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Self-affirmation strengthens autonomy-connectedness and improves mood

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Abstract

Self-affirmation is a promising intervention to improve mental well-being. In this study, it was examined whether self-affirmation affects autonomy-connectedness and mood. Among 83 adults, self-affirmation was manipulated with a writing exercise on important personal values. Autonomy-connectedness and mood were measured before and after manipulation. Self-affirmation strengthened autonomy-connectedness, but only in participants with relatively poor initial levels of autonomy-connectedness: Its component self-awareness increased in participants with low initial levels of self-awareness. Its component sensitivity to others also increased, but only in male participants with low initial levels of sensitivity. Self-affirmation also improved mood: Participants felt better after self-affirmation. The effects of self-affirmation on autonomy-connectedness and mood were discussed. Directions for the use of self-affirmation in education and mental healthcare were proposed.

Keywords: self-affirmation, affirmation exercises, autonomy, autonomy-connectedness, self-awareness, sensitivity to others, mood, mood improvement

Self-affirmation strengthens autonomy-connectedness and improves mood

Autonomy originates from the Greek words ‘autos’ (meaning self) and ‘nomos’ (meaning law). It literally refers to creating your own law, your own set of rules. Autonomy has often been described in literature, both general and scientific. Though, the concept of autonomy still lacks theoretical homogeneity. It does not have a widely spread uniform definition (Hmel & Pincus, 2002). Autonomy is classically referred to in terms of individual separation (Erikson, 1971; Kohlberg, 1984; Mahler, Pine, & Bergman, 1975). Nowadays, autonomy is more and more referred to in terms of self-governance. Self-governance reflects interpersonal connectedness and dependency, and a strong self-awareness and self-insight (Bekker, 1993; Bekker & van Assen, 2006; Hmel & Pincus, 2002; Koestner & Losier, 1996). In this modern view, autonomy thus refers to the capacity to be a single human entity, based on self-awareness and self-insight, acting in systems with other human entities, based on interpersonal connectedness and dependency. Therefore, the term autonomy-connectedness will be used to capture the concept of modern autonomy.

Autonomy-connectedness consists of three components; (i) self-awareness, (ii) capacity for managing new situations, and (iii) sensitivity to others (Bekker, 1993; Bekker, Croon, van Balkom, & Vermee, 2008; Bekker & van Assen, 2006). Self-awareness is the capacity to know and express what you want, what you like or dislike, and what your opinions are. Capacity for managing new situations is the internal drive for exploration. It defines whether you associate negative or positive feelings with new experience, and whether you are flexible or dependent on familiar structures. Sensitivity to others is the extent to which you are sensible for other people, their opinions, and their feelings. It has to do with empathy and the balance between intimacy and separation. In general, women are more sensitive to others than men. This sex difference fits

into theories that showed greater tendency in women to affiliate, connect and seek social support in comparison to men (Taylor, et al., 2000).

Deficiencies in autonomy have primarily been associated with depression (Alford & Gerrity, 1995; Beck, 1983; Bekker, 1993; Clark, Steer, Haslam, Beck, & Brown, 1997). In a recent study, deficiencies in autonomy-connectedness have been associated with anxiety and mood disorders (Bekker & Belt, 2006). In comparison to non-clinical controls, anxious and depressed mental health patients had lower levels of self-awareness, lower levels of capacity for managing new situations, and higher levels of sensitivity to others. Similar patterns - low on self-awareness, low on capacity for managing new situations, high on sensitivity to others - were found in patients with agoraphobia (Bekker, 1993) and eating disorders (Bekker, Croon, & Bertrand, 2008). In patients with antisocial traits, rather low levels of sensitivity to others were found (Bekker, Bachrach, & Croon, 2007). Deficiencies in autonomy-connectedness have also been associated with work stress (Bekker, Nijssen, & Hens, 2001) and work-family interference (Bekker, Willemse, & De Goeij, 2010).

In the above mentioned psychological problems, affect plays a central role. Depressed mental health patients, for instance, describe themselves as feeling miserable and empty (Comer, 2004). Their mood is sad and dark. Anxious mental health patients experience intense feelings of fear or anxiety. Patients suffering from eating disorders often show affective symptoms comparable to those of depressed patients. Several terms, with sometimes overlapping meaning, can be used to describe these affective phenomena (Ekman & Davidson, 1994). In this study, the term mood will be used. Mood is defined as the individual’s affective background. It is the state of mind that reflects one’s general sense of well-being (Wald & Mellenbergh, 1990).

The main aim of the present study was to examine a psychological intervention called self-affirmation, in terms of its potential impact on autonomy-connectedness, and in terms of its potential impact on mood. Self-affirmation theory builds on the premise that individuals are motivated to maintain their feelings of worth and self-integrity (Steele, 1988). During the day, there are numerous events that might threaten feelings of worth and self-integrity. Individuals then use cognitive strategies to change their perceptions of these threatening events. They change the threatening reality to maintain their feelings of worth and self-integrity. The cognitive strategies to change one's perceptions are often defensive in nature. Self-affirmation theory proposes to restore feelings of worth and self-integrity in less defensive, more adaptive ways. It restores these feelings by affirming sources of the self. Sources of the self are, for instance, important personal values or characteristics. The affirmation of these sources allows the individual to respond more adaptively to potential threats. Self-affirmation as intervention is a process to affirm internal psychological sources within the individual that will buffer against threats to the self (Sherman & Cohen, 2006).

It was hypothesized that self-affirmation might be an effective intervention to strengthen autonomy-connectedness. It might add to self-insight and consequently self-awareness. It might add to flexibility and consequently the capacity for managing new situations. It might add to interpersonal adaptability and consequently the sensitivity to others. It was also hypothesized that self-affirmation might be an effective intervention to improve mood, as it might positively reinforce the sense of well-being. In Figure 1 the hypothesized effects of self-affirmation on autonomy-connectedness and mood are visualized. The visualization assumes direct effects of self-affirmation on autonomy-connectedness and mood.

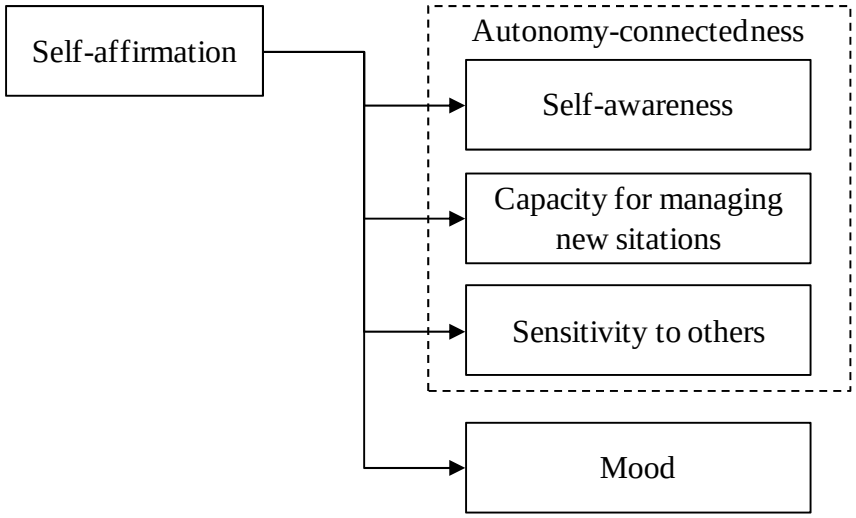

Figure 1. Hypothesized effects of self-affirmation on autonomy-connectedness and mood

In terms of the potential strengthening effect of self-affirmation on autonomy-connectedness, it was predicted (i) that self-affirmation would increase the level of self-awareness, (ii) that it would increase the capacity for managing new situations, and (iii) that it would normalize sensitivity to others. The third prediction followed from the U-shaped relationship between the optimal sensitivity to others and psychological health. This U-shaped relationship was suggested in earlier research: Poor autonomy-connectedness exists in the form of high sensitivity to others as well as low sensitivity. In depressed and anxious individuals, for instance, it is their high sensitivity to others that is problematic (Bekker & Belt, 2006). In antisocial individuals, for instance, it is their low sensitivity to others that is problematic (Bekker, et al., 2007). Healthy individuals are characterized by levels of sensitivity to others that are not too high, nor too low. To normalize sensitivity to others therefore means to increase sensitivity to others for individuals with low levels of sensitivity, and to decrease sensitivity to others for those with high levels. In general, women were expected to have higher levels of sensitivity to others than men.

In terms of the improving effect of self-affirmation on mood, it was predicted that self-affirmation would increase positive mood. Participants were expected to feel better after self-affirmation. A previous study showed that the effect of self-affirmation was strongest for participants who were most psychologically vulnerable (Sherman, Bunyan, Creswell, & Jaremka, 2009). It was therefore also predicted that the increase in positive mood would be strongest for participants with relatively poor initial levels of autonomy-connectedness. As these participants were psychologically most vulnerable, they were expected to be the most responsive to the mood-improving effect of self-affirmation.

Method

Design

This study used a mixed between-within subjects design. The independent variable was self-affirmation with two conditions; the self-affirmation condition and the no-affirmation control condition. The dependent variables were autonomy-connectedness and mood, both measured before and after manipulation of self-affirmation.

Participants

Eighty-three undergraduate students (25 men and 58 women; age M = 20.31 years, SD = 2.49 years) of Tilburg School of Social and Behavioral Sciences, Tilburg University, The Netherlands, participated in the study. The students signed themselves up for participation. Participants were told they were attending a research project on ‘behavior and feeling’. After participation, they received student credits in return. Of the 25 male participants, 11 were randomly assigned to the self-affirmation condition and 14 to the control condition. Of the 58 female participants, 30 were randomly assigned to the self-affirmation condition and 28 to the control condition.

Procedure

First, the participants completed two questionnaires to define their baseline levels of autonomy-connectedness and mood. As in previous studies on self-affirmation, the participants ranked 11 values from most important to least important, out of a list of 11 values; artistic skills, athletics, business/earning money, creativity, independence, musical ability/appreciation, politics, relations with friends or family, religious values, sense of humor, spontaneity/living life in the moment (Cohen, Garcia, Apfel, & Master, 2006; Sherman, et al., 2009).

Second, the participants attended the experimental session. They completed a 20-minute writing exercise (either in the self-affirmation or no-affirmation control condition).

Third, the participants completed two questionnaires to define their final levels of autonomy-connectedness and mood.

Self-affirmation

Self-affirmation was operationalized with a writing exercise. The writing exercise was based on materials used in previous studies, in which participants affirmed important personal values (Cohen, et al., 2006; Sherman, et al., 2009). Participants were randomly assigned to the self-affirmation condition or the control condition. Participants had to complete a 20-minute writing exercise; 10 minutes for the first value and 10 minutes for the second value. Participants in the self-affirmation condition wrote about the values they had ranked as most important and second most important, why these values were important to them, and about a time in their life that these values were particularly important. Participants in the control condition wrote about the values they had ranked as least important and second least important, and why these values might be important to someone else, and about a time in someone else's life that these values might have been particularly important. To reinforce the manipulation, participants indicated

their level of agreement with statements concerning their chosen values, such as ‘I care about this value’ in the self-affirmation condition and ‘Someone else cares about this value’ in the control condition.

Measures

Autonomy-connectedness was operationalized with the Autonomy-Connectedness Scale, measured before manipulation (T0 or baseline) and after manipulation (T1). The Autonomy-Connectedness Scale, or ACS-30 (Bekker & van Assen, 2006) is a shortened version of the Autonomy Scale (Bekker, 1993). The ACS-30 consists of 30 items, measuring the three components of autonomy-connectedness; self-awareness (7 items), capacity for managing new situations (6 items), and sensitivity to others (17 items). Items are, for instance, ‘I have outspoken opinions on most subjects’ (self-awareness), ‘I easily come to grips with a new problem on my own’ (capacity for managing new situations), and ‘I often go deeply into other people’s feelings’ (sensitivity to others). The items have to be rated on a 5-point scale varying from 1 (disagree) to 5 (agree). The ACS-30 showed reliable and valid in recent research findings (Bekker & van Assen, 2006). In the present study, the Cronbach’s α values were .80 at T0 and .77 at T1 for self-awareness, .82 at T0 and .85 at T1 for capacity for managing new situations, and .87 at T0 and .88 at T1 for sensitivity to others.

Mood was operationalized with the Shortened Profile of Mood States, measured before and after manipulation of self-affirmation. The original Profile of Mood States, or POMS (McNair, Lorr, & Droppleman, 1971, 1992) was developed to measure the affective mood state. In this study, a shortened version of the Profile of Mood States, or Shortened POMS (Wald & Mellenbergh, 1990) was used. The Shortened POMS consists of 32 items, measuring five subscales; depression (8 items), anger (7 items), fatigue (6 items), vigor (5 items), and tension (6

items). Items are, for instance, ‘I feel exhausted’ (fatigue), ‘I feel anxious’ (tension) and ‘I feel furious’ (anger). The items have to be rated on a 5-point scale varying from 0 (not at all) to 4 (extremely). Mood was calculated as the aggregate of the experienced positive feelings minus the experienced negative feelings. Mood therefore equaled the sum score on subscale vigor, minus the sum scores on subscales depression, anger, fatigue and tension. This aggregated scale was called positive mood. The aggregation of the subscales was previously done in clinical research (McNair, et al., 1971, 1992). The Shortened POMS showed reliable and valid in various studies (Ark, Marburger, Mellenbergh, Vorst, & Wald, 1995; Groot, 1991). In the present study, the Cronbach’s α values were .93 at T0 and .92 at T1 for depression, .80 at T0 and .82 at T1 for anger, .87 at T0 and .89 at T1 for fatigue, .75 at T0 and .78 at T1 for vigor, and .76 at T0 and .74 at T1 for tension. For the aggregated scale positive mood, Cronbach’s α values were .80 at T0 and .76 at T1.

Statistical analyses

Repeated measures analyses of variance were executed on dependent variables autonomy-connectedness and mood. The within-subjects factor was ‘time’, with two levels; (i) before manipulation of self-affirmation (the baseline), and (ii) after manipulation of self-affirmation. The dependent variables representing the within-subjects factor were, respectively, the sum scores on self-awareness, the sum scores on capacity for managing new situations, the sum scores on sensitivity to others, and the sum scores on positive mood. For all repeated-measures analyses, the between-subjects factor was self-affirmation. The repeated measures analyses were first executed among all participants. The analyses were then executed among male participants only and among female participants only. Paired samples t tests were executed on the dependent variables for additional insight into changes in scores.

To further examine the potential strengthening effect of self-affirmation on autonomy-connectedness, groups of participants were formed based on relatively poor baseline levels of autonomy-connectedness. Poor autonomy-connectedness exists in the form of low levels of self-awareness, low levels of capacity for managing new situations, and low or high levels of sensitivity to others. The groups were formed by mean split procedures. Participants with low baseline levels of self-awareness (scores below 25; $M = 24.87$, $SD = 4.52$), low baseline levels of capacity for managing new situations (scores below 18; $M = 17.79$, $SD = 5.04$), low baseline levels of sensitivity to others (scores below 65; $M = 64.20$, $SD = 9.43$) and high baseline levels of sensitivity to others (scores of 65 and higher) were grouped together. Male participants with low baseline levels of self-awareness (scores below 27; $M = 26.00$, $SD = 4.59$), low baseline levels of capacity for managing new situations (scores below 20; $M = 19.56$, $SD = 4.83$), low baseline levels of sensitivity to others (scores below 58; $M = 57.08$, $SD = 8.90$) and high baseline levels of sensitivity to others (scores of 58 and higher) were grouped together. Female participants with low baseline levels of self-awareness (scores below 25; $M = 24.38$, $SD = 4.44$), low baseline levels of capacity for managing new situations (scores below 18; $M = 17.02$, $SD = 4.98$), low baseline levels of sensitivity to others (scores below 68; $M = 67.28$, $SD = 7.92$) and high baseline levels of sensitivity to others (scores of 68 and higher) were grouped together.

Within these groups, similar repeated measures analyses of variance were executed. Again, the within-subjects factor was ‘time’, with two levels; (i) before manipulation of self-affirmation, and (ii) after manipulation of self-affirmation. The dependent variables representing the within-subjects factor were, respectively, the sum scores on self-awareness for the groups with low baseline levels of self-awareness, the sum scores on capacity for managing new situations for the groups with low baseline levels of capacity for managing new situations, and

the sum scores on sensitivity to others for the groups with low or high baseline levels on sensitivity to others. Again, the between-subjects factor was self-affirmation.

To examine the potential role of autonomy-connectedness on the increase of positive mood, additional factors were added to the repeated measures analyses on mood. Two between-subjects factors per repeated measures analysis were used. Self-affirmation remained the primary between-subjects factor for all analyses. The additional between-subjects factors were (i) self-awareness, (ii) capacity for managing new situations and (iii) sensitivity to others. These factors each had two conditions; low and high. Participants were assigned to one of the conditions by mean split procedures. Participants with low baseline levels were assigned to the low-condition, those with high baseline levels to the high-condition. Participants with low baseline levels of self-awareness, for instance, were assigned to the condition 'low' on factor self-awareness. Participants with high baseline levels of sensitivity to others, for instance, were assigned to the condition 'high' on factor sensitivity to others. Again, the within-subjects factor was 'time', with two levels; (i) before manipulation of self-affirmation, and (ii) after manipulation of self-affirmation. The dependent variable representing the within-subjects factor was positive mood. The analyses were first executed among all participants. The analyses were then executed among male participants only and among female participants only.

Results

The results are presented in sections. First, the results on autonomy-connectedness are presented. Then, the results on mood are presented. The significance value was .05.

Autonomy-connectedness: self-awareness

The impact of self-affirmation on self-awareness was examined. Analyses based on all participants did not reveal significant effects of self-affirmation. Analyses based on all male

respectively female participants (n = 25 respectively n = 58) did not reveal significant effects. Analyses based on the group selected by low baseline levels of self-awareness (n = 35) revealed significant effects. These effects were also found in the group of female participants selected by low baseline levels of self-awareness (n = 28). These effects were not found in the group of male participants selected by low baseline levels of self-awareness (n = 11). The results based on the group of participants selected by low baseline levels of self-awareness (men and women) are presented.

Preliminary analyses revealed that the assumptions were not violated. Repeated measures analyses revealed a significant within-subjects main effect, Wilks Lambda = .76, F (1, 33) = 10.52, p = .003, partial eta squared = .24 (large effect). Overall, the scores on self-awareness were higher at the end of the experiment (M = 21.43, SD = 2.79) than at the baseline (M = 20.49, SD = 2.87). The increase in self-awareness was moderated by the self-affirmation condition assignment, as there was a significant Time × Condition interaction, Wilks Lambda = .87, F (1, 33) = 5.09, p = .031, partial eta squared = .13 (large effect).

Paired samples t tests revealed a significant increase in self-awareness in the self-affirmation condition, t (13) = -4.45, p = .001; the scores on self-awareness were higher at the end of the experiment (M = 21.86, SD = 3.08) than at the baseline (M = 20.00, SD = 3.11). By contrast, the increase in self-awareness in the control condition was not significant, t (20) = -.70, p = .49, though the scores on self-awareness were higher at the end of experiment (M = 21.14, SD = 2.57) than at the baseline (M = 20.81, SD = 2.73).

The increase in self-awareness in the self-affirmation condition corresponds to a change from ‘low’ to ‘below average’ according to the ACS-30 norm tables (‘low’ equals sum scores on self-awareness of 19 to 21, ‘below average’ equals sum scores of 22 to 23).

The impact of self-affirmation on self-awareness, within the group selected by low baseline levels of self-awareness, is illustrated in Figure 2.

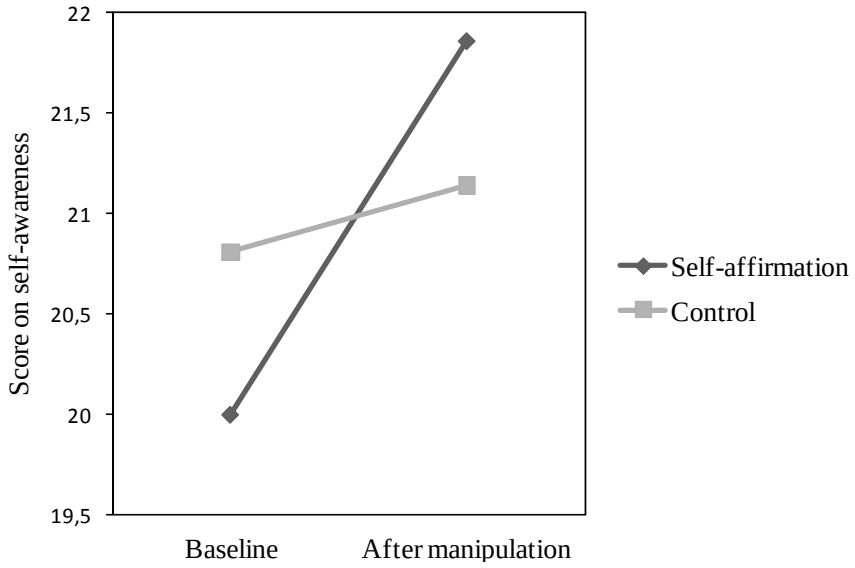

Figure 2. Increase in self-awareness (for participants with low baseline scores).

Autonomy-connectedness: capacity for managing new situations

The impact of self-affirmation on capacity for managing new situations was examined. Analyses based on all participants did not reveal significant effects of self-affirmation. Analyses based on all male respectively female participants (n = 25 respectively n = 58) did not reveal significant effects. Analyses based on the group selected by low baseline levels of capacity for managing new situations (n = 41) did not reveal significant effects. Also, analyses based on the groups of male respectively female participants selected by low baseline levels of capacity for managing new situations (n = 13 respectively n = 31) did not reveal significant effects. Therefore, no further results are presented.

Autonomy-connectedness: sensitivity to others

The impact of self-affirmation on sensitivity to others was examined. Analyses based on all participants did not reveal significant effects of self-affirmation. Analyses based on all male

respectively female participants (n = 25 respectively n = 58) did not reveal significant effects. Analyses based on the groups selected by low respectively high baseline scores on sensitivity to others (n = 39 respectively n = 44) did not reveal significant effects. Analyses based on the groups of female participants selected by low respectively high baseline scores on sensitivity to others (n = 27 respectively n = 31) did not reveal significant effects. Also, analyses based on the group of male participants selected by high baseline levels of sensitivity to others (n = 13) did not reveal significant effects. However, analyses based on the group of male participants selected by low baseline levels of sensitivity to others (n = 12) revealed significant effects. These results are presented.

Preliminary analyses revealed that the assumptions were not violated. Repeated measures analyses revealed a significant within-subjects main effect, Wilks Lambda = .62, F (1, 10) = 6.14, p = .03, partial eta squared = .38 (large effect). Overall, the scores on sensitivity to others were higher at the end of the experiment (M = 51.17, SD = 7.81) than at the baseline (M = 49.50, SD = 5.84). The increase in sensitivity to others was moderated by the self-affirmation condition assignment, as there was a significant Time × Condition interaction, Wilks Lambda = .57, F (1, 10) = 7.42, p = .02, partial eta squared = .43 (large effect).

Paired samples t tests revealed a significant increase in sensitivity to others in the self-affirmation condition, t (5) = -2.91, p = .03; the scores on sensitivity to others were higher at the end of the experiment (M = 54.83, SD = 6.43) than at the baseline (M = 51.33, SD = 5.09). By contrast, the change in sensitivity to others in the control condition was not significant, t (5) = -.28, p = .79, and the scores on sensitivity to others were even lower at the end of experiment (M = 47.50, SD = 7.79) than at the baseline (M = 47.67, SD = 6.408).

The increase in sensitivity to others in the self-affirmation condition corresponds to a change within the 'average' boundaries of the ACS-30 norm tables ('average' equals sum scores on sensitivity to others of 47 to 58).

The impact of self-affirmation on sensitivity to others, within the group of male participants selected by low baseline levels of sensitivity, is illustrated in Figure 3.

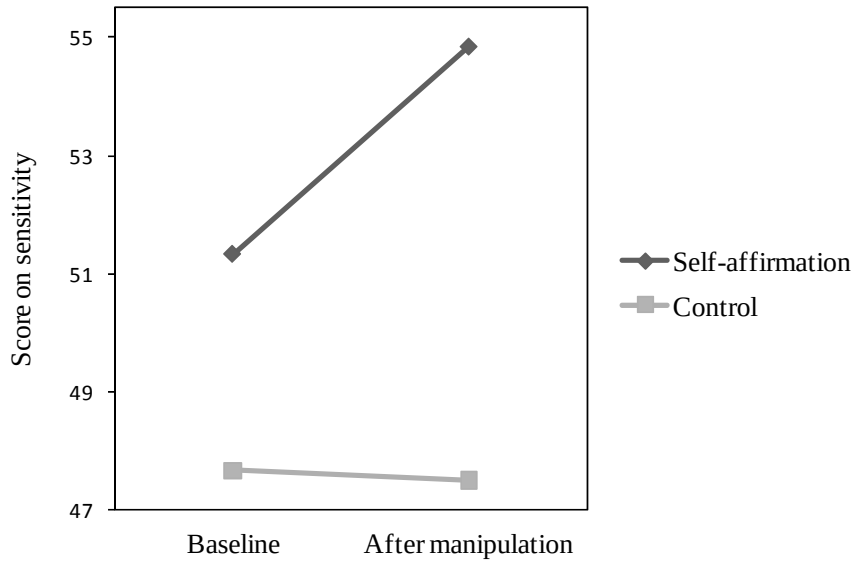

Figure 3. Increase in sensitivity to others (for male participants with low baseline scores).

In terms of sex difference in sensitivity to others, women were more sensitive compared to men. This sex difference remained constant throughout the experiment, regardless of the self-affirmation condition assignment. Baseline scores on sensitivity to others in male participants (M = 57.08, SD = 8.90) and female participants (M = 67.28, SD = 7.92) were significantly different, t (80) = 2.15, p = .04. In the self-affirmation condition, final scores on sensitivity to others in male participants (M = 58.00, SD = 6.23) and female participants (M = 67.27, SD = 7.37) were significantly different, t (39) = -3.71, p = .001. In the control condition, final scores on sensitivity to others in male participants (M = 58.57, SD = 11.70) and female participants (M = 68.32, SD = 7.98) were also significantly different, t (40) = -3.16, p = .003.

Mood

The impact of self-affirmation on mood was examined. Analyses based on all participants revealed significant effects of self-affirmation. Analyses based on all male respectively female participants (n = 25 respectively n = 58) did not reveal significant effects. The results based on all participants (men and women) are presented.

Preliminary analyses revealed that the assumptions were not violated. Repeated measures analyses revealed a significant within-subjects main effect, Wilks Lambda = .91, F (1, 77) = 8.11, p = .006, partial eta squared = .10 (medium to large effect). Overall, moods were more positive at the end of the experiment (M = -.81, SD = 12.61) than at the baseline (M = -3.09, SD = 13.25). The mood improvement was moderated by the self-affirmation condition assignment, as there was a significant Time × Condition interaction, Wilks Lambda = .94, F (1, 77) = 4.97, p = .03, partial eta squared = .06 (medium effect).

Paired samples t tests revealed a significant improvement of mood in the self-affirmation condition, t (38) = -2.85, p = .007; the scores on positive mood were higher at the end of the experiment (M = .51, SD = 13.02) than at the baseline (M = -3.59, SD = 13.94). By contrast, the mood improvement in the control condition was not significant, t (39) = -.66, p = .51, though the scores on positive mood were higher at the end of experiment (M = -2.10, SD = 12.22) than at the baseline (M = -2.60, SD = 12.69).

The impact of self-affirmation on mood is illustrated in Figure 4.

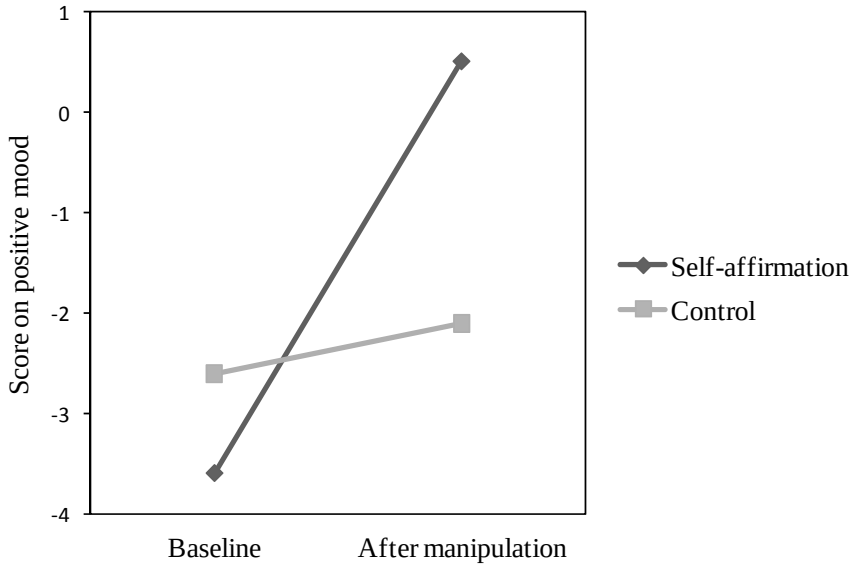

Figure 4. Increase in positive mood (for all participants).

In terms of the potential role of autonomy-connectedness in the increase of positive mood, no significant results were found. Repeated measures analyses did not reveal significant interactions of baseline levels of (i) self-awareness, (ii) capacity for managing new situations, and (iii) sensitivity to others. Mood improvement in the self-affirmation condition was the same for participants with relatively poor, respectively healthy baseline levels of autonomy-connectedness. Also when executed among male participants only and female participants only, repeated measures analyses did not reveal significant interactions of autonomy-connectedness. Autonomy-connectedness did not influence mood improvement.

Discussion

The main aim of the present study was to examine the impact of self-affirmation on autonomy-connectedness and mood. In particular, it was examined whether self-affirmation would strengthen autonomy-connectedness and whether it would improve mood. To this end, an experiment was executed among Dutch undergraduate students. Direct effects of self-affirmation

on autonomy-connectedness and mood were assumed. In terms of the potential strengthening effect of self-affirmation on autonomy-connectedness, it was predicted (i) that self-affirmation would increase the level of self-awareness, (ii) that it would increase capacity for managing new situations, and (iii) that it would normalize sensitivity to others. In terms of the improving effect of self-affirmation on mood, it was predicted that self-affirmation would increase positive mood. It was also predicted that the increase in positive mood would be strongest for participants with relatively poor initial levels of autonomy-connectedness.

The present study provides the first experimental evidence demonstrating that brief self-affirmation exercises can strengthen autonomy-connectedness. The potential strengthening effect of self-affirmation on autonomy-connectedness was only found in participants with relatively poor initial levels of autonomy-connectedness. The outcomes of these participants were compared to the outcomes of a matched control group. After the completion of the self-affirmative session, self-awareness had increased as predicted, but only in participants with low initial levels of self-awareness. Sensitivity to others had also increased as predicted, but only in male participants with low initial levels of sensitivity. In the matched control group, these effects were not found. As expected, female participants had higher levels of sensitivity to others than male participants. Some predictions were not fulfilled: Capacity for managing new situations was not significantly affected. Sensitivity to others in female participants was not significantly affected. Sensitivity to others was also not normalized, as the levels of highly sensitive participants were not significantly affected.

The present study also provides the first experimental evidence that brief self-affirmation exercises can improve mood. After the completion of the self-affirmative session, positive mood had increased as predicted. Participants felt better after self-affirmation. In the control group,

mood was not significantly affected. One prediction was not fulfilled: Mood improvement in the self-affirmation condition was the same for participants with relatively poor, respectively healthy initial levels of autonomy-connectedness. Autonomy-connectedness did not influence mood improvement.

A possible explanation for the potential strengthening effect of self-affirmation on autonomy-connectedness can be found in attachment theory (Ainsworth, 1978; Bowlby, 1969). In attachment theory, relatively healthy levels of autonomy or autonomy-connectedness (Bekker, 1993) are described as the result of secure attachment interactions between the infant and its caregivers. Infants then become self-aware ('self-awareness'), they learn how to explore the world ('capacity for managing new situations') and they learn how to balance between their needs and the requirements of their environment ('sensitivity to others'). A key characteristic of secure attachment interactions is the consistent affirmation of the infant by its caregivers. A lack of affirmation potentially results in relatively poor levels of autonomy-connectedness. In the present study, participants affirmed themselves with the self-affirmation exercises. Participants were asked to think and write about important personal values. The results show that the self-affirmation exercises only affected participants with low levels of self-awareness and sensitivity to others. For these participants, the self-affirmation exercises may have induced internal affirmative experiences similar to those provided to infants by caregivers. This would explain the strengthening effect of self-affirmation on relatively poor levels of autonomy-connectedness. It would also explain why the self-affirmation exercises did not further strengthen relatively healthy levels of autonomy-connectedness. Participants with relatively healthy levels of autonomy-connectedness already are self-aware, they already know how to explore the world and they already have a sound balance between their needs and the requirements of their

environment. In other words, participants with relatively healthy levels of autonomy-connectedness do not need to affirm themselves with the self-affirmation exercises. This would indicate the presence of a ceiling effect, obstructing further impact of self-affirmation on relatively healthy levels of autonomy-connectedness. This ceiling effect may also explain why capacity for managing new situations and relatively high levels of sensitivity to others were not affected, as well as the sensitivity to others in female participants.

A possible explanation for the improving effect of self-affirmation on mood can be found in cognitive theory (Beck, 1964, 1983; Ellis, 1962). In cognitive theory, the influence of thoughts on mental well-being are described. During the day, individuals experience numerous events. These events are processed within the individual as thoughts. These thoughts precede and define affective phenomena such as mood. Individuals who manage to maintain a positive mood, know how to deal with ambiguous or negative events in a rather positive way. They may for instance neutralize the impact of negative events by using positive self-talk (Lange, Richard, Gest, Vries, & Lodder, 1998). By contrast, individuals suffering from disturbances of the mood often use negative self-talk. These individuals consistently indoctrinate themselves in a negative way. Challenging the negative self-talk is the core of cognitive therapy. In the present study, participants affirmed themselves with the self-affirmation exercises. Participants were asked to think and write about important personal values. The results show that the self-affirmation exercises improved the moods of all participants in the self-affirmative condition. The self-affirmation exercises may have activated positive thoughts. These thoughts consequently cultivated feelings of worth and self-integrity. Self-affirmation may thus have served as positive self-talk, thereby indoctrinating the participants in a positive way. This would explain the improving effect of self-affirmation on mood.

The present study joins the body of research on self-affirmation executed among student populations. Experimental evidence demonstrated that brief self-affirmation exercises can improve performance in stressful situations (Cohen, et al., 2006). Minority students who completed self-affirmation exercises obtained higher grades on exams. The race achievement gap in the end of semester performance was reduced by 40%. The use of self-affirmation exercises, similar to those used in the present study, thus led to improved academic performance. Experimental evidence also demonstrated that brief self-affirmation exercises can buffer stress (Sherman, et al., 2009). Students who completed self-affirmation exercises had reduced epinephrine responses in their stressful examination period. The use of self-affirmation exercises, similar to those used in the present study, thus buffered the students against stress. It was explained that students put their academic stressors into a different context, when given the opportunity to write about important values. They then become more secure in their self-worth and less concerned about what potential failures would represent. In another study, it was concluded that self-affirmation is an effective way to stop ruminative thinking (Koole, Smeets, van Knippenberg, & Dijksterhuis, 1999). Self-affirmation exercises changed how students thought about stressors, thereby improving psychological and physiological stress responses. It was shown that self-affirmation exercises led to increased positive affect on a disguised mood test and more positive name letter evaluations. Another study showed that self-affirmation makes less defensive against threatening health information (Harris & Napper, 2005). Students who use alcohol were informed on the potential link between using alcohol and the development of cancer. Self-affirmation exercises promoted the acceptance of the personal relevance of the threatening message. It was concluded that self-affirmation stops defensive thinking and produces durable message acceptance.

Considering the outcomes of the mentioned studies, including those of the present one, self-affirmation has shown to be a fruitful intervention to improve students' mental well-being. Self-affirmation exercises increase self-awareness and the capacity for managing new situations, make more sensitive and less defensive, improve mood, buffer against stress, stop rumination and increase grades. Adaptation of self-affirmation exercises in the curriculum of schools and universities would be a promising new direction for the use of self-affirmation. Implementation of self-affirmation exercises in educational programs can be rather uncomplicated and low-budget. The writing exercises can efficiently be distributed via e-mail, online learning platforms or social media. There is no need for face-to-face instructions by teachers. The time to perform the exercises is short, up to a maximum of 20 minutes. Students can perform the exercises once or twice per month. The exercises can be done at home. And last but not least, it will not interfere with other parts of their curriculum.

There are several limitations and unanswered questions raised by the present study. First, this study was conducted with students. The participating students had relatively healthy levels of autonomy-connectedness. Effects of self-affirmation may be stronger for individuals with poorer levels of autonomy-connectedness. Results may be more convincing if the study would be conducted with individuals characterized by poor autonomy-connectedness. It would therefore be interesting to replicate the study among mental health patients suffering from depression and anxiety (Bekker & Belt, 2006) or eating disorders (Bekker, Croon, & Bertrand, 2008). These patients often have poor autonomy-connectedness. Given the substantial increase of sensitivity to others found in male participants with low initial levels of sensitivity, a replication among men with antisocial behavior would also be interesting. Such a replication fits into previous studies,

that stressed the importance of autonomy-related issues in antisocial behavior (Allen, et al., 2002; Bekker, et al., 2007).

Second, this study measured autonomy-connectedness twice in a rather short period of time (i.e. 20 minutes). The participants completed the 30-item Autonomy-Connectedness Scale (Bekker & van Assen, 2006) before and after manipulation of self-affirmation. During the final completion of the Autonomy-Connectedness Scale, participants may have recalled their initial answers and they may have tried to answer consistently. If so, this would have weakened the results of the present study. Results may be more convincing if such a potential recall bias would be avoided. A replication of this study might profit from using one completion of the Autonomy-Connectedness Scale per participant. For instance, half of participants can complete the Autonomy-Connectedness Scale before manipulation and half of them after manipulation. If the sample size is large enough, groups can still be compared and results will not be weakened by a potential recall bias.

Third, this study used one session of self-affirmation exercises. As autonomy-connectedness is a rather stable personality characteristic (van Assen & Bekker, 2009), one self-affirmative session may not be enough to largely improve levels of autonomy-connectedness. Results may be more convincing if multiple self-affirmative sessions would be used. Levels of autonomy-connectedness may then be improved to a larger extent. It would therefore be interesting to replicate the study with the use of multiple sessions of self-affirmation. Also, it would then be possible to examine the stability of the impact of self-affirmation over time. Nevertheless, it needs to be mentioned that the present study showed substantial effects of one self-affirmative session, thereby demonstrating its promising potential.

Studies on self-affirmation were not performed among clinical populations yet. For that reason, conclusions on the use of self-affirmation in clinical practice cannot be drawn. Though, the present study provides a promising new direction for the use of self-affirmation in clinical practice. Deficiencies in autonomy-connectedness (Bekker, 1993) and disturbances of the mood (Comer, 2004) have been linked to a variety of mental health problems (e.g. depression, anxiety, eating disorders, work stress, work-family interference). Also, deficiencies in autonomy-connectedness and disturbances of the mood have been linked together (Bekker & Belt, 2006). Interventions that strengthen autonomy-connectedness and improve mood can therefore be beneficial for this variety of mental health problems. Self-affirmation may thus become a clinical intervention that is broadly applicable. It can easily be integrated into existing therapies in the form of a supplement. It can be put into practice as homework assignments for the mental health patient. It can be used in face-to-face sessions between the patient and his therapist. In can also be used in 'autonomy group' sessions that are especially organized for patients with poor autonomy-connectedness (Van Houten & Vossen, 2008). The self-affirmation exercises will remind the patient of the things in life that he values, and of the personal characteristics that he is proud of. Self-affirmation may consequently increase his levels of autonomy-connectedness and improve his mood, thereby adding to therapy success.

The present study provides support for the use of self-affirmation as an intervention to improve mental well-being. Evidence was obtained that self-affirmation increases self-awareness and sensitivity to others, thereby potentially strengthening autonomy-connectedness. Also, evidence was obtained that self-affirmation improves mood. Possible explanations for the effects of self-affirmation were found in attachment theory (autonomy-connectedness) and cognitive theory (mood). Promising research on self-affirmation was mainly conducted with students.

Therefore the potential use of self-affirmation in education was explored. Though originating in social psychology, the present study also puts self-affirmation in the context of clinical psychology. Some opening thoughts on the use of self-affirmation in mental health care were provided. It seems worthwhile to investigate further if, how and to what extent self-affirmation may add to the well-being of mental health patients.

References

Ainsworth, M. D. S. (1978). *Patterns of attachment: a psychological study of the strange situation*. New York: Hillsdale, N.J; Lawrence Erlbaum Associates; distributed by Halsted Press Division of Wiley.

Alford, B. A., & Gerrity, D. M. (1995). The specificity of sociotropy-autonomy personality dimensions to depression vs. anxiety. *Journal of Clinical Psychology, 51*(2), 190-195.

Allen, J. P., Marsh, P., McFarland, C., McElhaney, K. B., Land, D. J., Jodl, K. M., et al. (2002). Attachment and autonomy as predictors of the development of social skills and delinquency during midadolescence. *Journal of consulting and clinical psychology, 70*(1), 56-66.

Ark, L. A. v. d., Marburger, D., Mellenbergh, G. J., Vorst, H. C. M., & Wald, F. D. M. (1995). *De Aangepaste Profile of Mood States; Handleiding en verantwoording.* Nijmegen, The Netherlands: Berkhout-Nijmegen B.V.

Beck, A. T. (1964). Thinking and Despression. II. Theory and Therapy. *Archives of general psychiatry, 10*, 561-571.

Beck, A. T. (1983). Cognitive therapy of depression: New perspectives. In P. J. C. J. E. Barrett (Ed.), *Treatment of depression: Old controversies and new approaches* (pp. 265-290). New York: Raven Press.

Bekker, M. H. J. (1993). The development of an Autonomy scale based on recent insights into gender identity. *European Journal of Personality, 7*(3), 177-194.

Bekker, M. H. J., Bachrach, N., & Croon, M. A. (2007). The relationships of antisocial behavior with attachment styles, autonomy-connectedness, and alexithymia. *Journal of Clinical Psychology, 63*(6), 507-527.

Bekker, M. H. J., & Belt, U. (2006). The role of autonomy–connectedness in depression and anxiety. *Depression and Anxiety, 23*(5), 274-280.

Bekker, M. H. J., Croon, M. A., & Bertrand, I. J. (2008). The relationship between parental attachment experiences, autonomy-connectedness, and eating disorders. *Manuscript under review*.

Bekker, M. H. J., Croon, M. A., van Balkom, E. G. A., & Vermee, J. B. G. (2008). Predicting individual differences in autonomy-connectedness: the role of body awareness, alexithymia, and assertiveness. *Journal of Clinical Psychology, 64*(6), 747-765.

Bekker, M. H. J., Nijssen, A., & Hens, G. (2001). Stress prevention training: sex differences in types of stressors, coping, and training effects. *Stress and Health, 17*(4), 207-218.

Bekker, M. H. J., & van Assen, M. A. L. M. (2006). A Short Form of the Autonomy Scale: Properties of the Autonomy–Connectedness Scale (ACS–30). *Journal of Personality Assessment, 86*(1), 51 - 60.

Bekker, M. H. J., Willemse, J. J. P., & De Goeij, J. W. J. M. (2010). The Role of Individual Differences in Particular Autonomy-Connectedness in Women's and Men's Work-Family Balance. *Women & Health, 50*(3), 241 - 261.

Bowlby, J. (1969). *Attachment and loss*. New York,: Basic Books.

Clark, D. A., Steer, R. A., Haslam, N., Beck, A. T., & Brown, G. K. (1997). Personality Vulnerability, Psychiatric Diagnoses, and Symptoms: Cluster Analyses of the Sociotropy-Autonomy Subscales. *Cognitive Therapy and Research, 21*(3), 267-283.

Cohen, G. L., Garcia, J., Apfel, N., & Master, A. (2006). Reducing the Racial Achievement Gap: A Social-Psychological Intervention. *Science, 313*(5791), 1307-1310.

Comer, R. J. (2004). *Fundamentals of Abnormal Psychology*: W H Freeman & Co.

Ekman, P., & Davidson, R. J. (1994). *How are emotions distinguished from moods, temperament, and other related affective constructs?* New York: Oxford University Press.

Ellis, A. (1962). *Reason and emotion in psychotherapy*: Oxford, England: Lyle Stuart.

Erikson, E. H. (1971). *Identity: youth and crisis*: London: Faber & Faber.

Groot, M. H. d. (1991). Psychometrische aspecten van een stemmingsschaal (Verkorte POMS). *Gedrag en Gezondheid, 20*, 46-51.

Harris, P. R., & Napper, L. (2005). Self-Affirmation and the Biased Processing of Threatening Health-Risk Information. *Personality and Social Psychology Bulletin, 31*(9), 1250-1263.

Hmel, A., & Pincus, L. (2002). The Meaning of Autonomy: On and Beyond the Interpersonal Circumplex. *Journal of Personality, 70*(3), 277-310.

Koestner, R., & Losier, G. F. (1996). Distinguishing Reactive versus Reflective Autonomy. *Journal of Personality, 64*(2), 465-494.

Kohlberg, L. (1984). *The psychology of moral development : the nature and validity of moral stages*. San Francisco ; London: Harper & Row.

Koole, S. L., Smeets, K., van Knippenberg, A., & Dijksterhuis, A. (1999). The Cessation of Rumination Through Self-Affirmation. *Journal of Personality and Social Psychology, 77*(1), 111-125.

Lange, A., Richard, R., Gest, A., Vries, M. D., & Lodder, L. (1998). The Effects of Positive Self-Instruction: A Controlled Trial. *Cognitive Therapy and Research, 22*(3), 225-236.

Mahler, M. S., Pine, F., & Bergman, A. (1975). *The psychological birth of the human infant : symbiosis and individuation*. London: Hutchinson.

McNair, D., Lorr, M., & Droppleman, L. (1971, 1992). *Manual: Profile of Mood States*. San Diego, CA: Educational and Industrial Testing Service.

Sherman, D. K., Bunyan, D. P., Creswell, J. D., & Jaremka, L. M. (2009). Psychological Vulnerability and Stress: The Effects of Self-Affirmation on Sympathetic Nervous System Responses to Naturalistic Stressors. *Health Psychology, 28*(5), 554-562.

Sherman, D. K., & Cohen, G. L. (2006). The psychology of self-defense: Self-affirmation theory. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (pp. 183--242). San Diego: Academic Press.

Steele, C. M. (1988). The psychology of self-affirmation: Sustaining the integrity of the self. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 21, pp. 261-302). New York: Academic Press.

Taylor, S. E., Klein, L. C., Lewis, B. P., Gruenewald, T. L., Gurung, R. A. R., & Updegraff, J. A. (2000). Biobehavioral responses to stress in females: Tend-and-befriend, not fight-or-flight. *Psychological Review, 107*(3), 411-429.

van Assen, M. A. L. M., & Bekker, M. H. J. (2009). Sex differences in autonomy-connectedness: The role of personality factors. *Personality and Individual Differences, 47*(1), 12-17.

Van Houten, J., & Vossen, J. (2008). Effects of autonomy-groups in patients with anxiety disorders for whom CBT was ineffective. *Tilburg University: Master thesis Clinical Psychology*.

Wald, F. D. M., & Mellenbergh, G. J. (1990). The shortened version of the Dutch translation of the Profile of Mood States (POMS). *Nederlands tijdschrift voor de psychologie, 45*, 86-90.