Spontaneous Self-Affirmation and Student-Specific Stress: Relationships with Overlapping Constructs of Positive Self Regard During the COVID-19 Pandemic

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Posted Date: 12 July 2023

doi: 10.20944/preprints202307.0817.v1

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Article

Spontaneous Self-Affirmation and Student-Specific Stress: Relationships with Overlapping Constructs of Positive Self Regard During the COVID-19 Pandemic

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Abstract: ***Background:*** Student-specific stress is pervasive and impairs health and attainment. Experimentally induced self-affirmation can reduce stress, but little is known about the mechanisms underlying this effect, and the role of individual differences. The present study explores the relationship between spontaneous self-affirmation, student-specific stress, and overlapping constructs of positive self-regard during the COVID-19 pandemic. ***Methods:*** The study investigated inter-relationships between spontaneous self-affirmation, student-specific perceived stress and potential covariates including self-esteem, self-integrity and habitual positive self-thought. University students (N = 151) aged 18 to 50 responded to an online questionnaire including the Spontaneous Self-Affirmation Measure, College Student Stress Scale, Rosenberg Self-Esteem Scale, Habitual Index of Positive Thinking and Self-Integrity Scale. ***Results:*** Unexpectedly, regression analysis revealed that spontaneous self-affirmation was a positive predictor of student-specific stress, seemingly driven by relational affirmations. Self-esteem and habitual self-thought were negative predictors of student-specific stress, whilst self-integrity was not a predictor. ***Conclusions:*** Habitual positive self-thought may offer a sustainable solution to student-specific stress, but spontaneous self-affirmation does not. A reduction in defensive responses, elicitation of negative emotions, or use of conditional relationships in relational affirmation may explain the positive relationship between spontaneous self-affirmation and student-specific stress.

Keywords: spontaneous self-affirmation; student stress; habitual positive self-thought; self-esteem; self-integrity; self-affirmation

1. Introduction

University students are exposed to a high number of stressors, including pressure to succeed, anxiety concerning unknown postgraduation circumstances, and financial concerns (Beiter et al., 2015), and many have not yet developed effective stress management skills (Arnett, 2014). Consequently, 87% of students feel moderately or highly stressed (Pierceall & Keim, 2007), which has a significant, negative effect on quality of life (Ribeiro et al., 2018), academic success, and physical and mental health (Shankar & Park, 2016). Researchers have consequently explored the use of stress reduction techniques in student populations. Interventions using cognitive-behavioural therapy, social support, and psychoeducation are most effective in reducing perceived stress amongst students (Yusufov, 2019), which is often measured using The College Student Stress Scale (Feldt, 2008). To meet demand, universities offer computerised interventions, but stigma has been found to limit engagement, and in turn, their effectiveness (Musiat et al., 2014). Accordingly, Stallman et al. (2018) stated that finding low-intensity, preventative and sustainable stress reduction methods is a priority.

Improving students' ability to spontaneously self-affirm may offer a solution. Engagement in self-affirmation tasks has been found to reduce psychological stress (Creswell et al., 2005) and in 2019, Harris et al. found evidence of individual differences in our tendency to spontaneously self-affirm. This unprompted form of self-affirmation could provide a flexible and sustainable method of managing stress. However, the relationship between spontaneous self-affirmation and stress has not been explored. Furthermore, the underlying mechanisms of the relationship between self-affirmation and stress are currently unknown and the influence of individual differences is unclear (McQueen & Klein, 2006). This study consequently explores inter-relationships between spontaneous self-

affirmation, student-specific perceived stress and a number of overlapping constructs of positive self-regard (self-esteem, self-integrity, and habitual positive self-thought .

1.1. Self-affirmation and stress

Self-affirmation theory (Steele, 1988) posits that people aim to maintain self-integrity, defined as an overall perception of adequacy regarding our sense of self, in that we believe we are moral and competent individuals with control over important outcomes. However, our self-integrity is frequently exposed to threats. Steele (1998) stated that we can maintain an adequate self-image by reminding ourselves of positive aspects of our self that are unrelated to the threat. For example, students may overcome the threat to the self of performing poorly on an exam by thinking about their recent win in an athletics tournament. This 'flexible self-system' allows us to restore and maintain our self-integrity (Steele, 1988).

Sherman (2013) proposed that self-affirmation reduces stress experienced during events that threaten our self-integrity by allowing us to place the stressor within the bigger picture and boosting salience of self-resources. This improves our perceived ability to cope, which is key in the appraisal of potentially stressful situations (Lazarus & Folkman, 1984). Self-affirmation has been shown to reduce the physiological stress response in naturalistic stressors amongst students during exam periods (Sherman et al., 2009) and lab settings (Creswell et al., 2005). It has also reduced psychological stress in both controlled (Creswell et al., 2005) and naturalistic environments (e.g., in the workplace, see Morgan & Atkin, 2016; Morgan & Harris, 2015).

While most studies testing the effects of self-affirmation have utilised an experimental inducement, Steele's (1988) original theory postulates that we naturally self-affirm. Subsequently, Spencer et al. (1993) proposed that there are individual differences in our tendency to self-affirm. To explore this, Harris et al. (2019) developed the Spontaneous Self-Affirmation Measure (SSAM), which includes three subscales; strength, values, and relations, and found evidence of individual differences in spontaneous self-affirmation. The term 'spontaneous' refers to an individual's natural and unforced response to a psychological threat, rather than engagement in an 'artificial' self-affirmation task (Harris et al., 2019). Harris et al. (2019) found that the SSAM was positively related to several outcomes experimentally linked to self-affirmation, including readiness to embrace and respond to threatening health information (Harris et al., 2019). Although self-affirmation theory (Steele, 1988) does not suggest that the source of affirmation would influence outcomes, Harris et al. (2019) found that the three SSAM subscales showed different patterns in associations and ability to predict outcome variables. However, no consistently distinctive patterns across the subscales were identified. The study also began to untangle SSAM's relationship with trait-like covariates thought to mediate or moderate the effects of self-affirmation. This included finding evidence that SSAM is distinctive from self-esteem and habitual positive self-thought, but further exploration of their inter-relationships is needed (Harris et al., 2019).

Harris et al. (2019) argued that a focus on experimental research has caused spontaneous self-affirmation to be overlooked, despite its value (Harris et al., 2019). Correlational research offers a timely and cost-effective way to explore relationships between self-affirmation, outcome variables, and potential covariates (Coolican, 2018), which could improve understanding of the mechanisms underlying self-affirmation's effects. Furthermore, evidence of long-term impact is essential to continue implementation of interventions (Craig et al., 2008). Whilst interventions using 'artificial' self-affirmation are popular, the duration of their effects is unclear (Düring & Jessop, 2015). As spontaneous self-affirmation occurs naturally, it is a more ecologically valid concept, which theoretically offers a more flexible and accessible method of maintaining self-integrity. Improving individuals' ability to self-affirm spontaneously could consequently provide a sustainable solution to stress, but the relationship between spontaneous self-affirmation and stress has not been explored.

The present study explores the relationship between the Spontaneous Self-Affirmation Measure (SSAM) and student-specific perceived stress, measured by the College Student Stress Scale (CSSS; Feldt, 2008). Although no studies have assessed this previously, spontaneous self-affirmation has been shown to increase the positive outcomes (and decrease the negative outcomes) previously

 doi:10.20944/preprints202307.0817.v1

studied experimentally, e.g. well-being (Emanuel et al., 2018) and positive health behaviours (Fielden et al., 2016). Therefore, it is hypothesised that there will be a significant, negative association between the tendency to spontaneously self-affirm and student-specific perceived stress (H1) and that spontaneous self-affirmation will be a significant, negative predictor of student-specific perceived stress (H2). Additionally, as Harris et al. (2019) found that the three subscales of the SSAM showed different patterns in associations and ability to predict outcome variables, the relationship between each subscale and student-specific perceived stress will also be explored. However, it is not possible to make one-tailed predictions due to the lack of research into the relationship between SSAM and stress and absence of consistently distinctive patterns across the subscales. As such, it is hypothesised that correlations between the SSAM subscales and student-specific perceived stress will differ (H3) and this will correspond to differences in the predictive utility of the subscales with regards to student-specific perceived stress (H4).

1.2. Potential covariates

To better understand the mechanisms underlying self-affirmation, experimental research has explored the role of several trait-like variables. However, the mechanism and relationships between these variables remain unknown as findings are mixed (McQueen & Klein, 2006). This study consequently explores inter-relationships between spontaneous self-affirmation, student-specific perceived stress and three variables that are theoretically and empirically linked to self-affirmation; self-esteem, habitual positive self-thought and self-integrity.

1.3. Self-esteem

High levels of self-esteem are linked to lower levels of stress (DeLongis et al., 1988) and most researchers agree that self-esteem plays a role in self-affirmation; but what that role is, is unclear. Self-esteem is a general evaluation of the self, based on self-images that have accumulated over time, while spontaneous self-affirmation is the use of positive self-images when self-integrity is threatened (Pietersma & Dijkstra, 2012). Spencer et al. (1993) proposed that individual differences in the number of self-resources available to individuals causes differences in the ability to spontaneously self-affirm, in that those with greater self-esteem are more able to self-affirm than those with low self-esteem.

Research generally supports a moderating, rather than a mediating role of self-esteem (Harris et al., 2019). However, evidence regarding the direction of its effects is mixed, suggesting that the effects of self-esteem vary, and further research is needed. In contrast to Spencer et al.'s (1993) theory, Düring and Jessop (2015) found that those with low self-esteem became less defensive in response to health information, whereas defensiveness amongst those with high self-esteem remained the same. However, other studies are more aligned with Spencer et al.'s (1993) theory. Harris et al. (2019) found that associations between spontaneous self-affirmation and open-minded processing were greater amongst those with high self-esteem than those with low self-esteem. Furthermore, Creswell et al. (2005) found that, whilst all participants that completed a self-affirmation exercise before a stressful task experienced lower levels of stress than those that did not, those with high self-esteem reported less stress than those with low self-esteem. This suggests that self-esteem strengthens self-affirmation's stress reducing effects. It is consequently hypothesised that self-esteem and student-specific perceived stress will be negatively correlated (H5) and self-esteem will negatively predict student-specific perceived stress (H6) and strengthen (moderate) the effects of spontaneous self-affirmation on student-specific perceived stress (H7). Replication of Harris et al.'s (2019) finding of a positive correlation between spontaneous self-affirmation and self-esteem is also hypothesised (H8).

1.4. Habitual positive self-thought

Spencer et al. (1993) suggested that self-resources are more beneficial in maintaining self-integrity when they are accessible. Harris et al. (2019) argued that self-esteem scales measure the amount of self-resources but overlook accessibility. They consequently developed the Habitual Index of Positive Thinking (HIPT) to measure the accessibility of self-resources and found that the HIPT and

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SSAM were positively correlated (Harris et al., 2019). A positive correlation between HIPT and SSAM is therefore hypothesised (H9). Furthermore, whilst Harris et al. (2019) found that HIPT and self-esteem had similar associative and predictive patterns amongst some outcome variables, they had contrasting relationships with others. It is therefore necessary to investigate relationships between outcomes linked to self-affirmation and HIPT, as well as self-esteem. Due to a paucity of evidence, only the explorative hypothesis that there will be inter-relationships between self-affirmation, HIPT and student-specific perceived stress is proposed (H10).

1.5. Self-integrity

Self-integrity is central to self-affirmation theory (Steele, 1988) and although most experimental studies discuss self-integrity, few have measured it. Whilst research is limited, studies that have explored self-integrity provide evidence supporting its role in self-affirmation. Sherman et al. (2009) developed the Self-Integrity Scale (SIS) and found that self-affirmed participants reported higher self-integrity than non-affirmed participants. Additionally, the SSAM correlates positively with SIS (Harris et al., 2019). It is consequently hypothesised that there will be a positive correlation between SSAM and self-integrity (H11).

Self-affirmation theory (Steele, 1988) posits that self-affirmation buffers the negative impact that threatening events can have on self-integrity, and that self-integrity is the mechanism through which self-affirmation influences outcome variables such as stress. However, there is no research exploring self-affirmation, self-integrity and stress. Based on theory alone, it is hypothesised that there will be a negative correlation between self-integrity and student-specific perceived stress (H12). Due to the lack of current research evidence, a more explorative hypothesis, that inter-relationships between spontaneous self-affirmation, student-specific perceived stress and self-integrity will exist (H13), is also posited.

2. Method

2.1. Participants

Only university students aged 18+ were eligible to take part in the study, and 151 responded to the questionnaire. Participants were aged between 18-50 years old (M = 25.3, SD = 6.5) and 46% were undergraduates, whilst 54% were postgraduates. 73% were White, 12% were from Asian, Black and Mixed ethnic backgrounds and 15% did not provide ethnicity information. Convenience sampling was used to recruit participants through social networking sites. As an incentive, participants could enter a prize draw to win a £25 shopping voucher.

2.2. Design

The study used a correlational research design to explore the relationship between spontaneous self-affirmation and student-specific perceived stress. Spontaneous self-affirmation was explored using four predictor variables; global spontaneous self-affirmation and three types of affirmation; strengths, values and relations. Inter-relationships between these predictor variables, student-specific perceived stress and potential covariates were explored. These covariates were habitual positive self-thought, self-esteem and self-integrity.

2.3. Measures

Pre-existing scales were used to measure the variables explored in the study.

2.3.1. Spontaneous self-affirmation

The Spontaneous Self-Affirmation Measure (SSAM) (Harris et al., 2019) was used to measure participants' propensity to spontaneously self-affirm in response to threats. It provides a global spontaneous self-affirmation score by assessing three domains of self-affirmation and includes corresponding subscales: values (α = .87), strengths (α = .88) and relations (α = .90). Participants are

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presented with the stem "When I feel threatened or anxious by people or events I find myself..." and asked to respond to 13 statements using a scale of 1 (strongly disagree) to 7 (strongly agree). Examples of statements include "thinking about my values" (values), "thinking about my strengths" (strengths) and "thinking about my family" (relations). Scores for each subscale are calculated by taking an average of relevant statements and the global SSAM score is calculated by taking an average of the subscales (α = .73). Higher scores signify a greater propensity to spontaneously self-affirm.

2.3.2. Student-specific perceived stress

The College Student Stress Scale (CSSS; Feldt, 2008) was used to measure self-reported student-specific, perceived stress. It converges with the Perceived Stress Scale (Cohen, et al., 1983), the most commonly used general measure of perceived stress (Taylor, 2015). Participants are asked 'For the following items, report how often each has occurred this semester', followed by 11 items such as 'felt overwhelmed by difficulties in your life'. Participants are asked to respond to each item on a scale of 1 (never) to 5 (very often). A stress score is calculated by taking an average of all items, with higher scores signifying greater stress (α = .86).

2.3.3. Self-esteem

Participants completed the Rosenberg Self-Esteem Scale (Rosenberg, 1965) as a self-reported measure of global self-esteem. The scale has high reliability (Baumeister, 1991) and is frequently used in self-affirmation research (Harris et al., 2019). Participants are asked to state the extent they agree with 10 statements such as "I certainly feel useless at times" on a scale of 1 (strongly disagree) to 4 (strongly agree). Statements 3, 5, 8, 9 and 10 are reverse scored and answers are combined to calculate a self-esteem score. Higher scores signify greater self-esteem (α = .87).

2.3.4. Habitual positive self-thought

The Habitual Index of Positive Thinking (HIPT) (Harris et al., 2019) measures participants' tendency to access positive self-thoughts. Participants are shown the stem "Thinking positively about myself is something…", then asked to indicate the extent they agree with five statements, such as "I do automatically", on a scale of 1 (strongly disagree) to 7 (strongly agree). A HIPT score is calculated by taking an average of these items. Higher scores signify a greater tendency to access positive self-thoughts (α = .88).

2.3.5. Self-integrity

The Self-Integrity Scale (SIS) (Sherman et al., 2009) captures feelings of moral and adaptive adequacy and was recently used by Harris et al. (2019) in spontaneous self-affirmation research. Participants are asked to report the extent they agree with eight statements such as "I am a good person". A self-integrity score is calculated by taking an average of the statements and higher scores signify greater self-integrity (α = .86).

2.4. Procedure

The study was approved by the Local Ethics Committee at Leeds Beckett University. Participants completed an online questionnaire, taking an average of 21 minutes. The questionnaire was hosted on Qualtrics and accessed via a link, which was advertised on Facebook groups used by students. Participants were told the study explored the relationship between personality and student well-being. At the beginning of the questionnaire, participants saw information about the study, how to complete the questionnaire and their ethical rights, before giving informed consent. Participants then created a code to ensure they could remove their data if necessary. This was followed by age and student-status screening questions, before participants completed the self-integrity, self-esteem, habitual positive self-thought, spontaneous self-affirmation and student-specific perceived stress measures. The measures remained in this order, but items within them were rotated for each participant. The survey concluded with an ethnicity question, opportunity to enter the prize draw, and

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debriefing information. Data was collected in the United Kingdom from April 2020 to May 2020. This was during the first UK national COVID-19 'lockdown', in which the public were expected to stay at home and only permitted to leave for essential purposes (Brown & Kirk-Wade, 2021). The data that support the findings of this study are openly available in Figshare at https://figshare.com/s/461e637be73f19e28244.

3. Results

3.1. Data Analysis

Assumptions were met for the use of parametric analyses, however bootstrapping was used throughout to overcome problems associated with small sample sizes (Field, 2018). One thousand bootstrapping resamples were conducted. 151 participants responded to the questionnaire, but some did not provide a response for all items. Therefore, to account for missing values, all analyses were conducted using pairwise deletion of missing values.

3.2. Correlations

3.2.1. Self-affirmation and stress

Correlations among study variables are presented in Table 1, which shows there was no significant relationship between the College Student Stress Scale (CSSS) and the Spontaneous Self-Affirmation Measure (SSAM), nor its strengths, values and relations subscales. However, a partial correlation between global SSAM and CSSS, controlling for the effects of self-esteem and the Habitual Index of Positive Thinking (HIPT), revealed a significant, small, positive relationship (r = .21, p = .02, R^2 = 0.04, *BCa CI* [.02, .38]) and the shared variance in the CSSS accounted for by SSAM was 4%. More specifically, there was a significant, small, positive correlation between the relations SSAM subscale and CSSS when controlling for self-esteem and HIPT (r = .27, p = .002, R^2 = .08, *BCa CI* [.11, .42]). The shared variance in the CSSS accounted for by the relations subscale of the SSAM was 7.5%. In contrast, there was no significant relationship between CSSS and the strengths (r = .12, p = .20, R^2 = .01, *BCa CI* [-.07, .29]) or values SSAM subscales (r = .11, p = .22, R^2 = .01, *BCa CI* [-.09, .30]) when controlling for self-esteem and HIPT.

Table 1. Descriptive Statistics and Variable Intercorrelations.

Variable	*M*	*SD*	Global SSAM	SSAM Strengths	SSAM Values	SSAM Relations	Self-Esteem	HIPT	Self-Integrity
Student Stress (CSSS)	3.10	.70	-.01 [-.21, .17]	-.14 [-.34, .06]	.01 [-.19, .21]	.11 [-.06, .27]	-.51*** [-.64, -.37]	-.49*** [-.62, -.36]	-.33*** [-.51, -.15]
Global SSAM	4.34	1.00		.78*** [.71, .85]	.84*** [.74, .90]	.81*** [.71, .87]	.28** [.11, .45]	.29** [.10, .46]	.34*** [.18, .49]
SSAM Strengths	4.00	1.28			.49*** [.30, .64]	.38*** [.18, .55]	.40*** [.23, .55]	.33*** [.11, .53]	.38*** [.22, .52]
SSAM Values	4.42	1.17				.57*** [.36, .72]	.07 [-.11, .26]	.18* [-.02, .35]	.20* [.04, .35]
SSAM Relations	4.65	1.27					.18* [-.04, .39]	.19* [.001, .37]	.24** [.04, .41]
Self-Esteem	27.53	4.78						.62*** [.45, .75]	.69*** [.57, .78]
HIPT	3.57	1.13							.38*** [.18, .53]
Self-Integrity	5.18	.83							

Note. 95% bias corrected and accelerated confidence intervals reported in parentheses. Confidence intervals and standard errors based on 1000 bootstrap samples. *p < .05. **p < .01. ***p < .001.

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3.2.2. Stress and covariates

Table 1 shows that there was a strong, negative relationship between self-esteem and the CSSS, which accounted for 26% of the shared variance in CSSS. There was also a strong, negative relationship between HIPT and CSSS, which accounted for 24% of the shared variance in the CSSS, and students' self-integrity, which accounted for 11% of the shared variance in CSSS. However, Table 2 shows partial correlations between study covariates and CSSS, when controlling for self-esteem, HIPT or self-integrity. A partial correlation between self-integrity and CSSS, controlling for the effect of self-esteem, no longer revealed a significant relationship. Whilst controlling for HIPT, there was a significant, small correlation between self-integrity and CSSS, but bootstrapping confidence intervals suggested it should not be considered a significant relationship. In contrast, although smaller, the relationships between self-esteem and CSSS and HIPT and CSSS were still significant when controlling for self-integrity and self-esteem or HIPT accordingly.

Table 2. Partial correlation coefficients between covariates and student-specific perceived stress.

Control Variables	Variable	Self-Esteem	HIPT	Self-Integrity
Self-Esteem	Student Stress		-.25** [-.46, -.04]	.04 [-.17, .24]
HIPT	Student Stress	-.33*** [-.51, -.16]		-.18* [-.39, .02]
Self-Integrity	Student Stress	-.41*** [-.52, -.31]	-.42*** [-.55, -.29]	

Note. 95% bias corrected and accelerated confidence intervals reported in parentheses. Confidence intervals and standard errors based on 1000 bootstrap samples. *$p < .05$. **$p < .01$. ***$p < .001$.

3.2.3. Self-affirmation and covariates

Table 1 shows that there was a significant, small, positive relationship between SSAM and self-esteem, which accounted for 8% of the shared variance in SSAM scores. There was also a significant, small, positive relationship between SSAM and HIPT, which also accounted for 8% of shared variance, and between SSAM and self-integrity, which accounted for 12% of shared variance in SSAM scores.

3.3. Complex Regressions

A multiple regression was performed to assess if self-integrity, self-esteem, habitual positive self-thought and the three SSAM subscales were significant predictors of the College Student Stress Scale (CSSS). Results revealed that the variables explained a significant percentage (37%) of the variance in the CSSS ($F(6, 118) = 11.42$, $p < .001$, $R^2 = .37$). As shown in Table 3, self-esteem and HIPT were significant, negative predictors of CSSS, whilst the relations subscale of the SSAM was a significant positive predictor of CSSS. Self-esteem was the best predictor of CSSS. Self-integrity and the strengths and values SSAM subscales were not significant predictors of CSSS. A multiple regression using global SSAM instead of the subscales revealed similar results. The variables explained a significant percentage (34%) of the variance in stress ($F(4, 120) = 15.68$, $p < .001$, $R^2 = .34$) and self-esteem ($B = -.05$, $SE\ B = .02$, $\beta = -.33$, $p = .004$, *BCa CI* [-.08, -.02]) and habitual positive self-thought ($B = -.20$, $SE\ B = .07$, $\beta = -.33$, $p = .007$, *BCa CI* [-.34, -.04]) were significant, negative predictors of CSSS, whilst global SSAM ($B = .13$, $SE\ B = .06$, $\beta = .19$, $p = .018$, *BCa CI* [.02, .22]) was a significant positive predictor of CSSS.

 doi:10.20944/preprints202307.0817.v1

Table 3. Linear model of predictors of the College Student Stress Scale.

Variables	*B*	*SE B*	β	*p*
SSAM Strengths	.03 [-.07, .12]	.05	.05	.59
SSAM Values	-.04 [-.19, .10]	.07	-.07	.56
SSAM Relations	.15 [.04, .25]	.06	.26	.01*
Self-Esteem	-.05 [-.09, -.02]	.02	-.35	.006**
HIPT	-.20 [-.35, -.03]	.07	-.32	.008**
Self-Integrity	-.03 [-.21, .13]	.09	-.03	.73

Note. 95% bias corrected and accelerated confidence intervals reported in parentheses. Confidence intervals and standard errors based on 1000 bootstrap samples. *$p < .05$. **$p < .01$. ***$p < .001$.

4. Discussion

This study explored inter-relationships between spontaneous self-affirmation, student-specific perceived stress and potential covariates; self-esteem, habitual positive self-thought, and self-integrity. The global tendency to spontaneously self-affirm positively predicted student stress, seemingly driven by the relations subscale. Self-esteem and habitual positive self-thought negatively predicted student stress, whilst self-integrity was not a predictor.

4.1. Spontaneous self-affirmation and stress

Hypotheses 1 and 2, that spontaneous self-affirmation would negatively correlate with and predict student-specific perceived stress, were not supported. In contrast, the Spontaneous Self-Affirmation Measure (SSAM) positively predicted the College Student Stress Scale (CSSS). This is inconsistent with self-affirmation theory, which suggests that self-affirmation reduces the perceived threat of stressors (Cohen & Sherman, 2014). It also contrasts with findings from experimental research, which suggests that self-affirmation can reduce psychological stress in both controlled (Creswell et al., 2005) and naturalistic environments (Morgan & Harris, 2015; Morgan & Atkin, 2016). Several explanations for these differences in findings are proposed.

Jessop et al. (2018) found that self-affirmation led to increased anxiety when participants were exposed to stressors which had low controllability. Evidence suggests that self-affirmation reduces defensiveness, which leads to positive health outcomes (Jessop et al., 2018). However, defensive responses to stressors can be adaptive and beneficial to psychological health when we have little control (Vaillant, 2000). Reduced defensive responses may explain the positive relationship between spontaneous self-affirmation and student-specific stress, as the CSSS is sensitive to both controllable and uncontrollable stressors. In contrast, laboratory studies focus on short-term, controllable stressors. However, other explanations must also be considered as experimental research found reductions in workplace anxiety (Morgan & Atkin, 2016; Morgan & Harris, 2015), which may also involve stressors with low controllability.

Studies that found that self-affirmation reduces psychological stress used strengths and/or values affirmations, rather than relations affirmations (Creswell et al., 2005; Morgan & Atkin, 2016; Morgan & Harris, 2015). In line with Harris et al.'s (2019) findings, results support Hypotheses 3 and 4, that the SSAM subscales would show different correlational and predictive patterns with CSSS. The values and strengths subscales showed no relationship with CSSS, whereas the relations subscale predicted it and seemingly drove the predictive ability of global SSAM. Murray et al. (2001) found that the effects of relational self-affirmation are influenced by whether acceptance is perceived as conditional or unconditional. Individuals used unconditional relationships to overcome threats to their self-integrity, yet when thinking about conditional relationships, these threats caused rejection-related anxiety (Murray et al., 2001), which causes psychological stress (Parker et al., 2006). The SSAM (Harris et al., 2019) assumes that participants' thoughts about social relations are positive resources,

 doi:10.20944/preprints202307.0817.v1

which may not always be the case. Thus, self-affirmation using conditional relationships could explain positive associations between the relations SSAM subscale and CSSS.

Additionally, it is proposed that the broader context surrounding relations, and the emotions they elicit, influences whether self-affirming using relations has a positive or negative impact. Data for the present study was collected during the first UK national coronavirus 'lockdown', in which the public were asked to stay at home, only leaving for essential purposes (Brown & Kirk-Wade, 2021). A large qualitative study found that the safety of others was a significant concern for students at this time, and concerns about relationships due to limited contact with family and peers were also common (Hawley, et al., 2021). Students experienced loss of individuals considered SOS contacts and confidants (Lampraki, Hoffman, Roquet, & Jopp, 2022) and reported increases in negative emotions towards interacting with close contacts such as partners (Goodboy, Dillow, Knoster, & Howard, 2021). Ahead of the pandemic, students may have formed a positive and protective habit of spontaneously self-affirming using relations that evoked positive emotions. However, thoughts about these relationships may have begun to elicit negative emotions due to the pandemic and associated restrictions. Students' tendency to spontaneously self-affirm could then have had a negative impact and led to increases in stress. Experimental findings support this proposal as participants who completed a negative emotion induction task before a self-affirmation essay-writing task, produced essays that were rated significantly less self-affirming, suggesting that the negative emotion state disrupted the self-affirmation process (Ferrer, Klein, & Graff, 2017).

The role of the covariates is also considered when exploring differences in results of the present study and experimental research. The results also extend the limited knowledge regarding inter-relationships between spontaneous self-affirmation, outcomes and covariates.

4.2. Self-esteem and HIPT

Hypotheses regarding self-esteem's relationships with student-specific stress and spontaneous self-affirmation were supported. Self-esteem positively correlated with SSAM (H8), which replicates Harris et al.'s (2019) findings. It also negatively correlated with and predicted CSSS (H5, H6), which is consistent with research that suggests that people with high self-esteem experience lower levels of psychological stress (O'Donnell et al., 2008).

Hypothesis 10, that there would be inter-relationships between HIPT, spontaneous self-affirmation and student-specific perceived stress was also supported. Firstly, Harris et al.'s (2019) finding that HIPT and spontaneous self-affirmation are positively associated was replicated, supporting Hypothesis 9. There was also a strong, negative correlation between HIPT and student-specific stress, and HIPT was a significant predictor of student-specific stress. This aligns with evidence that general positive thinking reduces psychological stress (Pathak & Lata, 2018). HIPT may consequently be an important variable in managing student-stress.

Finally, the positive relationship between SSAM and CSSS was only revealed when self-esteem and HIPT were controlled for. This suggests that they act as buffers against the negative effects of spontaneous self-affirmation on student-specific stress and does not support Hypothesis 7; that self-esteem would strengthen the effects of spontaneous self-affirmation.

The role of HIPT could explain the contrasting findings of the present study and experimental research. Spencer et al. (1993) suggested that self-resources are more beneficial in maintaining self-integrity when they are accessible. Self-affirmation tasks may increase accessibility of self-resources (i.e. HIPT), which in turn reduces stress. It is unlikely that spontaneous self-affirmation is the only variable that influences accessibility of self-resources, which would explain the absence of a negative association between spontaneous self-affirmation and student-specific stress. The role of HIPT would also explain inconsistencies in experimental research exploring the moderating role of self-esteem (Düring & Jessop, 2015), which indicates the volume of self-resources available. Whilst important, self-esteem cannot fully account for individual differences in accessibility of self-resources.

4.3. Self-integrity

In support of Hypothesis 11, there was a positive correlation between spontaneous self-affirmation and self-integrity. This supports self-affirmation theory (Steele, 1988), which states that self-affirmation allows individuals to maintain their self-integrity. The result replicates Harris et al.'s (2019) findings and is consistent with experimental research that found that self-affirmed participants reported higher self-integrity than non-affirmed participants (Sherman et al., 2009).

Hypothesis 12, that there would be a positive correlation between self-integrity and student-specific perceived stress, was initially supported, but this association was not significant when controlling for self-esteem and HIPT. Furthermore, self-integrity was not a predictor of student-specific stress. This suggests that self-esteem and HIPT account for this relationship and that self-integrity does not play a role in the relationship between self-affirmation and student-specific stress. Hypothesis 13, that inter-relationships exist between spontaneous self-affirmation, self-integrity and student-specific stress is therefore not supported. This questions the integral role that self-affirmation theory (Steele, 1988) places upon self-integrity in explaining the effects of self-affirmation on stress, and points to the role of other constructs such as self-esteem and HIPT. However, further evidence against the role of self-integrity is required before it is dismissed. Validation of the Self-Integrity Scale (Sherman et al., 2009) is also necessary, which may explain its limited use in self-affirmation research (McPhail, 2007).

4.4. Limitations

A key limitation of this study is that data collection took place during Europe's COVID-19 pandemic, as the pandemic exposed participants to numerous stressors with low controllability (Vinkers et al., 2020). As research suggests that the controllability of stressors affects the impact of self-affirmation (Jessop et al., 2018), the influence of the study's unique circumstances should be considered when judging the generalisability of findings.

Limitations associated with explorative research must also be noted. Results of correlational studies do not provide evidence for causal relationships (Coolican, 2018). Instead, suggested causal explanations for the study's findings are made, which should be explored experimentally. Longitudinal studies are recommended as they increase accuracy (Menard, 2008) and overcome issues caused by fluctuations in our propensity to self-affirm (Spencer et al., 1993). Furthermore, the study uses self-reported measures, which are subject to motivational biases such as self-enhancement (Vazire, 2010). Finally, Podsakoff et al. (2003) stated that single-method studies are susceptible to common method bias, in that relationships between constructs are inflated. Further research should use methods to overcome this limitation such as statistical control and multi-method studies (Spector, 2006).

4.5. Future research and practical implications

This study suggests that spontaneous self-affirmation may increase student-specific perceived stress. It consequently supports the suggestion that self-affirmation should not be treated as a panacea for stress and further research is necessary to inform effective utilization of self-affirmation in stress interventions (Jessop et al., 2018). Exploration of potential explanations for the study's findings are recommended.

Firstly, further research is needed to explore whether the results from this study are replicated when participants are not experiencing the restrictions, stressors, and changes in relationships caused by living in a global pandemic.

Secondly, Jessop et al.'s (2018) suggestion that the impact of self-affirmation can vary across different types of stress should be further explored both experimentally, and within spontaneous self-affirmation by utilising measures of perceived stress that differentiate between high and low controllability stressors.

Thirdly, different patterns in correlations and predictive ability of SSAM subscales support the need for research into Cohen and Sherman's (2014) suggestion that different types of affirmation affect outcomes differently. Harris, Richards and Bond (2022) also recommend further research into the

subscales as they also found the effect of spontaneous self-affirmation on wellbeing varied depending on the source. Furthermore, the positive relationship between relations affirmations and student-specific stress should be explored experimentally. This should include whether the type of relationship, or the positive or negative nature of emotions elicited when thinking about the relationship, mediates this effect.

Finally, the finding that HIPT is a negative predictor of CSSS should be explored experimentally, as this offers a new avenue for student-specific stress interventions. Furthermore, research into the accessibility of self-resources and its interaction with self-esteem could improve understanding of the causal relationship between self-affirmation tasks and reduced stress.

5. Conclusions

The aim of the study was to explore spontaneous self-affirmation's potential in managing student-specific stress and investigate inter-relationships between spontaneous self-affirmation, student-specific perceived stress and covariates, including self-esteem, habitual positive self-thought and self-integrity. The study found that spontaneous self-affirmation has a positive relationship with student-specific stress, seemingly driven by relations affirmations. This suggests that spontaneous self-affirmation may increase student-specific stress. Furthermore, there was no relationship between student-specific stress and self-integrity, which highlights gaps in the current use of self-affirmation theory (Steele, 1988) to explain lower levels of stress amongst self-affirmed participants (Cohen & Sherman, 2014). There is consequently a need for further research to improve understanding of the mechanisms involved in self-affirmation-based stress interventions. This, along with greater awareness of the variables that influence the effects of self-affirmation and improved understanding of the impact of the source of self-affirmation, is necessary to inform best practice and avoid negative effects. Furthermore, evidence of a negative relationship between student-specific stress and the HIPT presents a new avenue for research into stress management and exploring the role of HIPT may be key in understanding reduced stress in those engaging in self-affirmation tasks.

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