distinguish important differences in happiness, depression, and life satisfaction between individuals. These differences suggest that promoting positive emotions can positively influence a depressive-to-happy state as well as increasing life satisfaction. Moreover, the present study describes further how affective profiles differ with regard to happiness-increasing strategies. These specific results suggest that the pursuit of happiness through agentic, communal, and spiritual values leads to a self-fulfilling experience defined as frequently experiencing positive emotions and infrequently experiencing negative emotions.

> *"It was right then that I started thinking about*
> *Thomas Jefferson on the Declaration of Independence*
> *and the part about our right to life, liberty, and*
> *the pursuit of happiness. And I remember thinking*
> *how did he know to put the pursuit part in there?"*
> *Will Smith as Christopher Gardner in The Pursuit of Happyness*

ADDITIONAL INFORMATION AND DECLARATIONS

Schütz et al. (2013), *PeerJ*, DOI 10.7717/peerj.156

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- Danilo Garcia conceived and designed the experiments, performed the experiments, analyzed the data, contributed reagents/materials/analysis tools, wrote the paper.

Human Ethics

The following information was supplied relating to ethical approvals (i.e., approving body and any reference numbers):

This research protocol was approved by the Ethics Committee of the University of Gothenburg and written informed consent was obtained from all the study participants.

REFERENCES

Adrianson L, Djumaludin A, Neila R, Archer T. 2013. Cultural influences upon health, affect, self-esteem and impulsiveness: an Indonesian–Swedish comparison. *International Journal of Research Studies in Psychology* DOI 10.5861/ijrsp.2013.228.

Archer T, Adolfsson B, Karlsson E. 2008. Affective personality as cognitive-emotional presymptom profiles regulatory for self-reported health predispositions. *Neurotoxicity Research* **14**:21–44 DOI 10.1007/BF03033573.

Archer T, Adrianson L, Plancak A, Karlsson E. 2007. Influence of affective personality on cognitive-mediated emotional processing: need for empowerment. *European Journal of Psychiatry* **21**:248–262 DOI 10.4321/S0213-61632007000400002.

Archer T, Kostrzewa RM. 2013. The inductive agency of stress: from periatal to adolescent induction. In: Laviola G, Macrì S, eds. *Adaptive and maladaptive aspects of developmental stress, current topics in neurotoxicity, Vol. 3.* New York: Springer, 1–20 DOI 10.1007/978-1-4614-5605-6_1.

Archer T, Oscar-Berman M, Blum K, Gold MS. 2013. Epigenetic modulation of mood disorders. *Journal of Genetic Syndromes & Gene Therapy* **4**:120–133 DOI 10.4172/2157-7412.1000120.

Bergman LR, Magnusson D, El-Khouri BM. 2003. *Studying individual development in an interindividual context: a person-oriented approach.* Mahwah: Lawrence Erlbaum.

Bood SÅ, Archer T, Norlander T. 2004. Affective personality in relation to general personality, self-reported stress, coping and optimism. *Individual Differences Research* **2**:26–37.

Bradburn NM. 1969. *The structure of psychological well-being.* Chicago: Aldine.

Buhrmester MD, Kwang T, Gosling SD. 2011. Amazon's mechanical turk: a new source of inexpensive, yet high-quality, data? *Perspectives on Psychological Science* **6**:3–5 DOI 10.1177/1745691610393980.

Cloninger CR. 2004. *Feeling good: the science of well-being.* New York: Oxford University Press.

Cloninger CR. 2006. Fostering spirituality and well-being in clinical practice. *Psychiatric Annals* **36**:1–6.

Cloninger CR. 2013. What makes people healthy, happy, and fulfilled in the face of current world challenges? *Mens Sana Monographs* **1**:16–24 DOI 10.4103/0973-1229.109288.

Cloninger CR, Svrakic DM, Przybeck TR. 1993. A psychobiological model of temperament and character. *Archives of General Psychiatry* **50**:975–989 DOI 10.1001/archpsyc.1993.01820240059008.

Cloninger CR, Zohar AH. 2011. Personality and the perception of health and happiness. *Journal of Affective Disorders* **128**:24–32 DOI 10.1016/j.jad.2010.06.012.

Diener E. 1984. Subjective well-being. *Psychological Bulletin* **95**:542–575 DOI 10.1037/0033-2909.95.3.542.

Diener E, Emmons RA, Larsen RJ, Griffin S. 1985. The satisfaction with life scale. *Journal of Personality Assessment* **49**:71–75 DOI 10.1207/s15327752jpa4901_13.

Diener E, Suh EM, Lucas RE, Smith HL. 1999. Subjective well-being: three decades of progress. *Psychological Bulletin* **125**:276–302 DOI 10.1037/0033-2909.125.2.276.

Diener E, Suh E, Oishi S. 1997. Recent findings on subjective well being. *Indian Journal of Clinical Psychology* **24**:25–41.

Fujita F, Diener E, Sandvik E. 1991. Gender differences in negative affect and well-being: the case for emotional intensity. *Journal of Personality and Social Psychology* **61**:427–434 DOI 10.1037/0022-3514.61.3.427.

Garcia D. 2009. Interpretation and recognition for words in a short story [database record]. Retrieved from the American Psychological Association's PsycTESTS DOI 10.1037/t00401-000.

Garcia D. 2011. Adolescents' happiness: the role of the affective temperament model on memory and apprehension of events, subjective well-being, and psychological well-being. Ph.D. Thesis, University of Gothenburg, Gothenburg.

Garcia D. 2012a. The affective temperaments: differences between adolescents in the big five model and Cloninger's psychobiological model of personality. *Journal of Happiness Studies* **13**:999–1017 DOI 10.1007/s10902-011-9303-5.

Garcia D. 2012b. Adolescents' happiness-increasing strategies and well-being. In: *6th European conference on positive psychology*. Moscow, 26–29 June 2012. 34.

Garcia D. 2013. La vie en rose: high levels of well-being and events inside and outside autobiographical memory. *Journal of Happiness Studies* DOI 10.1007/s10902-013-9443-x.

Garcia D, Anckarsäter H, Lundström S. 2013. Self-directedness and Cooperativeness, psychosocial dysfunction and suffering in ESSENCE. *The Scientific World Journal* DOI 10.1155/2013/416981.

Garcia D, Archer T. 2012. Adolescent life satisfaction and well-being. *Journal of Alternative Medicine Research* **4**:271–279.

Garcia D, Ghiabi B, Moradi S, Siddiqui A, Archer T. 2013a. The happy personality: a tale of two philosophies. In: Morris EF, Jackson M-A, eds. *Psychology of personality*. New York: Nova Science Publishers, 41–59.

Garcia D, Lundström S, Brändström S, Råstam M, Cloninger CR, Kerekes N, Nilsson T, Anckarsäter H. 2013b. Temperament and Character in the Child and Adolescent Twin Study in Sweden (CATSS): comparison to the general population, and genetic structure analysis. *PLoS ONE* **8**(**8**):e70475 DOI 10.1371/journal.pone.0070475.

Garcia D, Kerekes N, Andersson-Arntén A-C, Archer T. 2012. Temperament, character, and adolescents' depressive symptoms: focusing on affect. *Depression Research and Treatment* DOI 10.1155/2012/925372.

Garcia D, Nima AA, Archer T. Temperament and character's relationship to subjective well-being in Salvadorian adolescents and young adults. *Journal of Adolescence* In press.

Garcia D, Moradi S. 2013. The affective temperaments and well-being: Swedish and Iranian adolescents' life satisfaction and psychological well-being. *Journal of Happiness Studies* **14**:689–707 DOI 10.1007/s10902-012-9349-z.

Garcia D, Siddiqui A. 2009a. Adolescents' affective temperaments: life satisfaction, interpretation and memory of events. *The Journal of Positive Psychology* **4**:155–167 DOI 10.1080/17439760802399349.

Garcia D, Siddiqui A. 2009b. Adolescents' psychological well-being and memory for life events: influences on life satisfaction with respect to temperamental dispositions. *Journal of Happiness Studies* **10**:387–503 DOI 10.1007/s10902-008-9096-3.

Garcia D, Rosenberg P, Erlandsson A, Siddiqui A. 2010. On lions and adolescents: affective temperaments and the influence of negative stimuli on memory. *Journal of Happiness Studies* **11**:477–495 DOI 10.1007/s10902-009-9153-6.

Higgins ET. 1997. Beyond pleasure and pain. *American Psychologist* **52**:1280–1300 DOI 10.1037/0003-066X.52.12.1280.

Johansson R, Lyssarides C, Andersson G, Rousseau A. 2013. Personality change after interner-delivered cognitive behavior therapy for depression. *PeerJ* **1**:e39 DOI 10.7717/peerj.39.

Joseph S, Linley PA. 2004. Positive therapy: a positive psychological theory of therapeutic practice. In: Linley PA, Joseph S, eds. *Positive psychology in practice.* Hoboken: Wiley, 354–368.

Joseph S, Linley PA, Harwood J, Lewis CA, McCollam P. 2004. Rapid assessment of well-being: the short depression–happiness scale. *Psychology and Psychotherapy: Theory, Research, and Practice* **77**:1–14 DOI 10.1348/147608304322874227.

Karlsson E, Archer T. 2007. Relationship between personality characteristics and affect: gender and affective personality. *Individual Differences Research* **5**:44–58.

Keren G, Schul Y. 2009. Two is not always better than one. A critical evaluation of two-system theories. *Perspectives on Psychological Science* **4**:533–550 DOI 10.1111/j.1745-6924.2009.01164.x.

Keyes CLM, Lopez SJ. 2002. Toward a science of mental health: positive directions in diagnosis and interventions. In: Snyder CR, Lopez SJ, eds. *Handbook of positive psychology.* New York: Oxford University Press, 45–59.

Kroenke K, Spitzer RL, Williams JB. 2001. The PHQ-9. *Journal of General Internal Medicine* **16**:606 DOI 10.1046/j.1525-1497.2001.016009606.x.

Kunst MJJ. 2011. Affective personality type, post-traumatic stress disorder symptom severity and post-traumatic growth in victims of violence. *Stress and Health* **27**:42–51 DOI 10.1002/smi.1318.

Larsen RJ, Ketelaar T. 1991. Personality and susceptibility to positive and negative emotional states. *Journal of Personality and Social Psychology* **61**:132–140 DOI 10.1037/0022-3514.61.1.132.

Lindahl M, Archer T. 2013. Depressive expression and anti-depressive protection in adolescence: stress, positive affect, motivation and self-efficacy. *Psychology* **4**:495–505 DOI 10.4236/psych.2013.46070.

Lucas RE. 2008. Personality and subjective well-being. In: Eid M, Larsen RJ, eds. *The science of subjective well-being.* New York: The Guilford Press, 171–194.

Lucas RE, Diener E. 2008. Personality and subjective well-being. In: John OP, Robins RW, Pervin LA, eds. *Handbook of personality – theory and research.* New York: The Guilford Press, 795–814.

MacDonald S, Kormi-Nouri R. 2013. The affective personality, sleep, and autobiographical memories. *The Journal of Positive Psychology: Dedicated to furthering research and promoting good practice* **8**:305–313 DOI 10.1080/17439760.2013.800904.

Myers DG, Diener E. 1995. Who is happy? *Psychological Science* **6**:10–19 DOI 10.1111/j.1467-9280.1995.tb00298.x.

Nima AA, Archer T, Garcia D. 2012. Adolescents' happiness-increasing strategies, temperament, and character: mediation models on subjective well-being. *Health* **4**:802–810 DOI 10.4236/health.2012.410124.

Nima AA, Archer T, Garcia D. 2013. The happiness-increasing strategies scales in a sample of Swedish adolescents. *International Journal of Happiness and Development* **1**:196–211 DOI 10.1504/IJHD.2013.055647.

Nima AA, Rosenberg P, Archer T, Garcia D. Anxiety, affect, self-esteem, and stress: mediation and moderation effects on depression. *PLoS ONE* In press.

Norris CJ, Larsen JT, Cacioppo JT. 2007. Neuroticism is associated with larger and more prolonged electrodermal responses to emotionally evocative pictures. *Psychophysiology* **44**:823–826 DOI 10.1111/j.1469-8986.2007.00551.x.

Norlander T, Bood S-Å, Archer T. 2002. Performance during stress: affective personality age, and regularity of physical exercise. *Social Behavior and Personality* **30**:495–508 DOI 10.2224/sbp.2002.30.5.495.

Norlander T, Johansson Å, Bood S-Å. 2005. The affective personality: its relation to quality of sleep, well-being and stress. *Social Behavior and Personality* **33**:709–722 DOI 10.2224/sbp.2005.33.7.709.

Palomo T, Beninger RJ, Kostrzewa RM, Archer T. 2008. Focusing on symptoms rather than diagnoses in brain dysfunction: conscious and nonconscious expression in impulsiveness and decision-making. *Neurotoxicity Research* **14**:1–20 DOI 10.1007/BF03033572.

Palomo T, Kostrzewa RM, Beninger RJ, Archer T. 2007. Treatment consideration and manifest complexity in comorbid neuropsychiatric disorders. *Neurotoxicity Research* **12**:43–60 DOI 10.1007/BF03033900.

Pavot W. 2008. The assessment of subjective well-being: successes and shortfalls. In: Eid M, Larsen RJ, eds. *The science of subjective well-being.* New York: The Guilford Press, 124–167.

Pavot W, Diener E. 1993. Review of the satisfaction with life scale. *Psychological Assessment* **2**:164–172 DOI 10.1037/1040-3590.5.2.164.

Russell JA, Feldman Barrett L. 1999. Core affect, prototypical emotional episodes, and other things called emotion: dissecting the elephant. *Journal of Personality and Social Psychology* **76**:805–819 DOI 10.1037/0022-3514.76.5.805.

Schütz E, Archer T, Garcia D. 2013. Character profiles and adolescents' self-reported affect. *Personality and Individual Differences* **54**:841–844 DOI 10.1016/j.paid.2012.12.020.

Shapiro DN, Chandler J, Mueller PA. 2013. Using mechanical turk to study clinical populations. *Clinical Psychological Science* **1**:213–220 DOI 10.1177/2167702612469015.

Stone AA, Schwartz JE, Broderick JE, Deaton A. 2010. A snapshot of the age distribution of psychological well-being in the United States. *Proceedings of the National Academy of Sciences of the United States of America* **107**:9985–9990 DOI 10.1073/pnas.1003744107.

Thayer RE, Newman R, McClain TM. 1994. Self-regulation of mood: strategies for changing a bad mood, raising energy, and reducing tension. *Journal of Personality and Social Psychology* **67**:910–925 DOI 10.1037/0022-3514.67.5.910.

Tkach C, Lyubomirsky S. 2006. How do people pursue happiness? Relating personality, happiness-increasing strategies, and well-being. *Journal of Happiness Studies* **7**:183–225 DOI 10.1007/s10902-005-4754-1.

Tellegen A. 1985. Structures of mood and personality and their relevance to assessing anxiety, with an emphasis on self-report. In: Tuma AH, Maser JD, eds. *Anxiety and the anxiety disorders.* Hilssdale: Erlbaum, 681–706.

Tellegen A. 1993. Folk concepts and psychological concepts of personality and personality disorder. *Psychological Inquiry* **4**:122–130 DOI 10.1207/s15327965pli0402_12.

Watson D, Clark LA. 1984. Negative affectivity: the disposition to experience negative aversive emotional states. *Psychological Bulletin* **96**:465–490 DOI 10.1037/0033-2909.96.3.465.

Watson D, Clark LA. 1994. *The PANAS-X: manual for the positive and negative affect schedule—expanded form.* Boise: University of Iowa Press.

Watson D, Clark LA, Tellegen A. 1988. Development and validation of brief measures of positive and negative affect: the PANAS scale. *Journal of Personality and Social Psychology* **54**:1063–1070 DOI 10.1037/0022-3514.54.6.1063.

Watson D, Tellegen A. 1985. Toward a consensual structure of mood. *Psychological Bulletin* **98**:219–235 DOI 10.1037/0033-2909.98.2.219.

Watson D, Wiese D, Vaidya J, Tellegen A. 1999. The two general activation systems of affect: structural findings, evolutionary considerations, and psychobiological evidence. *Journal of Personality and Social Psychology* **76**:820–838 DOI 10.1037/0022-3514.76.5.820.

Yik MSM, Russell JA, Feldman Barrett L. 1999. Structure of self reported current affect: integration and beyond. *Journal of Personality and Social Psychology* **77**:600–619 DOI 10.1037/0022-3514.77.3.600.

Zöller M, Archer T. 2009. Predicting stress in male and female psychiatric patients and healthy volunteers. *Social Behavior and Personality* **7**:1081–1094 DOI 10.2224/sbp.2009.37.8.1081.

Zöller M, Karlsson E, Archer T. 2009. Self-rated affect among adults presenting psychiatric diagnosis. *Individual Differences Research* **7**:14–28.