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Affective state, stress, and Type A-personality as a function of gender and affective profiles

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Abstract

Three studies were performed to examine positive and negative affect, stress and energy, and Type-A personality as a function of Gender and Affective profiles. In Study I, 304 university students (152 male and 152 female), in Study II, 142 pupils at upper secondary school (95 male and 47 female) and in Study III, 166 pupils at upper secondary school (84 male and 82 female) completed self-report questionnaires pertaining to Positive affect and Negative affect Scales (PANAS), stress and energy (SE), the Type A-personality scale and a Background and Health questionnaire. The results indicated gender effects by which female participants expressed a higher level of negative affect, stress and Type A-personality were found in all three studies, as well as for energy in Study I. There were marked effects of Affective profiles upon stress, energy and Type A-personality in all three studies. Regression analysis indicated that Type A-personality could be predicted from a high level of Negative Affect (Study I, II and III) as well as from high levels of stress (Study I and II). All three studies indicate a link between negative affectivity, stress and Type A-personality with consequences for the maladaptive behavioral patterns implying health hazards.

Keywords: gender; affective profiles; Type-A personality; stress

Affective state, stress, and Type A-personality as a function of gender and affective profiles

1. Introduction

Several aspects of individuals' daily life involve situations associated with stress with both acute and long-term psychological, physiological and health consequences (cf. Palomo, Beninger, Kostrzewa, & Archer, 2004), with predisposition and vulnerability that may vary considerably as a function of personal characteristics (Jones & Bright, 2001; Watson, David, & Suls, 1999). Neuroticism shows robust correlations with dispositional negative affect (NA) (Judge & Larsen, 2001; Matthews & Gilliland, 1999), which is associated both with self-reported stress (Watson & Clark, 1984) and expressions of anger contempt, guilt, shame, anxiety and depressiveness (Spector & O´Connell, 1994; Watson, Clark, & Tellegen, 1988). Conversely, extraversion shows correlations with positive affect, with extraverts oriented to rewards and pleasure (Gray, 1994). Individuals expressing high positive affect are characterized as energetic, enthusiastic, active and enjoy life (Watson, Pennebaker, & Folger, 1986), whereas those expressing low positive affect are characterized as listless, lethargic and apathetic.

High negative affect is associated with subjective complaints, poor coping and trait anxiety (Karlsson & Archer, 2007; Watson & Pennebaker, 1989) whereas high positive affect is associated with sociability, control, helpful behavior, feelings of duty, accuracy, care in decision-making and positive attitude over time and circumstance (George & Brief, 1992; Isen & Baron, 1991). Thus, high positive affect individuals experience a greater appreciation of life, more security, generally show more self-confidence (Costa & McCrae, 1980), more social relations and assertiveness, greater satisfaction of friends, and are often described as passionate, happy, energetic and alert (Watson & Clark, 1984); high negative affect individuals experience the reverse, greater stress, strain and cynicism in a wide range of circumstances and events of which they experience slight, if any, control (Spector & O´Connell, 1994; Watson & Pennebaker, 1989).

1.1 Type A-personality

The Type A personality/behavior pattern has over several decades also been linked with several aspects of illness and several aspects of risk for health problems (e.g. Friedman & Booth-Kewley, 1987; Friedman, Byers, Roseman, & Elevitch, 1970; Harbin, 1989; Suls & Sanders, 1988; Williams et al., 1988). The Type A personality is characterised by: (i) insecurity of status implying that Type A individuals lack self-esteem, are cynical and suffer from self-doubt, (ii) hyper-aggressiveness characterised by the need for domination despite the feelings/wishes of others, (iii) free-floating hostility, linked to hyper-aggressiveness, is deeply embedded, permanent, and may erupt at trivial incidents, (iv) having a sense of time urgency, whereby Type A individuals chronically experience a shortage of time due to unrealistic deadlines, multiple tasks, etc, is often characterised by eating, talking and walking hurriedly, (v) being prone to drive to self-destruction implying that Type A individuals, seeking escape from an uncontrollable lifestyle, adopt a self-destructive behavioral pattern, hazardous driving, smoking, drinking alcohol, etc., (Friedman, 1977; Friedman & Booth-Kewley, 1988; Friedman & Rosenman, 1971).

Beside personal characteristics, the paradox of 'Conflicting Standards Dilemma' combined with both psychosocial and psychobiological considerations bear implications for important gender differences pertaining to affective profiles and eventual coping styles (Edwards & Holden, 2001; Stroink, 2004). Several studies imply that female participants are more likely to experience the psychological and somatic expressions of ill-health: (i) they report a greater frequency and higher levels of anxiety than male participants (Cauce et al., 2000), (ii) adolescent girls experience more headaches than adolescent boys (Celentano, Linet, & Stewart, 1990; Linet, Stewart, Celentano, Ziegler, & Sprecher, 1989; Stang & Osterhaus, 1993), (iii) women report more suicidal

thinking and make more suicide attempts than men, although men complete suicides more often (Canetto & Sakinofsky, 1998), as observed in both adolescents and adults (de Man, 1999), (iv) they are more likely also, compared to men, to undergo major depression (Myers et al., 1984), and (v) female participants express more stress, worse general health, more somatic illness, more visits to the physician and greater use of medication (Macintyre, Hunt, & Sweeting, 1996; Verbrugge, 1989). Thus, it seems hardly surprising that much attention has been focussed upon gender differences in coping styles and coping behavior (e.g. Felsten, 1998; Mullis & Chapman, 2000; Piko, 2001).

In a study of 546 adolescents (mean age of 14.78 years), Wilson, Pritchard, and Revalee (2005) found gender differences in psychological and somatic health symptoms (such as, anger, tension, depression, negative mood), as well as coping style. The female participants exhibited significantly more somatic health symptoms (e.g. cold or flu, shortness of breath, etc), vigour, anger, tension, depression, confusion and negative mood, and yet more problem-focussed, avoidant and emotion-focussed coping styles than the male participants. It ought to be noted too that for the female participants only, markedly high correlations between the avoidant coping style and anger, tension, depressed and confused were evidenced.

1.2 Affective States

Denollet and De Vries (2006) have studied the two-factor affect model (PA and NA) of the Global Mood Scale (GMS) with regard to stress, depression and fatigue in 228 working adults. It was found that the GMS-NA (negative affect) scale was related to stress, depression and fatigue whereas the GMS-PA (positive affect) scale was associated with quality of life. Moreover, as mentioned above, research have found that individuals who experience high levels of positive affect attend and react more intensely to positive stimuli than individuals with low levels of positive affect. In contrast, individuals with high levels of negative affect attend and react more intensely to negative stimuli than individuals with low levels of negative affect (Larsen & Ketelaar, 1991). Further, according to some researchers positive and negative affect reflect stable emotional-temperamental dispositions or signal sensitivity systems (e.g., Watson & Clark, 1994; Tellegen, 1993). One of the most used instruments to measure affect, the Positive Affect and Negative Affect Scales (PANAS) developed by Watson, Clark, and Tellegen (1988). The PANAS scale were developed on the idea that PA and NA represents two opposite poles. Thus, while some PANAS items (e.g., 'interested') may not be common in other scales, other items (e.g., 'happy') are not included in PANAS. In addition, there are findings that suggest that the PANAS items reflect engagement with a stimulus and involve more mood and social traits than extraversion and neuroticism (Schimmack, 2007). Watson and Tellegen (1985) have presented positive affect and negative affect as two independent dimensions: high versus low positive affect and high versus low negative affect. Seeing affect as composed of two systems, each one of them categorized as high and low, leads to four different combinations beyond the two-system approach (for a point of view on two-system theories see Keren & Schul, 2009).

Wilson, Gullone, and Moss (1998) have shown that there does not exist any significant correlation between the extent of positive and negative affectivity, which implies that a 'divergent validity' appears to be the case. Previous studies (Bood, Archer, & Norlander, 2004; Norlander, Bood, & Archer, 2002; Palomo et al., 2004) have modified and developed the PANAS instrument further through a subject-response based derivation of the four types of affective personalities. Although Norlander et al., (2002) called their classification for affective personalities, their work goes beyond the view of affect as two separate systems and takes into account the interaction of both dispositions. Garcia and colleagues (2009, 2010) further developed the originated affective personalities into the affective profiles model. The affective profile classification is developed in an orthogonal manner through a persons' positive and negative affect (measured by PANAS), generating four different temperaments: self-fulfilling (originally labeled "Self-actualizing"; consisting of high positive affect, low negative affect; Karlsson & Archer, 2007); 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) (Norlander et al., 2002; Garcia & Siddiqui, 2009). Although the framework of affective profiles model has been

used in other studies not many of them have ranged from adolescents to adulthood. The affective profiles react differently to stress and have different exercise habits and blood pressure. Self-fulfilling and high affective adults show the best performance during stress, and have a more active life and lower blood pressure than adults with low affective and self-destructive temperaments (Norlander et al., 2002, 2005).

The purpose of the present study was to examine gender differences with regard to positive and negative affect, stress and energy, and Type A-personality and secondly, differences between affective profiles with regard to positive and negative affect, stress and energy, and Type A-personality. A third purpose was to investigate if positive and negative affect, stress and energy as well as Gender, were associated to Type A-personality.

2. Method and materials

2.1 Participants and design

2.1.1 *Study I*

Participants. Three hundred and four individuals (152 male and 152 female), convenience sample, all of whom were students at the University of Kalmar (Kalmar, Sweden), with a mean age of 23.61 years (SD = 4.21; Range = 19 to 44 years) participated in the study. Choice of participant was determined by the presence of these individuals in a situation (university studies) in which high academic performance was of central importance, this particular population of individuals was thereby considered relevant due to the stress experience. Anonymity was preserved throughout.

Study design. The two independent variables of the study were gender and type of affective profile: "Self-fulfilling" (n = 77), "Low affective" (n = 67), "High affective" (n = 72), and "Self-destructive" (n = 88). The dependent variables were positive and negative affect, stress and energy, and Type A-personality.

2.1.2 *Study II*

Participants. One hundred and forty-two individuals (95 male and 47 female), convenience sample, all of whom were students at the upper secondary school (County Council High Schools and derived from the regular classes). The mean age of these high school pupils was 18.66 years (SD = 0.50). Choice of participant was determined by the presence of these individuals in a situation (last semester in upper secondary school) in which high academic performance was of central importance, this particular population of individuals was thereby considered relevant due to the stress experience. Anonymity was preserved throughout.

Study design. As in Study I, the two independent variables in Study II were gender and type of affective profile: "Self-fulfilling" (n = 38), "Low affective" (n = 31), "High affective" (n = 32) and "Self-destructive" (n = 41). The dependent variables were positive and negative affect, stress and energy, and Type A-personality.

2.1.3 *Study III*

Participants. One hundred and sixty-six individuals (84 male and 82 female), convenience sample, all of whom were students at the upper secondary school (County Council High Schools and derived from the regular classes). The mean age of these high school individuals was 18.45 years (SD = 0.60). Choice of participant was determined by the presence of these individuals in a situation (last semester in upper secondary school) in which high academic performance was of central importance, this particular population of individuals was thereby considered relevant due to the stress experience. Anonymity was preserved throughout.

Study design. As in Study I and II, the two independent variables of the study were gender and type of affective profile: "Self-fulfilling" (n = 41), "Low affective" (n = 37), "High affective" (n = 44) and "Self-destructive" (n = 44). The dependent variables were positive and negative affect, stress and energy, and

Type A-personality

2.2 Instruments

PANAS – Positive Affect and Negative Affect Scale. The PANAS (Watson, Clark, & Tellegen, 1988) provides a self-estimation of "affect", both positive and negative. It consists of 10 adjectives for the NA dimension and 10 adjectives for the PA dimension (Watson et al., 1988), it is indicated that the adjectives describe feelings (affect) and mood level. The participants were instructed to estimate how they had felt during the past week. Response alternatives were presented on a five-grade scale, extending from: 1 = *not at all*, to 5 = *very much*. The negatively-charged adjectives were summated to provide the NA score and the positively-charged adjectives were summated to a PA score. The PANAS-instrument has been validated by studies aimed at general aspects of psychopathology as well as a multitude of other expressions of affect (Huebner & Dew, 1995; Watson and Clark, 1994). PANAS showed high reliability in the whole sample (Cronbach's $\alpha = .84$ for PA and Cronbach's $\alpha = .82$ for NA).

SE – Stress and Energy. The SE-instrument is a self-estimation scale that assesses individuals' experience of their own stress and energy (Kjellberg & Iwanowski, 1989). The test is divided into two sub-scales that express each participant's level of mood in the two dimensions: "experienced stress" and "experienced energy". Response alternatives are ordered within six-graded scales that extend from 0 = *not at all* to 5 = *very much*. The instrument has been validated through studies concerning occupational burdens and pressures (Iwanowski, 1989; Kjellberg & Bohlin, 1974; Kjellberg & Iwanowski, 1989). SE showed high reliability in the whole sample (Cronbach's $\alpha = .79$ for Stress and Cronbach's $\alpha = .76$ for Energy).

Background and Health questionnaire. This instrument is applied to collect background data to provide health and health-related information about each participant (Rosén, 2002). The questionnaire consists of items pertaining to Gender, age, education, smoking habit, exercise, sleep problems, time spent watching TV, degree of immobile occupation as well as questions relating to occupation and choice of place of work. Some examples of these questions are: "How often during the past year have you experienced sleep problems?" Response alternatives in this case provided for a choice between five different options including: "*Constantly*", "*2-3 times a week*", "*Once a week*", "*Once a month*", or "*Never*". Each participant was instructed to mark the alternative that was most appropriate for himself/herself.

Type A scale. This instrument (Kawachi et al., 1998; Butcher, Graham, Williams, & Ben-Porath, 1990) contains 27 statements that describe different reactions to experiences of situations in life. The statements consist of items pertaining to notions concerning time (e.g.,"Do you try to fit more and more activities into your schedule within an ever shorter interval?"), mood (e.g., "Can you relax without getting a bad conscience?"), and receptiveness (e.g., "When you meet someone whom you experience as aggressive or hostile towards you, do you treat him/her in the same way?", "Are you unaffected when you watch others carry out tasks that you know you could accomplish quicker?"). The response alternatives consisted of *yes/no* scales. Kawachi et al., (1998) have found that their overall Type A score was correlated to anger ($r = 0.71$), cynicism ($r = 0.59$), hostile affect (0.71), hostile attribution ($r = 0.53$), and aggressive responding ($r = 0.53$) scores. In the present study, an overall Type A score was derived by summarizing all items. The overall Type A score showed high reliability in the whole sample (Cronbach's $\alpha = .89$).

2.3 Procedure

The participants were recruited through contacts with a number of teachers. The Lecturers were informed of the study and its general content and were requested to assign a small portion of the lecture period for students to respond to the questionnaire. They were informed that the approximate amount of time required for completion of the tests was about 15 minutes. The same Experimenter was present throughout every test occasion. At testing, the students were informed about the purpose of the study, the approximate amount of time required, and prior to

testing, students were ensured that all participation was on a volunteer basis with total anonymity as well as the fact that each set of responses was unidentifiable among all the other sets of responses. In order to avoid the possible effects of ordering of each instrument, the order in which each instrument/questionnaire occurred was randomly distributed in each envelop. Each participant chose an envelope randomly out of the box containing them. In each case, participants received questionnaires containing the four different test instruments: PANAS – Positive affect and Negative affect Scales (Watson, Clark, & Tellegen, 1988), SE – Stress and Energy (Kjellberg & Iwanowski, 1989), Type A scale (Kawachi et al., 1998), Background and Health questionnaire (Rosén, 2002).

3. Results

3.1 Differences between gender and affective profiles

3.1.1 Study I

A One-way ANOVA with Gender as independent variable and with PA, NA, stress and energy, and Type A personality as dependent variables indicated significant Gender effects as follows: NA ($F(1, 302) = 9.32$; $p = .005$, $Eta^2 = 0.02$, *power* = 0.75), whereby the female participants expressed a higher level of NA ($M = 2.22$, $SD = 0.65$) than the male participants ($M = 1.97$, $SD = 0.77$); Energy ($F(1, 302) = 7.90$; $p = .000$, $Eta^2 = 0.03$, *power* = 0.80), whereby the female participants expressed higher energy ($M = 2.91$, $SD = 0.80$) than the male participants ($M = 2.61$, $SD = 1.04$); Stress ($F(1, 302) = 42.07$; $p = .020$, $Eta^2 = 0.11$, *power* = 1.00), whereby the female participants ($M = 2.56$, $SD = 1.02$) presented a higher level of stress than the male participants ($M = 1.83$, $SD = 0.93$) and Type A-personality ($F(1, 282) = 5.50$; $p = .000$, $Eta^2 = 0.02$, *power* = 0.65), whereby the female participants expressed more characteristics of type A personality ($M = 40.07$, $SD = 5.11$) than the male participants ($M = 38.60$, $SD = 5.45$). No differences were found between males and females with regard to PA.

A One-way ANOVA with affective profiles as independent variable indicated significant effects upon stress and energy, and Type A-personality. For stress ($F(3, 300) = 25.86$, $p = .000$, $Eta^2 = 0.19$, *power* = 1.00) a post hoc testing (TUKEY-HSD, 5 % level) indicated that the "Self-fulfilling" group ($M = 1.57$, $SD = 0.78$) expressed a lower level of stress than the "High affective" ($M = 2.45$, $SD = 0.96$) and "Self-destructive" ($M = 2.75$, $SD = 0.99$) groups, whereas the "Low affective" group ($M = 1.91$, $SD = 0.96$) expressed less stress than the "Self-destructive" group. For energy ($F(3, 300) = 5.36$, $p = .000$, $Eta^2 = 0.05$, *power* = 0.93) a post hoc testing (TUKEY-HSD, 5 % level) indicated that the "Self-fulfilling" group ($M = 3.15$, $SD = 0.82$) expressed a higher level of energy than the "Self-destructive" ($M = 2.61$, $SD = 0.72$), "High affective" ($M = 2.63$, $SD = 0.80$) and "Low affective" ($M = 2.66$, $SD = 1.29$) groups. And finally, for Type-A personality ($F(3, 280) = 8.13$, $p = .000$, $Eta^2 = 0.08$, *power* = 0.99) a post hoc testing (TUKEY-HSD, 5 % level) indicated that the "Self-fulfilling" group ($M = 37.85$, $SD = 4.43$) expressed a lower level of type A personality than the "Self-destructive" ($M = 40.70$, $SD = 5.34$), "High affective" ($M = 40.85$, $SD = 4.40$) and "Low affective" ($M = 37.67$, $SD = 6.24$) groups.

3.1.2 Study II

One-way ANOVA with Gender as independent variable and with PA, NA, stress and energy, and Type A personality as dependent variables indicated significant Gender effects as follows: NA ($F(1, 140) = 8.36$; $p = .004$, $Eta^2 = 0.06$, *power* = 0.81), whereby the female participants expressed a higher level of negative affect ($M = 2.04$, $SD = 0.65$) than the male participants ($M = 1.72$, $SD = 0.62$); Stress ($F(1, 140) = 2.28$; $p = .000$, $Eta^2 = 0.09$, *power* = 0.95), whereby the female participants ($M = 2.35$, $SD = 0.95$) presented a higher level of stress than the male participants ($M = 1.78$, $SD = 0.84$); Type A-personality ($F(1, 140) = 10.01$; $p = .002$, $Eta^2 = 0.07$, *power* = 0.88), whereby the female participants expressed more characteristics of Type A personality ($M = 40.30$, $SD = 4.33$) than the male participants ($M = 37.94$, $SD = 4.11$). No differences were found between males and females with regard to PA and energy.

A One-way ANOVA with Affective profiles as independent variable indicated significant effects upon stress

and energy, and Type A-personality. For stress ($F(3, 138) = 7.19$, $p = .000$, $Eta^2 = 0.14$, *power* = 0.98), whereby post hoc testing (TUKEY-HSD, 5 % level) indicated that the "Self-fulfilling" group ($M = 1.43$, $SD = 0.66$) expressed a lower level of stress than the "High affective" ($M = 2.23$, $SD = 0.97$), "Self-destructive" ($M = 2.23$, $SD = 0.98$) and "Low affective" group ($M = 1.99$, $SD = 0.80$) groups. For energy ($F(3, 138) = 9.48$, $p = .000$, $Eta^2 = 0.17$, *power* = 0.98), whereby post hoc testing (TUKEY-HSD, 5 % level) indicated that the "Self-fulfilling" group ($M = 3.31$, $SD = 0.80$) and "High affective" ($M = 3.26$, $SD = 0.66$) expressed a higher level of energy than the "Self-destructive" ($M = 2.64$, $SD = 0.73$) and "Low affective" ($M = 2.69$, $SD = 0.56$) groups. And finally, for Type A-personality. ($F(3, 138) = 7.05$, $p = .000$, $Eta^2 = 0.13$, *power* = 0.98), whereby post hoc testing (TUKEY-HSD, 5 % level) indicated that the "Self-fulfilling" group ($M = 36.53$, $SD = 3.79$) expressed a lower level of type a personality than the "High affective" ($M = 40.34$, $SD = 4.02$) "Self-destructive" ($M = 40.00$, $SD = 4.72$) and "Low affective" ($M = 38.03$, $SD = 3.44$) groups.

3.1.3 Study III

A One-way ANOVA with Gender as independent variable and with PA, NA, stress and energy, and Type A personality as dependent variables indicated significant Gender effects as follows: NA ($F(1, 164) = 16.06$; $p = .000$, $Eta^2 = 0.09$, *power* = 0.97), whereby the female participants expressed a higher level of negative affect ($M = 2.57$, SD =0.78) than the male participants ($M = 2.11$, $SD = 0.70$); Stress ($F(1, 163) = 20.20$; $p = .000$, $Eta^2 = 0.09$, *power* = 0.97), whereby the female participants expressed a higher level of stress ($M = 2.45$, $SD = 1.09$) than the male participants ($M = 1.73$, $SD = 0.98$); Type A-personality ($F(1, 143) = 5.53$; $p = .000$, $Eta^2 = 0.04$, *power* = 0.65), whereby the female participants expressed more characteristics of Type A-personality ($M = 40.08$, $SD = 4.32$) than the male participants ($M = 38.31$, $SD = 4.77$). No differences were found between males and females with regard to PA and energy.

A One-way ANOVA with Affective profiles as independent variable indicated significant effect upon stress and energy, and Type A-personality. For stress ($F(3, 161) = 8.27$, $p = .000$, $Eta^2 = 0.16$, *power* = 1.00), whereby post hoc testing (TUKEY-HSD, 5 % level) indicated that the "Self-fulfilling" group ($M = 1.71$, $SD = 0.97$) expressed a lower level of stress than the "High affective" ($M = 2.30$, $SD = 1.00$) and "Self-destructive" ($M = 2.59$, $SD = 1.13$) groups, whereas the "Low affective" group ($M = 1.64$, $SD = 1.00$) expressed less stress than the "Self-destructive" group. For energy ($F(3, 161) = 8.91$, $p = .000$, $Eta^2 = 0.13$, *power* = 0.98), whereby post hoc testing (TUKEY-HSD, 5 % level) indicated that the "Self-fulfilling" group ($M = 3.10$, $SD = 0.86$) expressed a higher level of energy than the "Self-destructive" ($M = 2.23$, $SD = 0.68$), "High affective" ($M = 2.78$, $SD = 0.97$) and "Low affective" ($M = 2.37$, $SD = 0.89$) groups. And finally, for Type A-personality ($F(3, 141) = 11.98$, $p = .000$, $Eta^2 = 0.20$, *power* = 1.00), whereby post hoc testing (TUKEY-HSD, 5 % level) indicated that the "Self-fulfilling" group ($M = 36.25$, $SD = 4.12$) expressed a lower level of Type A personality than the "Self-destructive" ($M = 41.32$, $SD = 4.05$) and "High affective" ($M = 40.55$, $SD = 4.32$) groups, whereas the "Self-destructive" group expressed a higher level of type A personality than the "Low affective" ($M = 37.53$, $SD = 4.19$) group.

3.2 Regression analysis

In order to assess the extent to which NA, PA, stress and energy as well as Gender may predict Type A-personality, a regression analysis was performed for each sample with Type A- personality as dependent variables and NA, PA, stress, energy, and Gender as independent variables. In Study I, the analysis indicated that Type A personality (F (5, 278) = 10.08, $p = .000$, adj. $R^2 = 0.14$) could be predicted from a high level of NA ($\beta = 0.29$, $p = .001$) and stress ($\beta = 0.14$, $p = .01$). In Study II, the analysis indicated that Type A-personality (F (5, 136) = 9.49, $p = .000$, adj. $R^2 = 0.23$) could be predicted from high levels of NA ($\beta = 0.27$, $p = .001$) and stress ($\beta = 0.28$, $p = .001$). In Study III, the analysis indicated that Type A-personality (F (5, 139) = 10.87, $p = .000$, adj. $R^2 = 0.26$) could be predicted from a high level of NA ($\beta = 0.42$, p .001). PA, energy and Gender obtained non-significant results in predicting Type A-personality.

4. Discussion

The results of the present study may be summarized as follows: (1) Marked gender effects pertaining to NA, stress, energy, and Type A-personality (Study I), NA, stress and Type A-personality (Study II, and III), were obtained. In each case, the female participants scored higher than the male participants. (2) Marked effects of Affective profiles upon stress, energy, and Type A-personality in Study I, as well as stress, energy and Type A-personality in Study II, and stress, energy and Type A-personality in Study III were obtained. The Self-fulfilling individuals, in all three studies, reported significantly lowest level of stress, as well as significantly higher level of energy and finally significantly lowest level of Type A-personality. The results of the affective profiles are summarized in Figure 1. (3) Regression analysis indicated that Type A-personality could be predicted from high levels of stress (Study I and II) and NA (Study I, II and III).

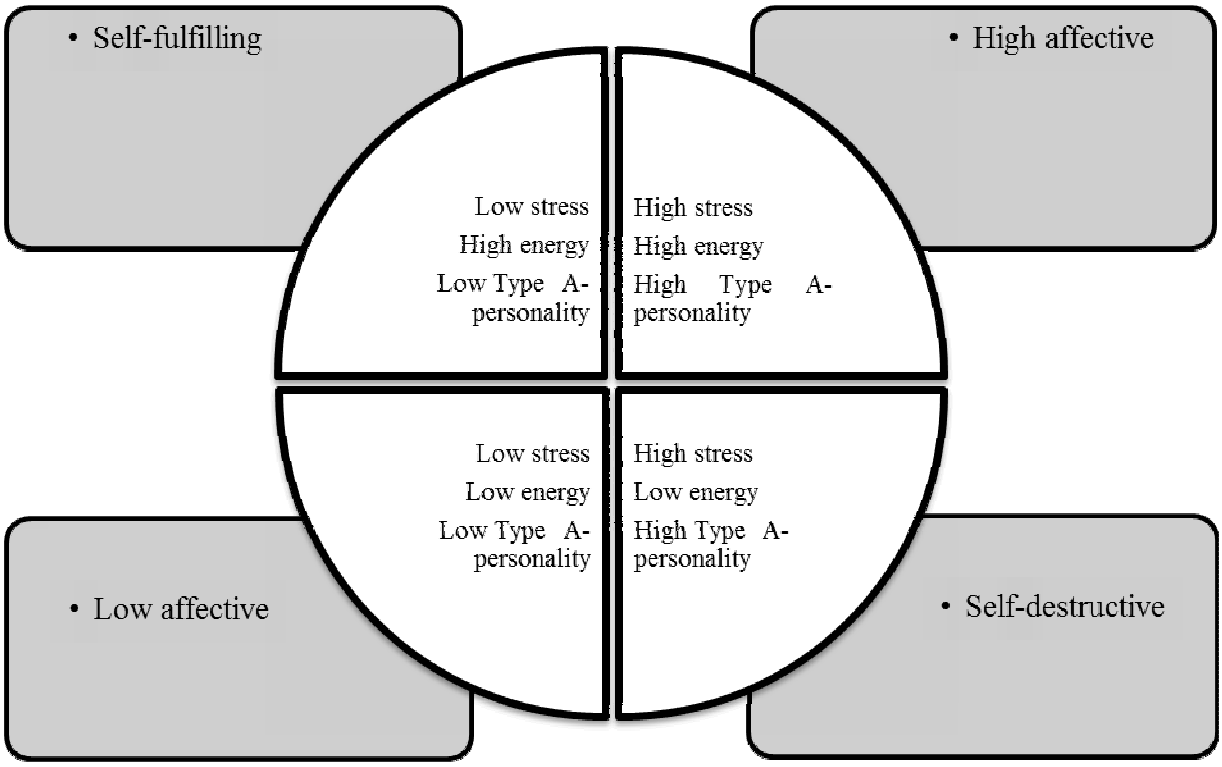

Figure 1. Showing the differences between affective profiles with regard to stress, energy, and Type A-personality.

The present article is in line with research on Type A-personality, which has repeatedly demonstrated that individuals expressing the characteristics of Type A behavior are at risk for various aspects of ill-health (Friedman & Powell, 1984; Matthews & Haynes, 1986; Williams et al., 1980). It appears to be the case too that NA is associated with the risk for ill-health and/or risky health behaviors (Vollrath, Knoch, & Cassano, 1999; Vollrath & Torgersen, 2002; Watson & Pennebaker, 1989). High levels of expressed NA are associated with subjective complaints, ineffective coping behavior, trait anxiety and stress (Bood et al., 2004; Zeidner, 1994). Karlsson and Archer (2007) found that stress and psychological stress (Subjective Stress Experience) predicted NA whereas counterpredicted emotional stability. Furthermore, individuals with high NA and low PA (the "Self-destructive" in the present article) displayed high levels of psychosocial stress and are at risk for cardiac health problems. Finally, Van Yperen (2003) showed that there exists a negative association between NA and 'Job performance' only when PA was low, and job supervisors gave employees with high NA and low PA unfavourable appraisals. In the present study, NA predicted Type A behavior to a marked extent in all three

studies, the "Self-destructive" type of affective profiles, roughly comparable to the Type D-personality of Denollet (2002), expressed more Type A-personality than the "Self-fulfilling" type. Taken together, these different observations implicate a link between NA, Type A-personality characteristics and exaggerated risk for health hazards.

One fundamental issue addressed in the present study was whether or not there existed a consistent relationship between gender, affect, stress and Type A-personality characteristics. In the present study, which consisted of three relatively young populations (Study I, mean age = 23.61 years; Study II, mean age = 18.66 years; Study III, mean age =18.45 years), several gender differences emerged that, taken together, provide several to consider in terms of the health status of young women: (i) in all three studies, the female participants expressed more NA, stress and Type A-personality than the male participants, (ii) these increases in negative affect, stress and Type A-personality are associated with the Self-destructive and High affective profile type, which in turn are linked in general with disadvantageous aspects of both psychological and somatic health (Andersson-Arntén et al., 2008; Karlsson & Archer, 2007; Palomo et al., 2004), (iii) high levels of NA and/or stress are linked with poor outcome and deleterious health (Lindahl & Archer, 2013; Bood et al., 2004; Denollet, 2000; Van Yperen, 2003; Watson, 1988; Watson & Pennebaker, 1989), (iv) the established links between stress and Type A-personality with illhealth markers such as sympathetic nervous system arousal, cardiovascular disease and immune system system suppression (e.g. Contrada, Wright, & Glass, 1985; Dienstbier, 1989; Mayes, Sime, & Ganster, 1984; Pittner, Houston & Spiridigliozzi, 1983), and (v) the potential risks for self-destructive behavior, such as alcohol/substance use (Bonin, McCreary, & Sadava, 2000; Park & Grant, 2005) and/or suicidal behavior (Canetto, 1997; Linehan, 1973) relating to gender, negative affect and mood state.

4.1 Limitations

The results presented here are based on self-reports. However, the instruments used in the studies are considered to be reliable. In order to use PA and NA as trait measures, future studies should address the test-retest reliability of the affective profile model.

5. **Conclusions and implications**

Taken together, the findings from all three studies demonstrate that negative emotions are linked to stress and Type A-personality with consequences for the development/attribution of behavioral patterns that imply health hazards that are expressed by gender and type of affective profiles. In particular, there appears to exist marked risks for health and behavioral problems in young women still on the threshold of their future careers.

Social and academic demands at school are stressors to children and adolescents: school performance offers one of the main stressors for adolescents (Byrne, Davenport, & Mazanov, 2007). Adolescents are more vulnerable to uncontrollable stressful situations, due to psychobiological potentiation effects, and therefore more predisposed for negative affect (Chorpita & Barlow, 1998). Increased affective responsiveness towards stressors in adolescence has been suggested to be associated with adolescent's brain development (Archer, Kostrzewa, Beninger, & Palomo, 2008). Low levels of positive affect (Colder & Chassin, 1997) has been related to adolescent impulse behavior (Crews & Boet- tiger, 2009) as a risk factor for addiction and other related problems (Churchwell, Lopez-Larson, & Yurgelun-Todd, 2001; White et al., 2011).

A low level of positive affect is also significant for an individual with at self-destructive profile which has been linked in general to ill-health (Andersson-Arntén et al., 2008; Karlsson & Archer., 2007; Palomo et al., 2004). Lindahl and Archer (2013) suggests that stress could be a source of vulnerability since stress may be impelled by negative affect (Denollet & De Vries 2006) especially as negative affect may present a genetic attribute (Trzaskowski, Zavos, Haworth, Plomin, & Eley, 2012). In the present study, negative affect was found to be the main predisposing factor for Type A personality. Negative affect is not only a predisposition for Type A personality and depressive mood but also for stress during academic examinations. Indeed, negative affect is a

predisposing factor for both stress reactions, helplessness (Lindahl & Archer, 2013), and in this study, Type A personality making the female participants more vulnerable at risk for health and behavioral problems since the females expressed more negative affect, stress and Type A-personality than the male participants. Moreover, the promotion of positive emotions among youth in schools might be used as a protective factor against maladaptive behavioral patterns and ill-being. After all, the absence of positive emotions, and other positive measures of well-being such as life satisfaction, is more predictive of subsequent mortality and morbidity than the presence of negative emotions (Cloninger, 2006; Huppert & Whittington, 2003).

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