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Grief, Coping, Resilience, and Post-Traumatic Growth in the Undergraduate Population

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Abstract

Grief is an unfortunate part of life that almost everyone must endure at some point. Grief is often seen as a traumatic event and individuals have the chance to experience post-traumatic growth as a result of their grief experience. The current study investigates how grief and post-traumatic growth are impacted by emotional, interpersonal, coping, and resilience factors in and sample of 51 undergraduate students. Results indicated that grief was associated with emotion-oriented coping style, and anxiety. Post traumatic growth was associated with anxiety as well, but also with interpersonal and emotional support, and resilience. Our findings suggest that higher levels of anxiety and emotional-based coping was associated with higher levels of grief as well as post-traumatic growth.

Keywords

Grief, Coping, Resilience, Posttraumatic Growth, Depression, Anxiety

1. Introduction

The loss of a loved one can significantly impact an individual's life. This can serve as a barrier that hinders an individual's ability to function within society. The level of grief experienced by an individual is affected by the coping mechanisms they use and their level of resilience [1]. While previous research has investigated the importance of individual factors like grief, coping mechanisms, resilience, social support, perceived control, depression, anxiety and post-traumatic growth [1]-[5], there has been limited research investigating the relationship between these variables in the undergraduate population. The current study aims to determine the level of grief and post-traumatic growth experienced by a sample of adult undergraduate students and the factors affecting it.

1.1. Grief

Grief occurs when an individual experiences negative emotion because of their experience [6]. These emotions can impede an individual's ability to function within society [6]. Although grief is generally perceived as a negative event [4], it can also positively affect personal growth and functioning within a society [4] [7]-[10]. For instance, people grow closer to the remaining family after the death of a loved one [4]. The level of grief an individual experiences is also affected by resilience [9], as lower levels of resilience results in greater experience of grief [9]. Post-traumatic growth after grief experiences may result from greater understanding of oneself, spirituality, and ability to relate to others [4]. This growth may result from individuals living with more intention and recognizing that one's lifetime is limited [4].

1.2. Stress

Stress occurs when internal or external demands exceeds the resources limits of an individual [11]. Stress negatively affects both physical and psychological health [11]. The emotional response to stress varies between individuals [12], and some of this variation may result from differences in resilience and coping styles.

1.3. Resilience

Resilience refers to the likelihood that an individual will adapt when faced with a challenging experience [13]. Higher levels of resilience can lead to more positive outcomes when faced with trauma [14]. The level of resilience that an individual possesses is influenced by their culture, social support, internal sense of control, and frequency of stressors [13]-[17]. An individual's appraisal of a stressor can influence the coping strategies they use [17], but the magnitude of the stressor can also affect the selection of coping strategy, and thereby resilience [16] [17].

1.4. Social Support

Social support is significantly associated with an individual's ability to cope with grief [18]. While high levels of social support is seen immediately following the death of a loved one, these levels quickly decline [18]. Thus, social support is effective in helping individuals in grief, especially those who experience the sudden loss of a loved one [18].

1.5. Depression and Anxiety

Depression is an important factor when examining the severity of grief among individuals. Depression shares many common traits with grief, such as lack of appetite and energy [3]. While grief requires counselling or support, depression can often be treated with pharmacological interventions as well [3].

Anxiety is prominent when an individual is experiencing grief [5]. Anxiety typically relates to separation that has occurred because of the traumatic event [5]. The anxiety that individuals experience due to trauma often resolves on its own with time [5].

1.6. Sense of Control

Sense of control refers to the extent which an individual feels that they are in control of their life and events [13]. Individuals with higher internal sense of control are more likely to experience greater levels of trauma [13]. Internal sense of control is an important factor when attempting to understand the importance of resilience and trauma [13].

1.7. Coping

Coping strategies regulate stress, overcome challenges, and are a source of strength to protect the individual [19]. Coping strategies can be classified into three types—problem-focused, emotion-focused, and avoidant [19]-[21]. Problem-focused coping tries to remove the stressor or reduce its impact [20]. This can be achieved through planning, use of information, and positive framing [19] [20]. Emotion-focused coping refers to when an individual attempts to reduce the negative feelings that arise in response to an active threat (e.g., self-blame, emotional venting, and use of humor) [19] [20]. Avoidant coping refers to not engaging/acknowledging the presence of an event [20]. Avoidant coping can include behavioral disconnection, denial, and self-distraction (e.g., watching a movie) [19] [20].

1.8. Post-Traumatic Growth

Post traumatic growth refers to positive change experienced by an individual resulting from a traumatic event [10] [22]. The level of trauma an individual experiences can influence the amount of post-traumatic growth [23] [24]. There are five major areas in which individuals can see post-traumatic growth: relating to others (e.g., having empathy for others), new possibilities (e.g., interest in new things), personal strength (e.g., "I learned I was stronger than I previously thought"), spiritual change (e.g., a clearer understanding of spiritual life and matters), and appreciation of life (e.g., "I value my own life more than I did") [10] [25]. The amount of growth an individual experiences in these categories is significantly affected by their cultural beliefs and personal interpretations of the events [26].

1.9. Current Study

The current study examined the relation between loss, trauma, coping, resilience, and post-traumatic growth in a sample of university students. The aims of this study was to identify the presence of loss and trauma among undergraduate students, post-traumatic growth, and factors affecting them.

2. Methods

2.1. Participants

Undergraduate students attending St. Mary's University located in Calgary, Alberta, were invited to participate in the study. Inclusion criteria required participants to be current students at the University, which served as a proxy for age and intelligence requirements. Students were recruited through in-person classes and

asked to fill out a series of questionnaires. The average age of these participants was 20.55 (SD = 3.264), as the sample consists of only current undergraduate students.

2.2. Measures

Participants in the study were given a socio-demographic questionnaire and asked to complete questions about their sex/gender, age, current year of study in university, major, student status, marital status, current living arrangement, work status, household income, ethnicity, and religious beliefs.

The 21-item Texas Revised Inventory of Grief (TRIG) [27] was used to assess grief (both past and present) that students have experienced related to the loss of a loved one. The TRIG is rated by participants on a 5-point Likert scale, ranging from 1 ("completely true") to 5 ("completely false"). Eight items ask about past behaviors (e.g., "After this person's death, I lost interest in my family, friends, and outside activities."). Thirteen items ask about the participants present feelings (e.g., "I still cry when I think of the person who died."). Scores for both past and present are counted and summed separately, higher scores are labeled as severe grief, lower scores are labelled as either normal or low levels of grief [28].

The 25-item Posttraumatic Growth Inventory—Expanded (PTGI-X) [10] was used to measure individual growth after experiencing trauma. The PTGI-X contains twenty-five items that are rated on a 6-point Likert scale, ranging from 0 ("I did not experience this change as a result of my crisis.") to 5 ("I experienced this change to a very great degree as a result of my crisis."). The PTGI-X is scored by summing scores of respective categories ("relating to others", e.g., empathy), ("new possibilities", e.g., new interests), ("personal strength", e.g., learning you had more strength than you believed you had previously), ("spiritual change", e.g., greater understanding of spiritual matters), and ("appreciation of life", e.g., valuing life more) [10] [26]. Higher scores indicate more growth in the category.

The 21-item Depression Anxiety Scale (DASS-21) [29] was used to assess the extent of stress, anxiety, and depression in undergraduate students. The DASS-21 is rated by participants on a 4-point Likert scale, ranging from 0 ("did not apply to me at all") to 3 ("applied to me very much or most of the time"). The final score is obtained by summing each category individually and multiplying the sum by two.

The 12-item Interpersonal Support Evaluation List shortened version (ISEL) [30] was used to assess perceived social support in the undergraduate population. The ISEL is rated by participants on a 4-point Likert scale, ranging from 1 ("definitely false") to 4 ("definitely true"). The final scores are obtained through reverse scoring certain items and summing individual categories. Higher scores indicate higher perceived social support. Scores are classified into the "appraisal" referring to guidance or advice in life decisions [30], "belonging" refers to acceptance or empathy coming from others [30], or "tangible support" referring to financial or

material assistance [30].

The 29-item Rotter's Locus of Control Scale (RLCS) [31] was used to assess locus of control. This scale contains pairs of sentences and the participant has to choose one from each pair (e.g., "No matter how hard you try some people just don't like you"; "People who can't get others to like them don't understand how to get along with others"). Final scores are obtained by summing responses of participants. Higher scores indicate an external locus of control, lower scores indicate an internal locus of control.

The 14-item Perceived Stress Scale (PSS) [32] was used to assess the amount of stress experienced by undergraduate students over the last month. The PSS is rated by participants on a 5-point Likert scale, ranging from 0 ("never") to 4 ("very often"). The final score is obtained through reverse scoring the positive questions, then summing all items. Higher scores indicate greater perceived stress.

The 21-item Coping Inventory for Stressful Situations–Situation Specific Version (CISS) [33] was administered to assess the frequency of different coping strategies in undergraduate students when in a stressful situation. The CISS is used to assess three different subscales of coping: task-oriented coping is related to the use of active problem-solving when faced with stressful situations [34] (e.g., "(I) analyze my problem before reacting"), emotion-oriented coping is related to affective reactions or self-blame when faced with a stressful situation [34] (e.g., "(I) focus on my general inadequacies"), and avoidance-oriented coping is related to strategies of distraction such as social diversion [34] (e.g., "(I) treat myself to a favorite food or snack"). Participants are asked to rate how often they use different strategies when faced with a difficult or stressful situation. The CISS is scored on a 5-point Likert scale, ranging from 1 ("not at all") to 5 ("very much"). Final scores for the CISS are obtained by summing all the items for each subsection. Greater scores indicate higher utilization of that coping strategy.

The 6-item Brief Resilience Scale (BRS) [35] was used to assess the level of resilience of undergraduate students. The BRS contains six items that is rated by participants on a 5-point Likert scale, ranging from 1 ("strongly disagree") to 5 ("strongly agree"). All six items measure the participant's level of resilience. The BRS is scored by reverse coding items 2, 4, and 6 and computing the average of all items [35].

2.3. Procedure

After receiving approval from St. Mary's University Research Ethics Board, participants were recruited from the undergraduate population at the university using convenience sampling. Informed consent was obtained from all participants. Participation in this study was completely voluntary, and participants were allowed to discontinue the study at any time. Full confidentiality was maintained by not gathering name or any identifying details of the participants. All participants who sign the informed consent were asked to complete the following: a sociodemographic questionnaire, a grief questionnaire (TRIG), a post-

traumatic growth questionnaire (PTGI-X), a depression and anxiety scale (DASS-21), a social support scale (ISEL), a locus of control scale (RLCS), a perceived stress scale (PSS), coping inventory (CISS), and a resilience scale (BRS). Additionally, participants were also provided with information about mental health resources. Lastly, participants were given a debriefing sheet with information about coping and to remind them of their right to withdraw as well as the purpose of the study.

2.4. Analysis

Data was analyzed using a combination of correlation and regression models. A multiple linear regression model was used to investigate whether severity of grief can be predicted by resilience, social support, perceived stress, locus of control and depression and anxiety. Similarly, factors affecting post-traumatic growth were also examined.

3. Results

Of the 51 participants who completed the study, 6 (11.76%) did not experience grief. Socio-demographic details of participants are described in Table 1. Most participants were in their first year of study, psychology majors, full-time students, single, living with family, Caucasian, and identified as female and Christian (Table 1). The means and standard deviations of all the measures are described in Table 2.

Table 1. Sociodemographic characteristics.

	n = 51
Gender	
Male	13 (25.5%)
Female	37 (72.5%)
Other	1 (2.0%)
Age in Years (mean, standard deviation)	20.55 (3.264%)
Year of Study	
First Year	34 (66.7%)
Second Year	6 (11.8%)
Third Year	5 (9.8%)
Fourth Year	4 (7.8%)
Fifth Year	2 (3.9%)
Major of Study	
English	2 (3.9%)
General Studies	3 (5.9%)
Psychology	33 (64.7%)
Biology	9 (17.6%)
Education	1 (2.0%)
History	3 (5.9%)

Continued

Student	
Part-time Student	2 (3.9%)
Full-time Student	49 (96.1%)
Current Marital Status	
Married	1 (2.0%)
Living Common-law	3 (5.9%)
Single	47 (92.2%)
Current Living Arrangement	
Alone	1 (2.0%)
With Partner/Spouse	4 (7.8%)
With Family	46 (90.2%)
Current Work Status	
Part-time Employed	37 (72.5%)
Full-time Employed	3 (5.9%)
Not Working	11 (21.6%)
Household Income[a]	
Under $20,000	11 (21.6%)
$20,001 - $40,000	3 (5.9%)
$40,001 - $60,000	4 (7.8%)
$60,001 - $80,000	11 (21.6%)
$80,001 - 100,000	7 (13.7%)
$100,001 or over	14 (27.5%)
Ethnicity	
Asian	15 (29.4%)
Black	1 (2.0%)
Latino	2 (3.9%)
Caucasian	31 (60.8%)
Indigenous	1 (2.0%)
Other	1 (2.0%)
Religious Beliefs[b]	
Christian	33 (64.7%)
Hinduism	1 (2.0%)
Atheist	8 (15.7%)
Agnostic	6 (11.8%)
Other	1 (2.0%)

[a]Data missing for 1 participant; [b]Data missing for 2 participants.

Table 2. Mean (Standard deviation) of measures ($n = 51$).

	M	*SD*
TRIG[b]	64.911	17.618
PTGIX Relating to Others[c]	18.25	8.99
PTGIX New Possibilities[d]	9.54	4.79
PTGIX Personal Strength[c]	10.81	4.84

Continued

PTGIX Spiritual Growth[c]	14.41	8.32
PTGIX Appreciation of Life[c]	9.41	3.78
DASS Stress	20.47	9.99
DASS Anxiety	15.53	11.19
DASS Depression	15.68	9.87
ISEL Appraisal	12.21	3.25
ISEL Belonging[a]	11.46	2.81
ISEL Tangible	12.84	2.54
RLCS[a]	13.04	3.49
PSS[a]	43.44	7.04
CISS Task	22.92	5.09
CISS Emotional	23.07	6.06
CISS Avoidant	21.39	5.80
BRS	3.06	0.34

[a]Data missing for 1 participant; [b]Data missing for 6 participants; [c]Data missing; for 7 participant; [d]Data missing for 8 participants.

3.1. Correlational Analysis

In order to examine the relationships between grief and posttraumatic growth with other variables, Pearson's correlational analysis was conducted. The level of grief experienced had significant positive correlations with anxiety [$r(49) = 0.357$, $p = 0.016$] and emotional oriented coping [$r(49) = 0.370$, $p = 0.012$]. Posttraumatic growth relating to others had significant positive correlations with belonging [$r(48) = 0.511$, $p = < 0.001$], appraisal [$r(49) = 0.420$, $p = 0.005$], tangible support [$r(49) = 0.309$, $p = 0.041$], and avoidant-oriented coping [$r(49) = 0.302$, $p = 0.046$]. Posttraumatic growth (new possibilities) had a significant positive correlation with anxiety [$r(49) = 0.308$, $p = 0.042$], emotional oriented coping [$r(49) = 0.308$, $p = 0.042$], and resilience [$r(49) = 0.364$, $p = 0.015$]. Posttraumatic growth (personal growth) had a significant positive correlation with belonging [$r(48) = 0.465$, $p = 0.002$]. Posttraumatic growth (spiritual growth) had significant positive correlations with belonging [$r(48) = 0.355$, $p = 0.019$]. Posttraumatic growth (appreciation of life) had significant positive correlations with belonging [$r(48) = 0.412$, $p = 0.006$]. See Table 3 for correlations between variables.

Table 3. Correlation between variables.

	TRIG	PTGIX Relating	PTGIX New Possibilities	PTGIX Personal Growth	PTGIX Spiritual Growth	PTGIX Appreciation of life
TRIG	—	—	—	—	—	—
PTGIX Relating	0.104	—	—	—	—	—
PTGIX New Possibilities	0.436**	0.549**	—	—	—	—

Continued

PTGIX Personal Growth	0.088	0.697**	0.562**	—	—	—
PTGIX Spiritual Growth	0.101	0.597**	0.653**	0.584**	—	—
PTGIX Appreciation of life	0.166	0.541**	0.510**	0.674**	0.626**	—
DASS Stress	0.266	−0.064	0.164	−0.038	−0.113	0.181
DASS Anxiety	0.357*	0.063	0.308*	0.080	0.051	0.103
DASS Depression	0.291	−0.222	0.054	−0.123	−0.197	−0.102
ISEL Appraisal	−0.004	0.420**	0.066	0.197	0.202	0.122
ISEL Belonging	0.044	0.511**	0.285	0.465**	0.355*	0.412**
ISEL Tangible	−0.087	0.309*	−0.071	0.254	−0.003	0.243
RLCS	0.296	−0.299	−0.235	−0.283	−0.151	−0.216
PSS	0.261	−0.191	−0.053	−0.291	−0.251	−0.192
CISS Task	0.103	0.083	0.203	0.284	0.077	0.241
CISS Emotional	0.370*	0.172	0.308*	−0.024	0.019	0.089
CISS Avoidant	0.182	0.302*	0.143	0.227	0.165	0.094
BRS	0.041	−0.034	0.364*	0.003	0.019	0.129

*$p < 0.05$ (2-tailed); **$p < 0.01$ (2-tailed).

3.2. Regression Analysis

To further understand the interrelationship between variables, multiple linear regression analyses were conducted. Bonferroni correction was used to correct for multiple comparison (revised alpha = 0.008). Multiple linear regression analysis showed that PTGIX (relating to others) is predicted by anxiety, stress, belonging, locus of control, emotional coping, avoidant coping, and resilience. The results were significant after Bonferroni corrections [$F(7, 34) = 4.632$, $p = 0.001$]. The final model accounted for nearly 50% of the variance in PTGIX (relating to others) ($R^2 = 0.488$). Emotional coping and belonging were significant individual predictors in the model, with higher levels of both predicting greater PTGIX (relating to others) (Table 4). The remaining regression analyses are reported below, however, they are interpreted cautiously as they did not survive correction for multiple comparisons. Linear regression of TRIG grief level was conducted to determine whether it could be predicted by anxiety, stress, belonging, locus of control, emotional coping, avoidant coping, and resilience. Results found the model was significant before corrections [$F(7, 36) = 3.078$, $p = 0.012$, $R^2 = 0.374$] (Table 5). Linear regression of PTGIX (new possibilities) was conducted to determine whether it could be predicted by stress, belonging, locus of control, emotional coping, avoidant coping, and resilience. The model was significant before corrections [$F(7, 34) = 2.769$, $p = 0.022$, $R^2 = 0.363$] (Table 6). Linear regression of PTGIX (personal strength) was conducted to determine whether it could be predicted by stress, belonging, locus of control, emotional coping, avoidant coping, and resilience. The model was significant before corrections [$F(7, 34) = 2.709$, $p = 0.024$, R^2

= 0.358] (Table 7). Linear regression of PTGIX (spiritual growth) was conducted to determine whether it could be predicted by stress, belonging, locus of control, emotional coping, avoidant coping, and resilience. The model was not significant [$F(7, 34) = 1.299$, p = 0.281, $R^2 = 0.211$] (Table 8). Linear regression of PTGIX (appreciation of life) was conducted to determine whether it could be predicted by stress, belonging, locus of control, emotional coping, avoidant coping, and resilience. The model was significant before corrections [$F(7, 34) = 2.023$, p = 0.081, $R^2 = 0.294$] (Table 9).

Table 4. Results of Linear regression analysis with posttraumatic growth inventory relating to others, the depression, anxiety and stress scale—21 items, interpersonal support evaluation list shortened version—12 items, rotter's locus of control scale, perceived stress scale, coping inventory for stressful situations—situation specific version, brief resilience scale (n = 51).

			95% *CI*				
Variable	Beta	*SE*	*LL*	*UL*	β	*t*	p
(Constant)	19.606	14.478	−9.817	49.028		1.354	0.185
DASS Anxiety	0.076	0.110	−0.147	0.299	0.099	0.693	0.493
ISEL Belonging	1.801	0.469	0.848	2.754	0.527	3.842	<0.001
RLCS	−0.412	0.310	−1.042	0.217	−0.169	−1.331	0.192
PSS	−0.533	0.220	−0.979	−0.087	−0.420	−2.427	0.021
CISS Emotional	0.883	0.284	0.305	1.460	0.605	3.106	0.004
CISS Avoidant	−0.093	0.227	−0.553	0.368	−0.059	−0.409	0.685
BRS	−4.183	3.844	−11.995	3.629	−0.150	−1.088	0.284

Note: *CI* = Confidence interval, *LL* = Lower Limit, *UL* = Upper Limit, *SE* = Standard Error, β = Beta.
Predictors: (Constant), Posttraumatic Growth Inventory Relating to Others.

Table 5. Results of linear regression analysis with Texas revised inventory of grief, the depression, anxiety and stress scale—21 items, interpersonal support evaluation list shortened version—12 items, rotter's locus of control scale, perceived stress scale, coping inventory for stressful situations—situation specific version, brief resilience scale (n = 51).

			95% *CI*				
Variable	Beta	*SE*	*LL*	*UL*	β	*t*	p
(Constant)	44.750	30.486	−17.079	106.579		1.468	0.151
DASS Anxiety	0.516	0.231	0.048	0.984	0.344	2.236	0.032
ISEL Belonging	0.713	0.941	−1.196	2.622	0.110	0.758	0.454
RLCS	1.392	0.653	0.067	2.717	0.292	2.131	0.040
PSS	0.067	0.445	−0.835	0.969	0.027	0.151	0.881
CISS Emotional	0.529	0.561	−0.609	1.666	0.190	0.943	0.352
CISS Avoidant	0.803	0.472	−0.155	1.761	0.263	1.700	0.098
BRS	−15.357	7.960	−31.500	0.786	−0.285	−1.929	0.062

Note: *CI* = Confidence interval, *LL* = Lower Limit, *UL* = Upper Limit, *SE* = Standard Error, β = Beta.
Predictors: (Constant), TRIG.

Table 6. Results of linear regression analysis with posttraumatic growth inventory new possibilities, the depression, anxiety and stress scale—21 items, interpersonal support evaluation list shortened version—12 items, rotter's locus of control scale, perceived stress scale, coping inventory for stressful situations—situation specific version, brief resilience scale ($n = 51$).

			95% *CI*				
Variable	Beta	*SE*	*LL*	*UL*	*β*	*t*	p
(Constant)	1.618	8.387	−15.427	18.662		0.193	0.848
DASS Anxiety	0.100	0.064	−0.030	0.229	0.250	1.564	0.127
ISEL Belonging	0.561	0.272	0.009	1.113	0.316	2.066	0.047
RLCS	−0.185	0.180	−0.550	0.180	−0.146	−1.031	0.310
PSS	−0.212	0.127	−0.471	0.046	−0.323	−1.669	0.104
CISS Emotional	0.275	0.165	−0.060	0.609	0.363	1.670	0.104
CISS Avoidant	0.043	0.131	−0.224	0.310	0.053	0.327	0.745
BRS	1.356	2.227	−3.170	5.881	0.094	0.609	0.547

Note: *CI* = Confidence interval, *LL* = Lower Limit, *UL* = Upper Limit, *SE* = Standard Error, *β* = Beta.
Predictors: (Constant), Posttraumatic Growth Inventory New Possibilities.

Table 7. Results of linear regression analysis with posttraumatic growth inventory personal strength, anxiety and stress scale—21 items, interpersonal support evaluation list shortened version—12 items, rotter's locus of control scale, perceived stress scale, coping inventory for stressful situations—situation specific version, brief resilience scale ($n = 51$).

			95% *CI*				
Variable	Beta	*SE*	*LL*	*UL*	*β*	*t*	p
(Constant)	13.674	8.872	−4.356	31.705		1.541	0.133
DASS Anxiety	0.086	0.067	−0.051	0.222	0.204	1.272	0.212
ISEL Belonging	0.765	0.287	0.181	1.349	0.409	2.664	0.012
RLCS	−0.222	0.190	−0.608	0.164	−0.166	−1.169	0.251
PSS	−0.259	0.135	−0.532	0.015	−0.373	−1.921	0.063
CISS Emotional	0.184	0.174	−0.169	0.538	.231	1.059	0.297
CISS Avoidant	0.032	0.139	−0.250	0.314	0.037	0.230	0.819
BRS	−1.229	2.356	−6.016	3.558	−0.081	−0.522	0.605

Note: *CI* = Confidence interval, *LL* = Lower Limit, *UL* = Upper Limit, *SE* = Standard Error, *β* = Beta.
Predictors: (Constant), Posttraumatic Growth Inventory Personal Growth.

Table 8. Results of linear regression analysis with posttraumatic growth inventory spiritual growth, anxiety and stress scale—21 items, interpersonal support evaluation list shortened version—12 items, rotter's locus of control scale, perceived stress scale, coping inventory for stressful situations—situation specific version, brief resilience scale ($n = 51$).

			95% *CI*				
Variable	Beta	*SE*	*LL*	*UL*	*β*	*t*	p
(Constant)	13.203	16.095	−19.506	45.912		0.820	0.418
DASS Stress	0.092	0.122	−0.157	0.340	0.134	0.750	0.458
ISEL Belonging	1.085	0.521	0.026	2.144	0.355	2.082	0.045

Continued

RLCS	−0.087	0.344	−0.788	0.613	−0.040	−0.254	0.801
PSS	−0.295	0.244	−0.791	0.201	−0.260	−1.207	0.236
CISS Emotional	0.188	0.316	−0.454	0.830	0.144	0.596	0.555
CISS Avoidant	0.083	0.252	−0.429	0.595	0.059	0.330	0.744
BRS	−1.588	4.274	−10.273	7.097	−0.064	−0.372	0.713

Note: *CI* = Confidence interval, *LL* = Lower Limit, *UL* = Upper Limit, *SE* = Standard Error, *β* = Beta.
Predictors: (Constant), Posttraumatic Growth Inventory Spiritual Growth.

Table 9. Results of linear regression analysis with posttraumatic growth inventory appreciation of life, anxiety and stress scale—21 items, interpersonal support evaluation list shortened version—12 items, rotter's locus of control scale, perceived stress scale, coping inventory for stressful situations—situation specific version, brief resilience scale (*n* = 51).

			95% *CI*				
Variable	Beta	*SE*	*LL*	*UL*	*β*	*t*	p
(Constant)	7.829	7.114	−6.629	22.287		1.101	0.279
DASS Stress	0.042	0.054	−0.068	0.151	0.130	0.773	0.445
ISEL Belonging	0.651	0.230	0.183	1.119	0.455	2.825	0.008
RLCS	−0.112	0.152	−0.422	0.197	−0.110	−0.738	0.466
PSS	−0.154	0.108	−0.374	0.065	−0.291	−1.429	0.162
CISS Emotional	0.171	0.140	−0.113	0.454	0.280	1.223	0.230
CISS Avoidant	−0.030	0.111	−0.256	0.197	−0.045	−0.266	0.792
BRS	−0.591	1.889	−4.430	3.248	−0.051	−0.313	0.756

Note: *CI* = Confidence interval, *LL* = Lower Limit, *UL* = Upper Limit, *SE* = Standard Error, *β* = Beta.
Predictors: (Constant), Posttraumatic Growth Inventory Appreciation of Life.

4. Discussion

Currently, there is limited research on grief, resilience, coping, and post-traumatic growth in the undergraduate student population. Bylund-Grenklo *et al.* (2021) investigated the impact of death of a parent on teenagers and found that over half the participants had not found a proper way to grieve for the loss they endured [8]. The current study found that nearly 90% of the respondents reported experiencing grief. Our study further found that higher levels of grief was associated with higher levels of anxiety and emotion-oriented coping. Posttraumatic growth was also associated with anxiety and emotional-oriented coping, but also with higher interpersonal support and resilience. Linear regression analysis showed that anxiety, stress, belonging, emotional coping, sense of control, avoidant coping, and resilience did not predict grief. However, stress, belonging, and emotional-oriented coping significantly predicted posttraumatic growth.

4.1. Grief

Our findings about anxiety were similar to [36] which reported individuals experienced higher levels of anxiety related to grief. However, our sample differs from [36] in that they observed caregivers while we observed undergraduate students with varying relationships to the deceased. Our findings about coping styles were similar to [37] which found a positive association between emotional coping styles and the amount of grief, but also varies from other studies [38]. Future research may clarify the relation between these variables.

4.2. Posttraumatic Growth and Interpersonal Support

Our study demonstrated a significant positive association between posttraumatic growth and interpersonal support. These findings suggest that individuals will experience more posttraumatic growth when interpersonal support is available. Our findings are similar to [39] which found that interpersonal support is positively correlated with higher levels of posttraumatic growth. However, other studies have found no significant relation between posttraumatic growth and interpersonal support [40]. The difference in findings could be attributed to [40] investigating online social support while we used questionnaires, and [39] investigating social support through partners. Future studies should further explore the difference between online and in-person support.

4.3. Posttraumatic Growth and Resilience

Our study found a significant positive relation between posttraumatic growth and resilience. Our findings are similar to findings by [41] which found resilience to be positively correlated with post-traumatic growth.

4.4. Posttraumatic Growth and Anxiety

Our study found a significant positive relation between posttraumatic growth and anxiety. These findings suggest that individuals who experience greater amount of anxiety will have more posttraumatic growth. Findings were similar to [42], which found the greatest levels of posttraumatic growth were associated with moderate anxiety levels. Furthermore, the type of traumatic event and presence of prolonged grief can affect the amount of anxiety [42].

4.5. Posttraumatic Growth and Relating to Others

Our study found that posttraumatic growth—specifically relating to others—had a significant positive correlation with stress, belonging, and emotional coping. Our findings differ from [42] who found no relation between post traumatic growth *relating to others* and stress. Future research should continue to investigate the role that stress plays on posttraumatic growth relating to others. A study by [43] found posttraumatic growth *relating to others* was associated with higher levels of emotional coping in a sample of caretakers of patients. There has been a lack of research into the relationship between posttraumatic growth *relating to others*

and sense of belonging. This is likely owing to both concepts being similar to each other. Belonging refers to the extent to which an individual feels they fit in with others, while posttraumatic growth *relating to others* measures factors such as empathy felt by the individual.

4.6. Limitations

The primary limitation of this study was the relatively small sample size ($n = 51$) and use of convenience sampling, which decreases statistical power and generalizability to the larger population. Further studies may aim to collect data from a larger sample or combine data from multiple undergraduate samples.

The second limitation of the study is that information regarding when the loss occurred was not included in statistical analysis. Time elapsed since the loss maybe significantly associated with severity of grief and post-traumatic growth.

5. Conclusion

The study has the potential to inform post-secondary institutions about the impact grief has on the undergraduate population and the factors that can ameliorate its effects. Our findings suggest the need for greater awareness of grief in the undergraduate population and need for support systems to help them. Finally, our study suggests that certain factors which underlie grief—such as anxiety and emotion-oriented coping—may also provide an impetus for posttraumatic growth. As the current study is cross-sectional in nature, further longitudinal studies are required to determine whether a causal relation exists between severity of grief, use of emotion-oriented coping, and post-traumatic growth.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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Abbreviation

TRIG, Texas Revised Inventory of Grief; PTGIX, Posttraumatic Growth Inventory-Expanded; DASS, The Depression, Anxiety and Stress Scale—21 Items; ISEL, Interpersonal Support Evaluation List Shortened Version—12 Items; RLCS, Rotter's Locus of Control Scale; PSS, Perceived stress scale; CISS, Coping Inventory for Stressful Situations—Situation Specific Version; BRS, Brief Resilience Scale.