

Investigations

Can Health Status and Self-Esteem Predict Gratitude in Adult Females?

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Article history

Received: 03-06-2015

Revised: 12-10-2015

Accepted: 30-12-2015

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Abstract: Gratitude is often considered a sub-sector of positive psychology. The aim of this study was to examine whether health status and self-esteem could predict gratitude scores in a sample of women. A non-clinical female sample ($N = 200$) completed self-reported measures online. A hierarchical multiple regression analysis was used to examine whether health status and self-esteem could significantly predict gratitude scores. Findings revealed that health status did not significantly predict gratitude scores in the sample of women in the current study. However, self-esteem was found to statistically predict gratitude scores, suggesting that women with low self-esteem levels were more likely to have lower gratitude scores, which is supported by previous research. The implications of this finding may benefit treatment programs, to increase self-esteem levels in individuals to achieve higher gratitude levels, resulting in various benefits for overall health and well-being.

Keywords: Gratitude, Health, Self-Esteem, Women

Introduction

The field of psychology has primarily tended to focus on the disease model when treating impairment to human functioning (Seligman and Csikszentmihalyi, 2000). This model emphasises human psychopathology and abnormalities, while failing to acknowledge fulfillment in individuals. The start of the millennium saw a positive psychology movement that considered the positive features of a worthwhile life (Seligman and Csikszentmihalyi, 2000). The positive psychology field emphasises the subjective experience of human life, such as satisfaction, optimism and happiness (Peterson *et al.*, 2005). This realm of psychology is expected to help individuals and communities flourish and survive in the most adverse situations (Geraghty *et al.*, 2010). A newly researched positive emotion is gratitude, which is considered a buffer against negative experiences. With a paucity of research concerning the experience of gratitude in a health care setting, the current study aimed to identify the relationship between gratitude, self-esteem and health status within a sample of the general population.

Gratitude

Often considered a subsector of positive psychology, gratitude refers to a positive orientation towards life

(Geraghty *et al.*, 2010). Originating from the Latin root *gratia*, meaning graciousness and gratefulness, gratitude is associated with the act of giving and receiving kindness (Emmons and McCullough, 2003; Emmons and Shelton, 2002). Often described as a cognitive-affective state, gratitude is associated with a perception of receiving a personal benefit which was not sought after or earned, but is instead experienced by the act of kindness by another person (Emmons and McCullough, 2003). Gratitude has previously been conceptualised as an attitude, a moral virtue, a habit, an emotion, a personality trait and a coping response (Emmons and McCullough, 2003). Most commonly described as an emotion, gratitude is considered a reaction that results from a positive personal outcome, which can be directed to other persons in addition to interpersonal, such as nature, or nonhuman sources (e.g., the universe or God). As a psychological state, gratitude is a subjective experience which can lead to other intrinsically positive experiences (e.g., hope and optimism; Walker and Pitts, 1998).

In the past, gratitude has been neglected by psychologists, who have tended to focus on the basic emotions of anger and fear (Shaver *et al.*, 1987). One explanation for the absence of research surrounding gratitude and gratefulness is the ambiguity and

uncertainty involved in defining the concept as a basic emotion (Emmons and McCullough, 2004). Similarly, psychology in the past has tended to overlook positive emotions in place of those negative emotions associated with mental illness (McCullough *et al.*, 2001).

Regarding emotional awareness, research indicates that women tend to be more attuned to their inner thoughts and open with their feelings when compared to men (Ciarrochi *et al.*, 2005; Kashdan *et al.*, 2009). It is expected that these gender differences are a reflection of different experiences of gratitude between genders (Kashdan *et al.*, 2009). Studies show that females are more likely to experience and express gratitude and develop greater benefits through building satisfying relationships (Froh *et al.*, 2009). Conversely, men are more likely to view gratitude as a sign of vulnerability, often perceiving it as a threat to masculinity and social status and consequently attempting to conceal it (Kashdan *et al.*, 2009).

Benefits of Gratitude

Gratitude has been linked to health and the general well-being of individuals due to its positive nature (Emmons and Crumpler, 2000). Fredrickson and Levenson (1998) found that gratitude increased individuals' positive affect, which resulted in a more rapid decline in cardiovascular functions in participants after viewing a fear-inducing film-clip, compared to those in a neutral condition. This is consistent with findings that gratitude may predict a greater life span (Danner *et al.*, 2001). The sense of appreciation from experiencing gratitude is believed to make the heart rhythm smooth and harmonious, enhancing coherence within the body and increasing physical health and well-being (Cohen, 2006).

The psychological benefits of a grateful attitude has includes happiness, optimism and peace of mind (Emmons and Shelton, 2002; Rash *et al.*, 2011). Gratitude is also directly linked with other positive emotions such as contentment, pride and hope, which enhance a pleasant psychological state (Emmons and Shelton, 2002). Emmons and Crumpler (2000) found that having a grateful outlook on life increased personal satisfaction, fulfillment and meaningfulness. Gratitude provides individuals with a frame of mind that may assist in the reduction of negative memories or thoughts concerning the past (Ryan, 2002). Furthermore, recent research has suggested that gratitude has the potential to reduce lifetime risk for mental illness such as depression, anxiety and substance abuse disorders (Emmons and Stern, 2013).

Folkman and Moskowitz (2000) argue that positive emotions and a positive affect can be useful coping mechanisms in times of stress, even prevent the incidence of mental illnesses such as clinical depression.

Folkman and Moskowitz (2000) note that positive affect can act as a protective cushion against negative physiological impacts of stress. They indicate that positive emotions have adaptational properties which can help people with coping in a variety of ways, including seeing an adverse event or circumstance in a positive light.

Finally, while gratitude is viewed as an internal emotion, McCullough *et al.* (2001) predicted that individuals who experience gratitude frequently are more likely to engage in prosocial behaviours. In addition, such interpersonal relationships are likely to be more satisfying and rewarding to individuals who exhibit a heightened level of gratitude (Algoe *et al.*, 2010; McCullough *et al.*, 2002). This can be explained by such individuals focusing on the benefits they receive from others, which enhances the loving and caring bonds they develop (Emmons and Shelton, 2002). These social support networks may be beneficial in times of need (McCullough *et al.*, 2002). Individuals can also benefit in their careers, with gratitude providing unconscious motivation to progress towards personal goals and enjoy work life (Miller, 2009).

Broaden-and-Build Theory

Fredrickson (2004) Broaden-and-Build Theory of positive emotions can be used to explain how pleasant emotions, such as hopefulness and optimism, may broaden an individual's thought-action repertoire. Widening the range of thoughts and actions that come to mind, such as attention, cognition and action can broaden social, physical and intellectual behaviour. Consequently, individuals achieve greater psychological growth and physical well-being over time, producing optimal functioning (Fredrickson, 2004).

As with other positive emotions, gratitude assists to build individual personal resources including physical, intellectual and social resources (Kashdan *et al.*, 2009). Fredrickson (2004) found that individuals who experienced positive emotions had the ability to explore their environment, obtaining vital survival resources. The broaden-and-build model may also encourage individuals to become more creative in their methods of reciprocating and reflecting gratitude (Cohen, 2006). In addition, a positive emotion such as gratitude is believed to improve broad-minded coping, which has been shown to increase positive affect (Fredrickson and Joiner, 2002).

Conversely, negative emotions, such as anxiety, sadness and anger are thought to evoke a narrow approach whereby individuals' subjective well-being is reduced (Fredrickson, 2004). As mentioned, traditional psychological approaches have primarily focused on the study of negative emotions that often caused critical problems for individuals, such as anxiety disorders, depression, eating disorders, aggression and stress-

related disorders (Fredrickson, 2004). Due to the severe nature of these disorders, negative emotions have captured most research attention (Fredrickson *et al.*, 2000).

In therapeutic settings, the broaden-and-build model is supported by the idea that positive emotions can override negative emotions, such as anxiety disorders (e.g., systematic desensitization; Wolpe, 1968), motivation, (e.g., the opponent-process theory; Solomon and Corbit, 1978) and aggression, for example, the principle of incompatible responses (Baron, 1984). Fredrickson (2004) proposes that positive emotions can outweigh negative emotions before a person's momentary thought-action repertoire occurs. Studies have illustrated that positive emotions may be used as a coping mechanism and a resiliency method (Fredrickson, 2004; Fredrickson *et al.*, 2000).

Health Status

According to the World Health Organisation, health may be defined as "a state of complete physical, mental and social well-being and not merely the absence of disease" (WHO, 2007). An individual's health status can be used to assess their health over a period of time (Patrick *et al.*, 1973). A positive health status denotes that an individual has effective functioning within all bodily systems, with both mental and physical health intact (Ware *et al.*, 1981). Mental health has been defined as "a state of well-being in which an individual realises his or her own abilities, can cope with the normal stresses of life, can work productively and is able to make a contribution to his or her community" (WHO, 2007). The Diagnostic Statistical Manual of Mental Disorders Fourth Edition highlights the interaction between physical and mental health observed in various mental health disorders (APA, 1994), denoting that physical and mental criteria must be satisfied before a diagnosis can be made.

However, a controversy surrounding the definition of health status is examining the objectivity of health measures (Patrick *et al.*, 1973). For example, many assessment tools that are used to determine the presence of mental disorders include self-reports, which are vulnerable to subjectivity and social desirability bias (Miller, 2009). Objective health measures, such as standardized measures that are often used in the health care setting are based on evidence-based practice (Lorch and Herge, 2007). However, health status cannot be directly measured and is often contextual, measuring state, rather than trait, symptoms. A combination of these factors makes the accurate assessment of health status difficult (Thacker *et al.*, 2006).

Fredrickson (2004) broaden-and-build theory proposed that an increase in positive-related emotions, as a result of gratitude, may explain its effectiveness as a mental health treatment. Gratitude interventions may be

administered in a variety of forms such as asking people to undertake gratitude journaling, letter writing, gratitude meditation, mindful reflection and imagery (Emmons and Stern, 2013). A randomized controlled trial conducted by (Cheng *et al.*, 2015) investigated the effects of a gratitude intervention (daily gratitude diaries) on health practitioners' mental health. The study found that regular focusing on things and events to be grateful for, reduced stress and depressive symptoms among health care practitioners. Although it is attractive to think that the idea of practicing gratitude on a frequent basis may assist an individual to gain a permanent state of gratitude and thereby as a protective factor against mental illness, this is yet to be investigated (Young and Hutchinson, 2012). In addition, the use of gratitude to assist client's in viewing life as a gift (rather than a constant struggle), has been criticised in relation to severe psychopathology. Rash *et al.* (2011) posit that interventions alone are not sufficient in helping individuals who are greatly distressed and possibly suicidal. Therefore, it is proposed that gratitude may be useful as an adjunct to traditional therapy in the treatment of mental disorders (Young and Hutchinson, 2012). However, comparisons between gratitude interventions and proven treatments need to be assessed. Previously, a link has been found between mental disorders and gratitude (Gudan, 2010; Kendler *et al.*, 2003). War veterans with Post Traumatic Stress Disorder (PTSD) experienced gratitude more frequently than those without PTSD (Kashdan *et al.*, 2006). Therefore, with relation to health status, the present study aimed to extend and expand upon previous research to assess whether gratitude could influence other mental disorders, specifically: Somatic symptoms, depression and anxiety.

Somatiform Disorders

The common feature of somatiform disorders is the presence of physical symptoms that cannot be explained by a general medical condition, substance abuse or by another mental disorder (APA, 1994). These recurring physical symptoms cause significant distress to the individual and have substantial adverse effects on the individual's daily functioning (e.g., social or occupational). This cluster of disorders are often subjective in nature and rely on self-report data due to their unknown cause (Trimble, 2004). Reported symptoms range from pain sensation, blindness, hallucinations to seizures (APA, 1994). The lifetime prevalence of somatiform disorders in western countries is estimated to be 0.02 to 2% in women and 0.2% in men (APA, 1994). The low prevalence of somatiform disorders is often explained by its coexistence with other mental disorders such as depression and anxiety, which are viewed as primary disorders and therefore the priority in treatment (Holloway and Zerbe, 2000; Okasha, 2003).

There is a paucity in the current research examining the relationship between somatoform symptoms and gratitude. However, due to the preoccupation with somatic symptoms, it has been reported that patients often are unable to express gratitude to those around them (Holloway and Zerbe, 2000). Therefore, it may be important to reassure and remind patients to remain positive, despite having no medical diagnosis for their symptoms (Holloway and Zerbe, 2000). However, a meta-analysis of randomized and non-randomized trials comprising over 1,400 participants concluded that psychotherapy is effective in treating severe somatoform disorder (Koelen *et al.*, 2014).

Depression

Depression can be characterised as an emotional, physical and cognitive state of low mood, negatively impacting an individual's thoughts, behaviours and overall sense of well-being (WHO, 2012). Depression is classified as a mood disorder, characterised by a disturbance in mood and affect (APA, 1994). Although specific symptoms of depression depend on the type of mood disorder, common symptoms include feelings of sadness, hopelessness and frustration. In the past decade, the prevalence of depression has increased, with the risk for Major Depressive Disorder reported at 10 to 25% in females and 5 to 9% in males (APA, 1994). Gratitude has been found to be a protective factor against depression (Kendler *et al.*, 2003). Positive psychology techniques may be used to assist individuals reinterpret negative events and develop coping mechanisms in an attempt to increase resiliency (Fredrickson *et al.*, 2003; Young and Hutchinson, 2012). Kendler *et al.* (2003) found that high levels of thankfulness and gratitude significantly lowered the risk for developing internalizing disorders such as depression and anxiety. In addition, Gudan (2010) results demonstrated that a positive psychology intervention program incorporating gratitude was the most successful treatment technique when compared to other positive psychology methods. Participants in this study displayed reduced depressive symptoms and increased happiness for up to one month after the program (Gudan, 2010; Seligman *et al.*, 2005). However, to date, there has been a lack of literature supporting a predictive relationship where depressive symptoms directly impact upon an individual's gratitude experiences.

Anxiety

Anxiety is characterised by feelings of excessive fear and related behavioural disturbances (APA, 1994). Symptoms include excessive worry that is uncontrollable and physical symptoms such as restlessness, irritability and muscle tension. The prevalence of anxiety disorders in Australia is 14.1%, making it one of the most common

mental disorders (APA, 1994). Anxiety-related disorders are more commonly reported by females, comprising 55 to 65% of cases compared to males.

To date, the relationship between gratitude and general anxiety has not been directly investigated. Gratitude has however been associated with death anxiety. In Lau and Cheng (2011) study, participants were required to write down different types of life events (e.g., gratitude, hassle and neutral) before responding to measures of death anxiety. It was found participants in the gratitude condition reported lower death anxiety than those in the hassle and the neutral condition. These results indicate that by re-examining life events with a grateful attitude, individuals may become less fearful of death, which may be useful in clinical settings. Furthermore, gratitude is central to the Naikan technique, which emphasises the importance of the interconnectedness of life (Sengoku *et al.*, 2010). This technique focuses on the growing awareness of the benefits one receives from others (Sengoku *et al.*, 2010). Although there is little empirical evidence to support Naikan therapy, there is research to suggest the effectiveness of Naikan therapy in treating anxiety, depression and somatoform disorders (Sengoku *et al.*, 2010). Gratitude techniques have been utilised in a Japanese culture to reduce symptoms of anxiety. A study conducted by Ng and Wong (2013) investigated the differential effect of gratitude and sleep on psychological distress in patients with chronic pain. The study found that there was a direct impact of gratitude on depression. Additionally, gratitude improved sleep, which in turn alleviated anxiety.

Self-Esteem

In the current study, an additional variable of interest was self-esteem, which is defined as a favourable or an unfavourable attitude toward the self (Robins *et al.*, 2001). Other definitions refer to the overall judgment and belief in oneself, evidenced by the way in which an individual communicates to themselves (Healey, 2002). These beliefs are both conscious and unconscious thoughts that shape an individual's perception of the world (Mruk, 2013). Self-esteem is believed to develop through two components; a sense of personal worth and a sense of personal competency (Healey, 2002). Personal worth may develop through loving relationships throughout life and being respected and valued as an individual. Personal competency refers to how an individual subjectively views their potential ability in relation to life events (Healey, 2002).

Factors related to self-esteem (and which may promote well-being), include self-acceptance and respect for oneself. Self-esteem itself is not a static entity, but is instead a constantly fluctuating trait that individuals exhibit during daily activities (Heatherston and Polivy,

1991). Psychologists suggest that the level of self-esteem within an individual affects every aspect of their life, including personal success, happiness, achievements, creativity and relationships (Healey, 2002). Those with self-esteem levels are fundamentally content with themselves, whilst still able to identify their weaker characteristics (Healey, 2002; O'Dea, 2004). These individuals usually have confidence in themselves and are able to confront and solve problems with little concern (Healey, 2002). On the other hand, individuals with lower levels of self-esteem often fail to recognise their abilities and consequently avoid taking on new challenges (Healey, 2002).

A number of empirical studies have demonstrated that grateful people have a tendency to possess higher levels of self-esteem (Li *et al.*, 2012; Kashdan *et al.*, 2006; Strelan, 2007). McCullough *et al.* (2001) indicate that gratitude, which is usually experienced as thankfulness towards a perceived benefactor, might enhance a person's self-esteem. Furthermore, Lin (2015) also suggests that high level of gratitude is associated with greater self-esteem and as a result, improved well-being.

Gender differences have been reported with regards to the development and maintenance of self-esteem. Research suggests that men's self-esteem is often boosted by the acknowledgement of personal goals being achieved, whereas women's self-esteem is fostered by maintaining connections and attachments with significant others (Josephs *et al.*, 1992). Globally, lower levels of self-esteem are reported in females, possibly due to the relationship between self-esteem and depression, an internalizing disorder more frequently found in females (Major *et al.*, 1999).

Self-Esteem in Psychological Healthcare

In the health care system, self-esteem is a factor taken into consideration when formulating intervention plans. In humanistic and cognitive therapies, enhancing self-esteem is a key goal in client-centered therapy (Mruk, 2013; O'Brien *et al.*, 2006). A high level of self-esteem promotes positive affect, builds a strong therapeutic alliance and helps goal attainment (Dehart and Tennen, 2006). Specifically, the role of self-esteem appears prominent in treating psychopathology within a therapeutic setting. Self-esteem appears twenty-four times in the DSM-IV across different diagnostic criteria (APA, 1994), indicating its importance in mental disorders. Having lower levels of self-esteem is also associated with increased psychological difficulties such as anxiety and depression (Healey, 2002; Orth and Robins, 2013). Practical implications of these findings suggest that depression can be prevented, or reduced, by interventions that focus on improving self-esteem (Orth and Robins, 2013). Most commonly used in

cognitive therapy, self-esteem attempts to modify beliefs about oneself in order to change cognitive distortions, in addition to increasing confidence towards investigating a behavioural change (Roberts, 2006).

Although the relationship between self-esteem and gratitude has not been extensively researched, results of Rash *et al.* (2011) gratitude intervention demonstrated higher levels of gratitude resulted in higher levels of self-esteem and life satisfaction in males. This suggests that gratitude may be a self-acceptance-related emotion associated with self-esteem (Rash *et al.*, 2011). A study on Vietnam War veterans found that high levels of gratitude significantly predicted greater self-esteem after controlling for post-traumatic stress severity (Kashdan *et al.*, 2006). Thus, while there appears to be a relationship between self-esteem and gratitude, the direction of the relationship remains unclear.

The Current Study

To date, there has been limited research examining the role of gratitude as a positive emotion in broadening an individual's life perspective. Specifically, research is yet to explore the role of gratitude in a health care setting. Additionally, in the past research has tended to examine the role of gratitude in intervention programs treating clinical samples (e.g., eating disordered groups; Geraghty *et al.*, 2010). However, due to the various benefits associated with gratitude, it is essential that this concept be thoroughly researched so as to be applied to a health care setting in an attempt to improve treatment techniques.

An exclusively female sample was utilised in the current study, as prior research suggests that females have a high prevalence of somatic symptoms, depression and anxiety. Therefore, it was expected that there would be a more direct link between these mental disorders and gratitude. In addition, females reportedly experience gratitude in a different manner to males.

This study aimed to examine the relationship between gratitude, self-esteem and health status, which has not yet been researched within a convenience sample, across a wide range of ages. The aim of the present study was to explore the multifaceted nature of gratitude and to identify whether self-esteem and health status were unique predictors of gratitude. Based on the existing literature, the following hypotheses were formulated:

- It was hypothesised that participants with high levels of somatic-related symptoms would also report significantly lower gratitude scores
- It was hypothesised that participants with higher self-reported levels of depression would report significantly lower gratitude scores

- It was hypothesised that participants with higher self-reported levels of anxiety would report significantly lower gratitude scores
- After controlling for the effects of health status, it was predicted that self-esteem would be a significant positive predictor of gratitude

Methods

Participants

A convenience sample of 200 female participants aged between 18 and 61 years ($M = 30.04$, $SD = 12.79$) were recruited for the purpose of this study (meeting the inclusion criteria of being female and over the age of 18 years). All participants were recruited through social media websites (e.g., Face book) in addition to undergraduate University students studying at an Australian University who were recruited using the participant pool. Those from the University participant pool received half a credit point for their participation in the study. There was an original sample size of 243 cases; however, 43 cases were deleted due to either missing data or because they fell outside the inclusion criteria. Seventy six percent of the sample identified themselves as white, Asian (18%), Other (3.5%). Hispanic or Latin (1.5%), Black or African American (0.5%). Participants' highest level of completed education comprised of bachelor degree (40%), high school (35%), college (16%), master's degree (5%) or trade or vocational (4%). Furthermore, participants indicated that they were; never married (41%), married (33%), in a stable relationship (21.5%), separated (2.5%) or divorces (1.5%). Participants' occupational status and incomes are detailed in Table 1.

Table 1, Participant descriptive statistics. N = 200

Demographic variable	(%)
Occupational status	
Employed for wages	35.3
Self employed	5.5
Out of work and looking for work	1.0
Out of work but not currently looking for work	2.0
A homemaker	8.5
A student	46.0
Military	0.5
Retired	1.0
Unable to work	0.0
Income (Aus \$)	
< 10,000	46.0
10,000 – 29,999	21.5
30,000- 59,999	10.0
60,000 – 89,999	12.0
90,000 – 109,999	3.5
110,000 – 129,999	3.0
> 130,000	4.0

Materials

Demographics

Prior to completing the questionnaire package which included a gratitude questionnaire, Rosenberg's self-esteem scale and the patient health questionnaire, participants answered preliminary demographic questions, which requested their age, ethnicity, education level, marital status, occupational status and income.

The Marlowe-Crowne Social Desirability Scale (MCSDS; Crowne and Marlowe, 1960). A shortened version of the MCSDS (Reynolds, 1982) was used to measure the extent to which participants reported desirable and undesirable behaviours truthfully. Self-report scales are often vulnerable to social desirability effects; an example question is "never lying to others." Short form A was used for the purpose of this study and has previously been shown to demonstrate adequate psychometric properties, making it a suitable alternative to the full 33-item MCSDS (Loo and Loewen, 2004). The MCSDS is comprised of 11 items on Short Form A, which are rated on a dichotomous true/false scale, where socially desirable answers are allocated a score of one and non-socially desirable answers are allocated a score of zero. Total scores were calculated and scores close to the maximum total score of 11 are indicative of individuals answering in a socially desirable way. Psychometric properties of the MCSDS demonstrated moderate internal consistency reliabilities, ranging from 0.74 and 0.76. (Barger, 2002; Reynolds, 1982), which supported the reliability analysis conducted on the current study which found an adequate Cronbach's alpha level ($\alpha = 0.65$), which was expected from a sample of the general population.

The Gratitude Questionnaire-six item Form (GQ-6; McCullough *et al.*, 2002). This scale was designed to assess individuals' level of gratitude experience in everyday life. Participant's answers to the six-item questionnaire are measured on a seven-point Likert-type scale, (1= *strongly disagree* and 7= *strongly agree*). Sample items include "I am grateful to a wide variety of people," and "I have so much in life to be thankful for." Total scores on the questionnaire range from 6 to 42, with higher scores indicating higher levels of trait gratitude. In addition, two items on the scale were reversed scored (items 3 and 6).

Through extensive exploratory and confirmatory factor analyses, the one-factor scale has demonstrated high internal consistency with Cronbach's alpha values ranging from 0.76 to 0.84 (McCullough *et al.*, 2002). Cronbach's alpha for this study ($\alpha = 0.56$), suggest adequate reliability when considering the significantly smaller sample size compared to the original sample.

Rosenberg Self-Esteem Scale (RSE; Robins *et al.*, 2001). This scale measures global self-esteem (e.g., "on

the whole, I am satisfied with myself"). The scale consisted of 10 items rated on a four-point Likert-type scale (1 = *strongly agree* and 4 = *strongly disagree*). Five items are reversed scored (1, 3, 4, 8 and 10) to improve interpretability. The measure is scored out of 30, with higher scores indicating greater levels of self-esteem. Scores between 15 and 25 were considered within normal range, scores below 15 suggest low self-esteem and scores above 25 suggested high self-esteem. This scale is the most widely used to assess self-esteem due to its demonstrated reliability ($\alpha = 0.72$ to 0.90 ; Gray-Little *et al.*, 1997; Robins *et al.*, 2001). Cronbach's alpha for this study was found to be very high ($\alpha = 0.87$), indicating high internal consistency within the sample. Convergent validity was established by high correlations ($r = 0.89$ to 0.94) between the RSE and the Single Item Self Esteem Scale (SISE) and divergent validity was sufficient indicated by low correlations ($r = 0.04$ to 0.48) between the RSE and the NEO personality inventory, which is considered a dissimilar measure (Robins *et al.*, 2001).

Patient Health Questionnaire (PHQ; Spitzer *et al.*, 1999). This self-report questionnaire was developed to help health care professionals assess an individual's mental health status (Spitzer *et al.*, 1999). In this study, the PHQ was used to assess participant's general health status. The PHQ employs a multiple-choice and a forced yes/no format that assesses the DSM-IV disorders of: Depression, anxiety, somatoform disorders, eating disorders and alcohol use. These subscales coincide with symptoms of the DSM-IV (APA, 1994).

The somatoform subscale was measured on a three-point Likert scale, (1 = *not bothered*, 2 = *bothered a little* and 3 = *bothered a lot*). Thirteen items measured whether any participants were suffering from a somatoform disorder. Cronbach's alpha calculated for the somatic scale for this study revealed moderate to high internal consistency ($\alpha = 0.79$).

The second subscale was used to assess whether individuals met the requirements for a diagnosis of depression. There were a total of nine questions measured on a four-point rating scale, (1 = *not at all*, 2 = *several days*, 3 = *more than half the days* and 4 = *nearly every day*). A high level of internal consistency was reported for the subscale, with Cronbach's alpha levels between 0.86 to 0.89 (Spitzer *et al.*, 1999). Cronbach's alpha conducted on this study also revealed high internal consistency ($\alpha = 0.85$).

To measure anxiety, participants were required to respond yes/no to a single item, 'in the last four weeks, have you had an anxiety attack - suddenly feeling fear or panic?' A response of 'no' indicated the individual did not suffer from any anxiety related disorder and were instructed to move onto the next subscale in the questionnaire. A response of 'yes' prompted individual's

to answer a series of 14 items providing more information of specific symptoms of anxiety related disorders, for example, panic disorders. A Cronbach's alpha conducted for the panic disorder subscale revealed adequate reliability ($\alpha = 0.70$).

Further anxiety related symptoms were assessed by asking participants to respond to a single item, "over the last four weeks, how often have you been bothered by any of the following problems? Feeling nervous, anxious, on edge, or worrying a lot about different things." Answers were scored on a three-point scale, (1 = *not at all*, 2 = *several days* and 3 = *more than half the days*). Scoring of the items were dummy coded into three categories, (0 = *no diagnosis*, 1 = *panic syndrome* and 2 = *anxiety-related symptoms*). The anxiety subscale has reported high reliability with a Cronbach's $\alpha = 0.92$ (Kroenke *et al.*, 2010). A Cronbach's alpha for the anxiety subscale on this study also found high internal consistency ($\alpha = 0.84$).

Procedure

Ethical clearance was gained from the University Ethics Committee. Participants were sent a link to the survey, which was advertised to participants through two methods: A social media website and via a notice board available to all psychology undergraduate students at the University. The survey was completed online on the Psych Data website by all participants. Each participant was allocated a unique respondent ID number to ensure confidentiality of responses, before being directed to read an explanatory statement and consent form outlining the nature and purpose of the study. The questionnaires took approximately 15 to 20 min to complete. All information received from the participants remained confidential and was only accessible to the primary researchers in the study. Provisions were available for any participant who may have experienced any psychological distress from the study by providing contact details for local counselling services.

Results

A hierarchical multiple regression analysis was conducted to examine whether health status and self-esteem could predict gratitude. The predictor variables were health status (somatic symptoms, depression and anxiety) as assessed by the PHQ (Spitzer *et al.*, 1999) and self-esteem, as measured by the RSE (Robins *et al.*, 2001). The criterion variable was gratitude as measured by the GQ-6 (McCullough *et al.*, 2002).

The data were analysed using SPSS version 20 and a power analysis was conducted using G*Power 3.1 to determine the minimum sample size required (Faul *et al.*, 2007). To gain power of 0.90 at an alpha level of 0.05 ,

a minimum sample of 88 participants was required. After data cleaning was conducted, a sample of $N = 200$ remained, meeting the required assumptions for analysis. Preliminary analyses were conducted to ensure the assumptions of the relevant techniques were met. Refer to Table 2 for means and standard deviations of the study variables.

Regression Analysis

Table 3 shows the inter correlations for the study variables. Gratitude was found to be significantly positively correlated with self-esteem, indicating that females with higher levels of self-esteem also had higher levels of gratitude. Gratitude also significantly negatively correlated with all of the PHQ measures (depression, anxiety and somatic symptoms). This indicates that the higher an individual's gratitude score, the lower their level of depression, anxiety and somatic symptoms scores. Correlations between the PHQ subscales were positively significant, demonstrating that higher scores on one subscale was associated with higher scores on the remaining two subscales. Social desirability was also correlated significantly with seven of the variables. Gratitude was significantly positively correlated with social desirability, indicating participants' responses were more socially desirable. In contrast, somatic symptoms and depression were significantly negatively associated with social desirability, demonstrating that the higher scores on depression and somatic scales relate to less socially desirable participant responses. As none of the demographic variables significantly correlated with gratitude, only age was included in the main analysis, as it was used for comparative purposes because gender differences could not be compared.

A standard regression analysis was conducted to assess whether self-esteem, depression, anxiety and somatic symptoms significantly predicted gratitude. As to date, there has been no previous research assessing this combination of predictors, results from the regression analysis were used to determine the entry of variables for the hierarchical regression. The assumptions of linearity, independence of errors,

homoscedasticity, unusual points and normality of residuals were met. Collectively, the four predictors were found to significantly predict 15% of the total variance of the GQ-6 ($R^2 = 0.15$), $F(6, 191) = 5.67$, $p < 0.001$. Regression coefficients and standard errors are displayed in Table 4.

A multiple hierarchical regression was conducted to determine whether self-esteem could predict gratitude over and above the effect of age, social desirability, somatic symptoms, depression and anxiety. The predictor variables were entered into the regression with age and social desirability entered at step 1, somatic, depression and anxiety variables entered at step 2 and self-esteem entered at step 3. At step 1, age and social desirability did not significantly predict gratitude $R^2 = 0.03$, $F(2, 195) = 2.57$, $p = 0.079$, *ns*. However, social desirability significantly contributed (.25%) unique variance in gratitude ($\beta = 0.17$, $p = 0.025$). Age did not make a significantly unique contribution to gratitude. At step 2, somatic symptoms, depression and anxiety were found to be statistically significant predictors of gratitude accounting for 8.3% of the variance $R^2\Delta = 0.08$, $\Delta F(3, 192) = 5.97$, $p = 0.001$. By Cohen (1988) conventions, this may be considered a small effect ($f^2 = 0.12$). However, somatic symptoms, depression and anxiety found to be non-significant. After entering all previous variables, self-esteem was added to the model at step 3 and collectively accounted for 15%, which was found to be a significantly positive predictor of gratitude $R^2 = 0.15$, $F(6, 191) = 5.67$, $p < 0.001$. By Cohen (1988) conventions, this may be considered a medium effect ($f^2 = 0.18$). When self-esteem was added to the model and analysed as a separate predictor of gratitude, it accounted for 4.2% unique variance and contributed to a statistically significant proportion of variance in gratitude, $R^2\Delta = 0.04$, $\Delta F(1, 191) = 9.55$, $p < 0.001$. This suggests that as self-esteem increased, so too did gratitude. Self-esteem was found to be the only significant predictor and uniquely contributed 0.14% of the variance to the model. Age, somatic symptoms, depression and anxiety were not significant individual predictors of gratitude in females (Table 5).

Table 2. Descriptive statistics for the variables of interest within the study

Variable	Min.	Max.	<i>M</i>	<i>SD</i>
Age	18	61	30.04	12.79
Somatic	15	40	23.35	5.32
Depression	9	32	15.21	5.29
Anxiety	0	2	0.14	0.45
Self-esteem	0	30	18.02	6.39
Gratitude	12	32	27.60	3.73
SocialD	0	11	5.77	2.48

SocialD = social desirability.

Note. Min. = minimum, Max. = maximum, *M* = mean, *SD* = standard deviation

Table 3. Summary of Intercor relations for Age, Marital Status, Education, Income, Gratitude, Self-esteem, Depression, Anxiety, Somatic and Social Desirability (N = 200)

Variable	1	2	3	4	5	6	7	8	9
Age									
Marital Status	0.686**								
Education	0.314**	0.215**							
Income	0.583**	0.485**	0.390**						
Gratitude	0.019	0.026	-0.018	0.027					
Self-esteem	0.136	0.173*	0.085	0.182*	0.339**				
Depression	-0.38	-0.232**	-0.169*	-0.307**	-0.289**	-0.530**			
Anxiety	-0.158	-0.066	-0.086	-0.152*	-0.227**	-0.332**	0.557**		
Somatic	-0.330**	-0.207**	0.153*	-0.253**	-0.233**	-0.306**	0.707**	0.398**	
Social desirability	0.268**	0.319**	0.128	0.205**	0.144*	0.258**	-0.276**	-0.138	-0.203**

Note. *p<0.05, **p<0.01

Table 4. Regression analysis predicting gratitude from age, social desirability (SocialD), Somatic symptoms, depression, anxiety and self-esteem

Predictor	B	SEB	β	R	R ²	ΔR ²	95% CI for B
Constant	27.59**	2.08					[23.49, 31.68]
Age	-0.03	0.02	-0.1				[-0.07, 0.01]
SocialD	0.11	0.11	0.07				[-0.10, 0.32]
Somatic	-0.07	0.07	-0.1				[-0.20, 0.06]
Depression	-0.04	0.08	-0.05				[-0.20, 0.62]
Anxiety	-0.69	0.67	-0.08				[-2.01, 0.62]
Self-esteem	0.14**	0.05	0.25	0.39**	0.15	0.13	[0.05, 0.34]

Note. *p<0.05. **p<0.01. CI = confidence interval

Table 5. Hierarchical multiple regression analysis predicting gratitude from age, social desirability, somatic symptoms, depression, anxiety and self-esteem

Predictor	B	SEB	β	R	R ²	ΔR ²	95% CI for B
Step 1							
Constant	26.41**	0.82					[24.79, 28.02]
Age	-0.01	0.02	-0.03				[-0.05, -0.03]
SocialD	0.25*	0.11	0.17	0.16	0.03	0.02	[0.03, 0.47]
Step 2							
Constant	31.17**	1.76					[27.70, 4.64]
Age	-0.04	0.02	-0.13				[-0.08, 0.01]
SocialD	0.16	0.11	0.1				[-0.06, 0.37]
Somatic	-0.05	0.07	-0.07				[-0.18, 0.08]
Depression	-0.14	0.08	-0.2				[-0.29, 0.02]
Anxiety	-0.79	0.68	-0.1	33**	0.11	0.09	[-2.14, 0.55]
Step 3							
Constant	27.59*	2.08					[23.49, 31.68]
Age	-0.03	0.02	-0.1				[-0.07, 0.01]
SocialD	0.11	0.11	0.07				[-0.10, 0.32]
Somatic	-0.08	0.07	-0.1				[-0.20, 0.60]
Depression	-0.04	0.08	-0.05				[-0.20, 0.13]
Anxiety	-0.69	0.08	-0.08				[-2.01, 0.62]
Self-esteem	0.14**	0.25	0.25	0.39**	0.15	0.13	[0.05, 0.24]

Note. * p<0.05, ** p<0.01. CI = confidence interval

One-Way Analysis of Variance

As self-esteem was found to uniquely contribute to variance in gratitude scores, a one-way between groups analysis of variance (ANOVA) was used to individually assess the impact on levels of gratitude. The self-esteem variable was divided into three groups: Low (below 15), moderate (15-25) and high (25+) as suggested by Robins *et al.* (2001). There

were no outliers, as assessed by box plot; data was normally distributed for each group, as assessed by Shapiro-Wilk test ($p>0.05$) and the homogeneity of variance assumption was met, as assessed by Levene's test of homogeneity of variances $F(2, 195) = 1.25, p = 0.290$. Gratitude was found to significantly vary between different levels of self-esteem, $F(2, 195) = 5.42, p = 0.005, \eta^2 = 0.053$. By Cohen (1988) conventions, this is considered a medium effect (Fig. 1).

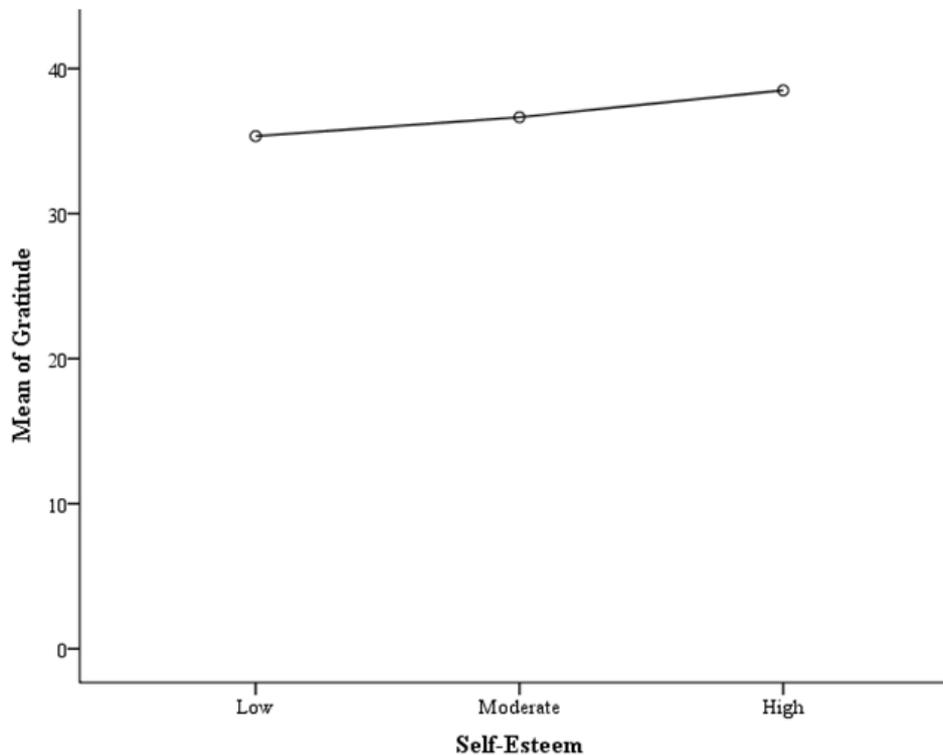


Fig. 1. Mean gratitude scores for each of the three groups of self-esteem: Low, moderate and high

Post hoc analyses with Tukey's HSD (using an α of 0.05) revealed a significant difference between the individuals with low self-esteem ($M = 26.70$, $SD = 3.97$) and individuals with high self-esteem ($M = 29.23$, $SD = 3.36$). There was no significant difference found between individuals who had low self-esteem and moderate self-esteem ($M = 27.79$, $SD = 3.43$), or those who had high self-esteem and moderate self-esteem.

Discussion

The aim of the current study was to explore the role of gratitude as a positive emotion and to determine whether self-esteem and health status were unique predictors of gratitude. To date, no previous research has studied these variables in combination with a sample of non-clinical adult women. Previous research concerning gratitude has focused on clinical intervention programs and self-help schemes, rather than gratitude techniques being utilised in a therapeutic setting to help reduce symptoms of mental disorders. Due to the higher prevalence of several mental disorders (e.g., somatic disorders, depression and anxiety), a vulnerability to low self-esteem and different experiences of gratitude in females, the current study recruited a female exclusive sample.

To assess the relationship between health status, self-esteem and gratitude, four hypotheses were proposed.

Firstly, it was hypothesised that women with high levels of somatic-related symptoms would report lower gratitude scores. The results of the current study did not support this hypothesis. Although there was a significant negative correlation between somatic symptoms and gratitude, it cannot be concluded that somatic symptoms predict gratitude within this sample of adult women. This does not support Holloway and Zerbe (2000) research suggesting that those individuals who exhibit somatic-related disorders tend to experience less gratitude.

The second hypothesis, that higher levels of depression predict lower gratitude scores, was also not supported by the current findings. Although a significant negative correlation was identified between depression and gratitude, a predictive relationship between depression and gratitude was non-significant. These non-significant findings may be explained by the use of a non-clinical sample in the current study. It is suggested that a predictive relationship between gratitude and health status may not be evident in non-clinical women. This finding may also be explained by previous research which has focused on gratitude predicting reduced prevalence of psychopathology, rather than mental disorders, such as depression significantly predicting levels of gratitude (Fredrickson *et al.*, 2003; Kendler *et al.*, 2003).

The third hypothesis predicted that women who reported symptoms of a panic disorder or an anxiety-

related disorder would report lower gratitude scores compared to those individuals who reported no diagnosis. Despite a significant negative correlation between anxiety and gratitude, this hypothesis was also not supported. As with other components of the PHQ (e.g., depression), it was expected that a significant effect between anxiety and gratitude may be more evident in a clinical sample. As the sample size in the current study was appropriate (as demonstrated by a power analysis), non-significant findings may be explained by the use of a non-clinical sample.

While gratitude has been found to reduce the lifetime risk for mental illness, a direct link between gratitude and individual mental disorders has not been assessed (Emmons and Stern, 2013). This may provide an explanation for why individual associations were not found in the current study. In addition, the non-significant results between somatic symptoms, depression and anxiety disorders predicting gratitude may be explained by a lack of research supporting the individual factors in the predictions of gratitude. The PHQ measure focused on male and female adults recruited from family practice clinics and obstetrics-gynecology clinics, rather than the members of the general population who report no major health concerns. This may pose generalisability issues for the current study. The PHQ was also developed in conjunction with the DSM-IV (APA, 1994), which differs from the latest fifth edition in terms of diagnostic criteria. Therefore, the measure may be considered outdated. The current study recruited a sample who were operating without any significant deficits in psychological, medical, or social functioning (Young and Hutchinson, 2012). It is possible that in a sample of clinically ill patients, a relationship between low levels of gratitude and health status would be more pronounced.

The final hypothesis predicted that after controlling for the effects of health status of women, self-esteem would be a significant positive predictor of gratitude. This was the only supported hypothesis in the current study. Self-esteem was the only variable to reach statistical significance and add unique variance to the model, supporting prior research which has found a link between self-esteem and gratitude (Emmons and McCullough, 2003; Kashdan *et al.*, 2006; Rash *et al.*, 2011). A post-hoc ANOVA revealed that 5.3% of the variability in gratitude scores can be accounted for by individual's self-esteem levels. Interestingly, mean gratitude scores across the levels of self-esteem were relatively high (mean scores ranged from 26.70 to 29.23 out of a total score of 42), which may be explained by the non-clinical sample used in the current study. In a gratitude intervention of nonclinical individuals, Rash *et al.* (2011) found that increasing gratitude resulted in higher self-esteem levels. These

findings may have practical implications in a clinical setting as they suggest that increasing gratitude in individuals may potentially increase levels of self-esteem. The close relationship between self-esteem and mental disorders may suggest that gratitude in combination with increasing levels of self-esteem can successfully reduce adverse symptoms of mental illness. Self-esteem and gratitude have been previously found to help alleviate symptoms of post-traumatic stress disorder (Kashdan *et al.*, 2006). Thus, these effects may generalise to other mental disorders, supporting the use of gratitude in relation improving self-esteem levels in a non-clinical sample.

Despite these noteworthy findings, due to a number of limitations, caution should be exercised when interpreting results of the current study. Because of the correlational nature of the current study, no causal conclusions can be drawn. Although self-esteem was found to explain unique variance in gratitude scores, it cannot be said that self-esteem causes change in levels of gratitude. Experimental control trials are needed to support the link between gratitude and health status to warrant gratitude intervention plans to be implemented on a global scale.

Additionally, as the study employed an exclusively female sample, the results may not generalise to a male population. Gender differences for gratitude (Froh *et al.*, 2009; Kashdan *et al.*, 2009) and self-esteem (Josephs *et al.*, 1992) may reveal different associations between variables. Specifically, a link between self-esteem and gratitude may not be as pronounced in a male population, due to a higher prevalence of low self-esteem in women (Major *et al.*, 1999). Furthermore, the sample comprised individuals from a predominantly Westernised background. Therefore, future research should assess whether the association between gratitude and health status can be generalised to non-westernised cultures.

The measures used in the study also have no longitudinal research supporting the long-term validity of the scales. Therefore, fluctuations in gratitude scores across the lifespan could not be assessed. Positive emotions such as gratitude are subjective in nature and therefore behavioural-based assessment tools need to be developed (Seligman *et al.*, 2005) a preferred method would be to collaboratively use various methods to assess individuals for the presence of any type of mental disorder. Future research may wish to use diagnostic tools in combination with clinical interviews to improve the accuracy of identifying psychopathology. Notwithstanding these limitations, the current study contributes to the understanding of the multifaceted role of gratitude in adult females. This study is the first to explore the predictive relationship between health status, self-esteem and gratitude. Supporting previous research, self-esteem was found to significantly predict gratitude scores.

The mental health industry relies on research to update and ensure the most effective evidenced-based therapy is utilised with patients. Despite a variety of methods available to treat mental disorders, the ambiguity surrounding mental disorders requires continuous investigation. To date, there has been little research investigating the use of gratitude-based techniques in the treatment of mental disorders, such as somatic disorder, depression and anxiety. Whilst self-esteem has been widely studied in relation to mental disorders (Healey, 2002; Orth and Robins, 2013), limited research has been conducted to assess whether a relationship exists between gratitude and self-esteem, despite the significant implications this may have in a therapeutic setting (Rash *et al.*, 2011).

Regarding treatment outcomes, it may be that increasing self-esteem in individuals could promote gratitude experiences. A combination of high self-esteem and gratitude may assist in the process of treating mental disorders by increasing positive affect (Rash *et al.*, 2011). In addition, progress has been made into understanding the link between health status and gratitude. Whilst a predictive relationship was not evident for the current study, it is expected that using a sample of clinical individuals would produce different results.

Future research could investigate whether some individuals have lower thresholds for experiencing gratefulness. Some individuals may dwell on favourable events in the environment and discount those negative events as chance situations (Young and Hutchinson, 2012). Therefore, other variables, in conjunction with gratitude, should be explored to further understand the circumstances in which gratitude is experienced. For example, investigating the link between optimism and gratitude may assist in determining whether some individuals experience gratitude more frequently due to a general disposition to view the world in a positive light (Seligman *et al.*, 2005). In addition, personality traits could also be explored with regards to gratitude. The more variables found to predict gratitude, the more tailored any future programs may be.

The benefits of gratitude have recently been incorporated into a health care setting by promoting positive emotions to foster the recovery and treatment process (Emmons and Stern, 2013). The versatility of gratitude ranges from fostering a therapeutic relationship, to self-help interventions, providing support for the success of equipping individuals with a grateful perspective (Emmons and McCullough, 2003; Seligman *et al.*, 2005). As the etiology of several mental disorders remains relatively unknown, it is important for researchers to continue to assess new techniques to ensure the most effective treatment plans are implemented. Therefore, the identification of gratitude as a potentially useful tool in assisting the developments of treatment plans is significant and warrants further explanation.

Conclusion

The aim of the current study was to explore the role of gratitude as a positive emotion and to determine whether self-esteem and health status were unique predictors of gratitude in females. While health status did not significantly predict gratitude scores, self-esteem did, suggesting that women with low self-esteem levels were more likely to have lower gratitude scores. Targeting such factors in treatment and education programs may be of benefit for women at risk of health conditions such as eating disorders, body image disturbance and perfectionism.

Funding Information

The authors have no support or funding to report.

Author's Contributions

Peta Berenice Stapleton: Conceived and designed the study, supervised the data collection and manuscript preparation and made final manuscript changes.

Jamaica Isles: Conceived, designed the study and collected data. Performed data analysis and drafted manuscript.

Hannah Chatwin and Mahima Kalla: Proof read manuscript and made changes.

Ethics

This article is original and contains unpublished material. The corresponding author confirms that all of the other authors have read and approved the manuscript and no ethical issues involved.

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