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## The Impact of the COVID Pandemic on First Year Students' Locus of Control, Self-Efficacy and Well-Being

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The Impact of the COVID Pandemic on First Year Students' Locus of Control, Self-Efficacy and  
Well-Being

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Honours Psychology Thesis

School of Behavioural and Social Sciences

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### **Abstract**

Locus of control, self-efficacy, and well-being are well-studied personality concepts, but the change in these variables, and their relationships, over extremely stressful and uncontrollable periods, such as the Covid-19 pandemic, has not been assessed. The current study evaluated change in locus of control, self-efficacy, and well-being, as well as their relationships with one another, in a sample of students by comparing current data to data collected before the Covid-19 pandemic. It was hypothesized that locus of control would become more external, self-efficacy would increase slightly, and well-being would decrease. Results revealed that locus of control became significantly more external, while academic self-efficacy decreased significantly. Locus of control and self-efficacy were found to have a significant, negative correlation, indicating the two concepts may still be closely related. Further research should focus on the characteristics of this relationship, as well as possible mediators, in order to further understand these personality concepts and their correlation with one another.

*Keywords:* Locus of control, self-efficacy, well-being, change, covid-19, pandemic, personality characteristics, stress, personality change

## **The Impact of the COVID Pandemic on First Year Students' Locus of Control, Self-Efficacy and Well-Being**

The Covid-19 pandemic has had an immense impact on individuals, particularly affecting the way one perceives control within the world and their own life (Singhal & Vijayaraghavan, 2020, Sigurvinsdottir et al., 2020). This has resulted in significant increases in reports of demotivation and decreased overall well-being, often citing pandemic stress and strict regulations as large contributing factors (Sigurvinsdottir et al., 2020). Some aspects of personality may play a larger role in coping and stress outcomes, possibly altering the perception of these events themselves. Locus of control, defined as an individual's perception of control regarding outcomes in their life, has been associated with mediating stress and wellness outcomes during the pandemic (Krampe et al., 2021, Rotter, 1966).

Locus of control can be viewed as a spectrum from internal to external, often referred to as the I-E spectrum (Rotter, 1966). Individuals with an internal locus of control believe they actively have control over their own life, behaving in response to internal states or beliefs (Rotter, 1966). Alternatively, Rotter (1966) proposed that individuals with an external locus of control believe they have little to no active control over their life, behaving in response to external forces such as luck, religious deities, or powerful others.

Generally, having an internal locus of control has been associated with better coping and wellness outcomes, as well as lower levels of stress, while an external locus of control is often associated with higher levels of stress and decreased well-being (Krampe et al., 2021, Roddenberry & Renk, 2010). This holds true during uncontrollable, stressful situations such as natural disasters and emergencies, with those who have an external locus of control often demonstrating worse psychological outcomes post-event, specifically decreased overall well-

being and increased stress burden (Parker et al., 1980, Thurber, 1977, Marmar et al., 1996). Interestingly, some individuals who undergo stressful or traumatic situations have demonstrated a shift in their locus of control, in that their general locus of control has become more external after extremely stressful, uncontrollable situations (Parker et al., 1980, Thurber, 1977, Marmar et al., 1996). Specifically, one study found that individuals who have undergone significant personal trauma score higher on external locus of control measures, suggesting that significant amounts of stress or trauma may have a larger impact on aspects of ones' personality, like locus of control, than once thought (Thurber, 1977). Moreover, Marmar et al. (1996) found that emergency service workers who had responded to a freeway collapse as a result of an earthquake had greater externality in their locus of control, further demonstrating that one's locus of control may not be stable over time or across situations.

Similarly, self-efficacy had been theorized to play a significant role in stress, trauma, and wellness outcomes (Bandura, 1977). First described by Albert Bandura (1977), self-efficacy is defined as individuals' perception of their ability to perform well in a variety of situations and achieve their personal goals. It has been proposed that self-efficacy has a large influence on behavioural, emotional, and motivational states (Bandura, 1977). Self-efficacy has been thought to determine how much effort will be put into coping behaviours during stressful situations, and how long an individual can sustain actively coping with stress (Bandura, 1977). Importantly, self-efficacy also determines whether the individual feels they are able to initiate coping and stress response behaviour, heavily impacting psychological health during times of stress (Bandura, 1977).

Higher levels of self-efficacy have been associated with mindfulness, self-compassion, and better psychological well-being (St. Charles, 2010). Generally, self-efficacy varies by gender, with females typically displaying lower self-efficacy (Fallan & Opstad 2016).

Together, locus of control and self-efficacy play an important role in individuals' response to stress and subsequent mental health during stressful times. However, preliminary research has suggested that the stress of the pandemic has altered both locus of control and self-efficacy, resulting in changed personality factors and reduced overall well-being (Misamer et al., 2021, Krampe et al., 2021, Marotta et al., 2020).

Previous research suggests that an individual's locus of control and self-efficacy are somewhat correlated (Roddenberry & Renk, 2010, St. Charles, 2010). The correlation between these two concepts is not surprising, given they are both highly related to psychological health, stress, and motivation. Past studies have demonstrated that when an individual has an external locus of control, they are more likely to have lower self-efficacy, and when an individual has an internal locus of control, they are more likely to have higher self-efficacy (Roddenberry & Renk, 2010, St. Charles, 2010). This finding is common when researching the relationship between self-efficacy and locus of control, prompting some researchers to suggest the two personality factors come from the same higher-order concept, alongside traits like self-esteem and neuroticism (Judge et al., 2002). The relationship between the two concepts is complex, however. One study analyzing the locus of control and self-efficacy of medical students found that there is a direct, significant relationship between having an internal locus of control and high self-efficacy, but the same could not be said for individuals with an external locus of control and low self-efficacy (Ashagi & Beheshtifar, 2015). While an individual's locus of control and self-

efficacy are likely related, more research is needed to determine what this relationship may look like.

Looking at the relationship of these traits within an individual's personality, those with high levels of self-compassion, a trait distinguished by mindfulness and self-kindness that likely aids in self-soothing and coping effectively and efficiently, are more likely to have higher levels of self-efficacy and an internal locus of control (St. Charles, 2010). This indicates that successful coping behaviours may stem from having both higher levels of self-efficacy and an internal locus of control, which work together to create higher levels of self-compassion and resiliency (St. Charles, 2010). Stress has also been found to mediate the relationship between self-efficacy and locus of control, adding another factor to the correlation. One study found that high levels of both general and academic stress are related to lower levels of self-efficacy, as well as a more external locus of control, suggesting that stress directly impacts an individual's perceived control within their life, and their perceived ability to handle stressful situations (Roddenberry & Renk, 2010).

The Covid-19 pandemic has had a profound impact on well-being and mental health. During this time, many individuals reported higher levels of general stress, and symptoms of anxiety and/or depression (Sigurvinsdottir et al., 2020). Singhal & Vijayaraghavan (2020) reported that more than 80% of participants surveyed expressed that they were anxious and/or worried about their own health as well as the health of loved ones, which can have major implications on overall well-being. Among students, research shows that the overall mental health of those currently enrolled in postsecondary studies has declined, while social isolation has increased, indicating that mental health and stress challenges associated with the pandemic are also problematic in student populations (Hamza et al., 2020). Furthermore, one study

reported that 83% of student respondents agreed that the Covid-19 pandemic had worsened mental health conditions, and another reported 25% of participants experienced symptoms of anxiety during the pandemic (YoungMinds, 2020, Cao et al., 2020). These findings represent a stark decrease in well-being and mental health, particularly in young populations, compared to pre-pandemic mental health data. This is likely caused by the pandemic itself, prompting further investigation into mental health and coping factors during Covid-19.

While the Covid-19 pandemic has contributed to an obvious decrease in well-being and an increase in stress, it may have also influenced personality factors. Research during the pandemic is beginning to point toward a shift in general locus of control, with people becoming more external rather than internal (Krampe et al., 2021). One study assessing perceived control in social work students found that the mean locus of control had shifted to be significantly more external, suggesting that the pandemic was stressful enough to influence personality factors, and importantly, one's perception of control within their life (Misamer et al., 2021). This is not surprising, given that general locus of control levels tend to become more external after stressful or traumatic situations (Thurber, 1977). Given that the current pandemic is an unprecedented, overwhelming event that has dramatically changed people's lives around the world, coupled with strict rules and restrictions surrounding health and safety, it is not surprising that many individuals feel less control within their daily lives.

Although we cannot say with certainty why one's locus of control changes during stressful periods, perceived loss of control over one's day to day life is likely a major influential factor in this transformation. Decreased levels of control during lockdown periods, characterized by social isolation and strict government regulation, likely contribute to this locus of control shift. The new, constantly changing, rigid regulations may lead individuals to perceive they have



less control over their own lives, and instead attribute control to governments or health units (i.e. powerful others). Although more research is needed surrounding locus of control change during stress, it is an important phenomenon that directly influences stress-related outcomes, coping, resilience, and overall well-being.

While the majority of research regarding the pandemic and personality investigates how these factors influence pandemic preparedness and guideline adherence, preliminary research suggests that locus of control possibly mediates the stress that individuals feel during the pandemic (Krampe et al., 2021). Krampe et al. (2021) conducted one of the first studies to directly demonstrate that locus of control has a significant impact on stress and well-being, particularly during the Covid-19 pandemic. In their study, it was reported that having an external locus of control was associated with increased feelings of stress and perceived burdens during the pandemic (Krampe et al., 2021). Additionally, an internal locus of control was associated with better coping and wellness outcomes during the pandemic, stressing the impact personality factors have on mental health outcomes (Krampe et al., 2021).

Although the largest impact of the pandemic can be seen in overall well-being levels and locus of control, self-efficacy seems to have also changed. Little research has been conducted in this area, however, one study reported that there has been a general increase in self-efficacy over the pandemic, possibly due to increased self-care behaviour or the idea of overcoming a stressful situation, such as Covid-19 (Marotta et al., 2020). This finding is novel and may be due to an increase in mental health promotion and self-encouragement behaviour during the current pandemic.

In summary, early research during the pandemic suggests that as self-efficacy may be rising, locus of control is becoming more external (Marotta et al., 2020, Misamer et al., 2021).

This indicates that these concepts may be pulling away from each other and have become less correlated during the Covid-19 pandemic. These findings are novel and differ significantly from well-tested norms surrounding locus of control and self-efficacy, suggesting the relationship between the two personality factors may not be as close as once thought. Additionally, changes in locus of control and self-efficacy over the pandemic have not yet been directly assessed in university students, a population that often experiences significant amounts of stress (Hamza et al., 2020).

The current study aimed to assess the locus of control, self-efficacy, and well-being in undergraduate students. Specifically, it was hypothesized that during the Covid-19 pandemic, locus of control in undergraduate students has become more external, whereas self-efficacy has increased. In the past, these two variables were closely correlated, whereas we predict that they are less so now. To measure this, Rotter's Locus of Control Scale was used, and it is expected that these scores will have increased (become more external) when compared to previous years (Rotter, 1966). The Multidimensional Scales of Perceived Self-Efficacy were used to measure student's current self-efficacy, and it is expected that these scores will increase slightly from previous years (Bandura, 1989). It was also hypothesized that the general well-being of students has decreased. The General Well-Being Schedule was used to measure current well-being, and it is expected that students' scores would drop significantly on this measure (National Center for Health Statistics, 1977). The data collected in the current study regarding locus of control and self-efficacy will be compared to locus of control and self-efficacy means from previous studies conducted at Western University and Brescia University College (before Covid-19) to assess whether, overall, there has been significant change in these factors among students.

## Method

### Participants

In the current study, the sample was composed of 69 participants ages 18 – 40 ( $M = 19.96$ ,  $SD = 4.27$ ). 68 of the participants were female, and one participant preferred not to report their gender. Participants consisted of students currently enrolled in psychology 1010a, 1015b, or 2855 at Brescia University College in London, Ontario. Only students enrolled in these courses were eligible for participation in this study. Participants were recruited through Brescia University College's research recruitment site, Sona, where they chose to participate based on a brief recruitment description (Appendix A). Participants were granted credits toward their course for participation and were not otherwise compensated.

### Materials and Procedure

In order to keep participants blind to what the study was measuring, all questionnaire titles were removed in the online study. Participants only received instructions as to how to respond to the questionnaires and the questions themselves.

Before participating, participants were required to read and sign the letter of information. Then, participants were forwarded to the first portion of the study, Rotter's Locus of Control Scale, which consists of twenty-nine forced choice items (Rotter, 1966). Participants were instructed to read two statements about general life (politics, beliefs, luck, academics, etc.) and choose which statement they agree with more. Questions were scored based on a previously developed marking scheme to determine whether the participant's locus of control is more internal, external, or somewhere in the middle.

Next, participants were directed to the Multidimensional Scales of Perceived Self-Efficacy (MSPSE) (Bandura, 1989). The original scale consists of 57 items and nine dimensions assessing general self-efficacy. In the current study, questions 35-40 were removed as they were not appropriate for our research or participant demographic and included topics such as drugs, alcohol, or sex. Thus, participants received 51 questions on this questionnaire. The items are scored on a 7-point Likert scale, ranging from 1 = not at all to 7 = completely. Essentially, participants were asked how competently they feel they could perform a variety of tasks relating to social, leisure, academic, and community. This scale determined participants current level of self-efficacy.

After the MSPSE, participants were forwarded to the General Well-Being Schedule (National Center for Health Statistics, 1977). This scale is a self-report measure intended to assess participants' well-being. The scale consists of 18 questions about mood, health, anxiety, sadness, and general illness. All questions are on a Likert scale from 0-5, with 0 generally representing negative answers (lower well-being) and 5 representing positive answers (higher well-being levels). Four questions at the end of the scale attempt to assess overall well-being and are more general. These questions are rated on a Likert scale from 0-10 in increments of two.

Lastly, participants were asked to rate how they consider their locus of control, self-efficacy, and well-being to have changed over the past two years, with a prompt asking participants to think back to before the Covid-19 pandemic. First, participants viewed a brief explanation of locus of control, followed by a question asking them to rate how they believe their locus of control has changed over the past two years (see Appendix B). Participants answered on a Likert scale, with 1 = locus of control has become more external, 4 = no change, and 7 = locus of control has become more internal. The same question and format will be asked regarding self-

efficacy, with 1 = lower self-efficacy, 4 = no change in self-efficacy, and 7 = higher self-efficacy. Well-being change was assessed in the same manner. After completing the questionnaire, participants were forwarded directly to the debriefing form.

### **Analyses**

This study is correlational, and all correlation values were assessed and analyzed using SPSS, version 26. The strength of the correlation of variables, locus of control, self-efficacy, and well-being was assessed using the Pearson correlation coefficient ( $r$ ). To determine the significance of the correlation, the  $p$ -value was assessed using SPSS. A linear regression was also conducted using SPSS to determine whether any variables are predicting the outcomes of other variables. One linear regression will be run with current locus of control data as the predictor, and current self-efficacy data as the outcome variable. Another linear regression will be run, this time with current well-being scores as the predictor, and current self-efficacy data as the outcome variable. Additionally, a one-sample  $t$ -test was used to compare our current data regarding locus of control, as well as self-efficacy, to the means of data collected in previous years at the same university.

### **Results**

In the current study, the data of 6 participants was excluded from any analyses because they failed to complete a significant number of questions during the online study. Out of a total of 75 participants, a sample of 69 were analyzed.

Correlations within the data were analyzed using a correlation matrix. Several significant correlations were found. Most notably, perceived change in self-efficacy ( $M = 3.94$ ,  $SD = 1.63$ ) showed a significant, moderate, positive correlation with perceived well-being change ( $M = 3.35$ ,  $SD = 1.65$ ),  $r(69) = .58$ ,  $p < .001$ . Similarly, perceived change in self-efficacy also showed a

significant, weak, positive correlation with perceived change in locus of control ( $M = 3.74$ ,  $SD = 1.71$ ),  $r(69) = .32$ ,  $p = .008$ . Perceived change in well-being was also significantly correlated with perceived change in locus of control, demonstrating a weak, positive correlation,  $r(69) = .36$ ,  $p = .003$ .

Current well-being scores ( $M = 54.35$ ,  $SD = 19.23$ ) demonstrated a significant, weak, positive correlation with perceived self-efficacy change,  $r(69) = .39$ ,  $p < .001$ . Well-being scores also demonstrated a significant, weak, positive correlation with perceived locus of control change,  $r(69) = .38$ ,  $p = .001$ . Perceived change in well-being showed a significant, weak, negative correlation with current locus of control score,  $r(69) = -.39$ ,  $p < .001$ .

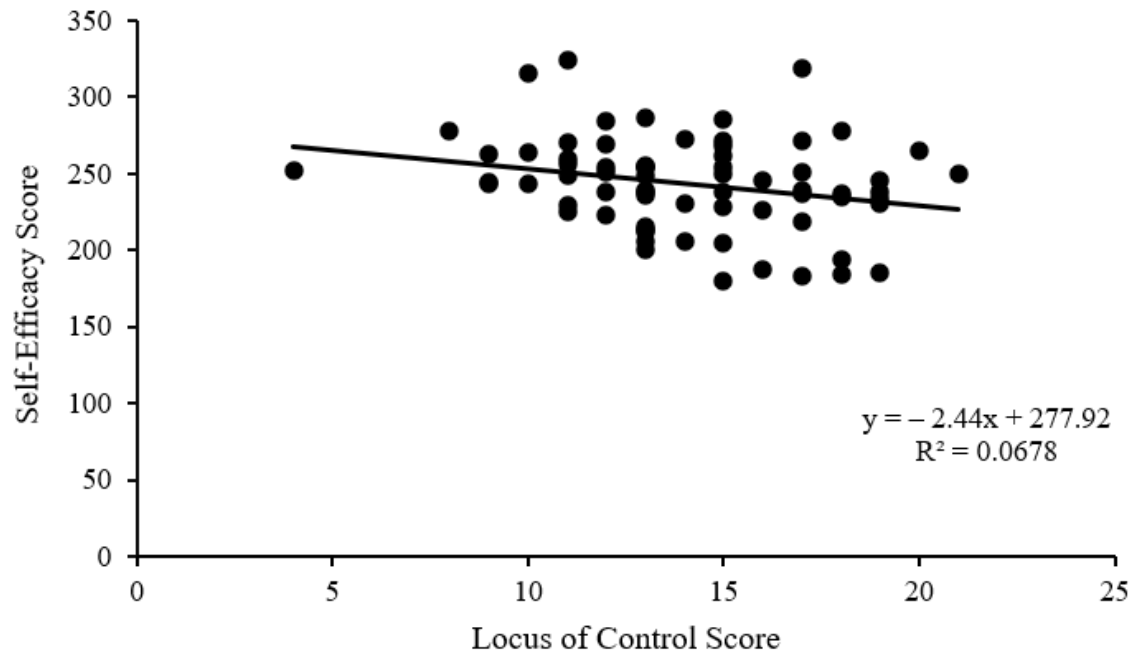
Finally, current self-efficacy scores showed a significant, weak, negative correlation with current locus of control scores,  $r(69) = -.26$ ,  $p = .031$ . Current locus of control scores also showed a significant, weak, negative correlation with current well-being scores,  $r(69) = -.26$ ,  $p = .032$ . Current well-being scores showed a significant, weak, positive correlation with current self-efficacy scores,  $r(69) = .38$ ,  $p = .001$ .

A linear regression was conducted to determine if current locus of control scores predicted current self-efficacy scores. This linear regression was statistically significant,  $R^2 = .07$ ,  $F(1, 67) = 4.88$ ,  $p = .031$  (see Figure 1). It was found that scores on the locus of control questionnaire significantly predicted current levels of self-efficacy ( $\beta = -2.44$ ,  $p = .031$ ).

Another linear regression was run to determine if current well-being scores significantly predicted current self-efficacy scores. The linear regression was statistically significant,  $R^2 = .15$ ,  $F(1, 67) = 11.55$ ,  $p = .001$  (see Figure 2). Here, it was found that current levels of well-being significantly predicted current levels of self-efficacy ( $\beta = .61$ ,  $p = .001$ ).

**Figure 1**

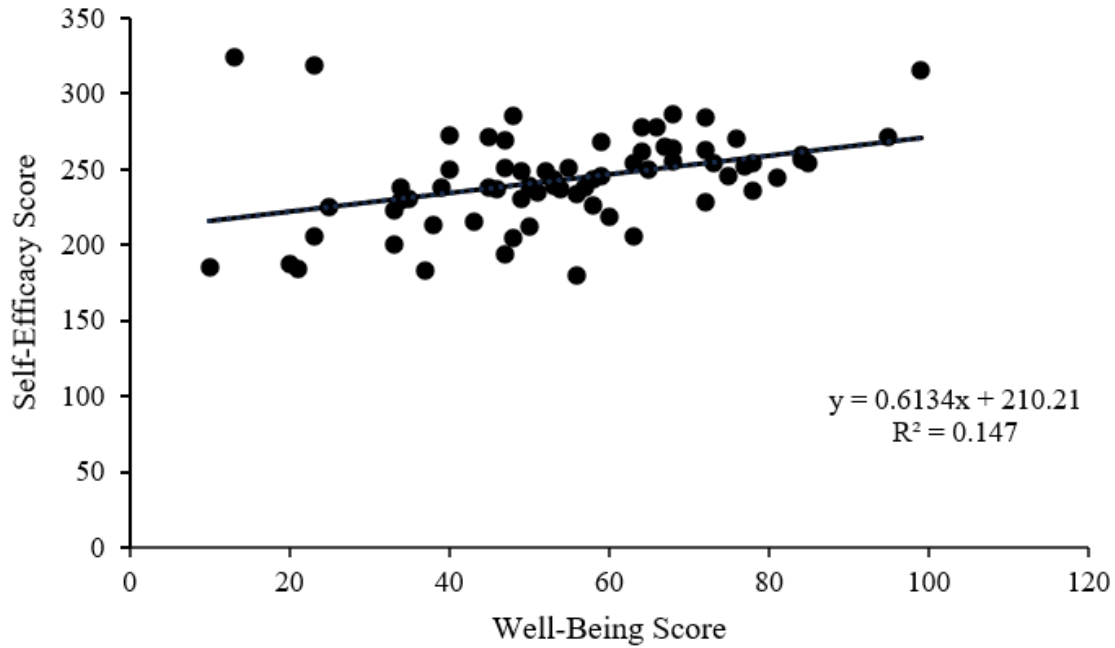
*Relationship between Self-Efficacy scores and Locus of Control scores*



*Note.* A higher locus of control score represents a more external locus of control, while a lower score represents a more internal locus of control.

**Figure 2**

*Relationship between Well-Being scores and Self-Efficacy scores*



*Note.* Well-being was assessed using likert scales, with a total score of 71 or greater representing a positive, high level of well-being, a score of 41 – 70 representing distress or problems with well-being, and a score of 40 or below representing low levels of well-being, characterized as “severe”.



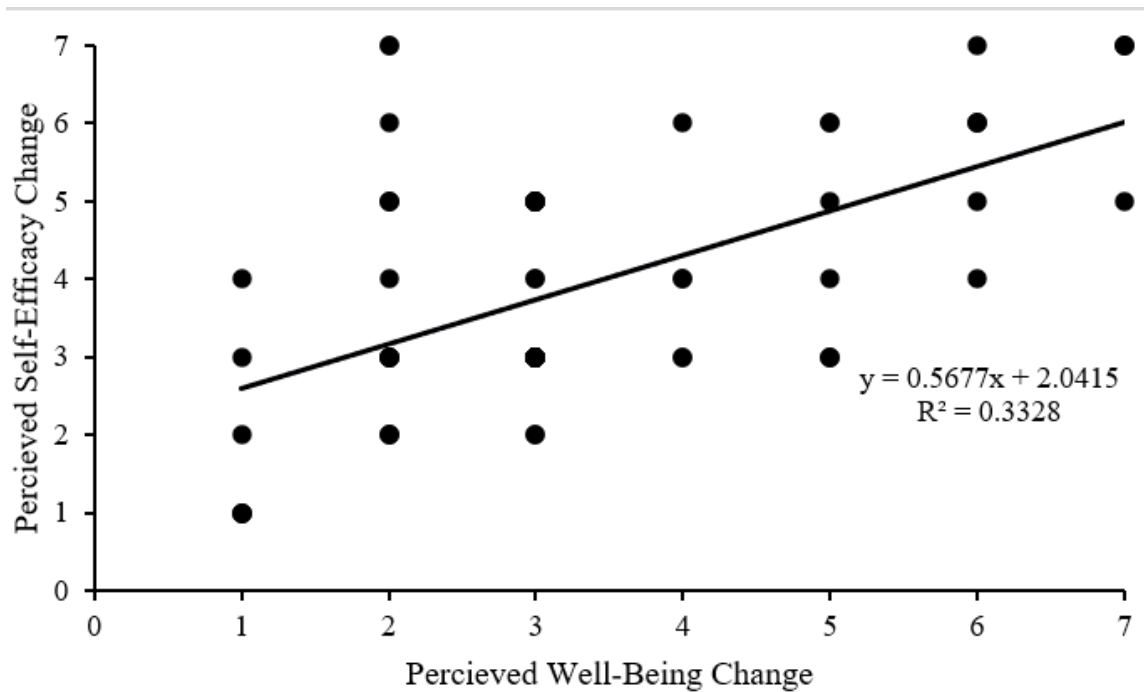
A third linear regression was conducted to determine if the perceived change in well-being significantly predicted the perceived change in self-efficacy. The linear regression was statistically significant,  $R^2 = .33$ ,  $F(1, 67) = 33.42$ ,  $p < .001$  (see Figure 3). It was found that perceived change in well-being significantly predicted perceived change in self-efficacy ( $\beta = .57$ ,  $p < .001$ ).

To determine whether the data was significantly different from similar data collected before the Covid-19 pandemic, a one sample t-test was conducted using the mean score from a study measuring locus of control at the same university, using the same locus of control questionnaire (Shumlich et al., 2018). Here, we compared the previously collected mean ( $M = 11.42$ ) to our current data regarding locus of control. The current locus of control scores ( $M = 14.09$ ,  $SD = 3.28$ ) were statistically significantly higher than the locus of control mean collected before the Covid-19 pandemic,  $t(68) = 6.75$ ,  $p < .001$ , with a large effect size,  $d = .81$ .

To determine whether current self-efficacy data was significantly different from self-efficacy data collected before the Covid-19 pandemic, another one-sample t-test was conducted, this time using the mean score from a study measuring academic self-efficacy at the same university (Toplack, 2012). We compared the previously collected mean ( $M = 77.37$ ) to our current data regarding the academic dimension of self-efficacy. The current academic self-efficacy scores ( $M = 71.20$ ,  $SD = 10.92$ ) were statistically significantly lower than the self-efficacy mean collected before the Covid-19 pandemic,  $t(68) = -4.69$ ,  $p < .001$ , with a medium effect size,  $d = .57$ .

**Figure 3**

*Relationship between Perceived Self-Efficacy Change and Perceived Well Being Change*



*Note.* Perceived self-efficacy change and perceived well-being change were both measured on a Likert Scale from 1 to 7, with 1 representing “Significantly Lower” and 7 representing “Significantly Higher” for both items.

## **Discussion**

The purpose of this study was to determine if current locus of control, self-efficacy, and well-being data were significantly different from data collected before the Covid-19 pandemic. Specifically, it was hypothesized that, compared to previous data, locus of control scores would be significantly more external, self-efficacy scores would be slightly higher, and general well-being has decreased. The results demonstrated support for some of these predictions, as well as many unexpected correlations.

### **Well-Being**

Because previous well-being data was not available, we were not able to directly assess whether participants' well-being had changed significantly over the course of the pandemic. However, when compared to the marking scheme for the well-being measure, the mean score for our sample was indicated as being in the “distress” category; that is, based on the marking scheme for the General Well-Being Schedule, the majority of students implied that they had a relatively low well-being, and fell into the category representing mental distress (National Center for Health Statistics, 1977). This likely represents the accumulation of stress, worry, and feelings of loneliness experienced by many, especially the student population, over the Covid-19 pandemic (Hamza et al., 2020).

### **Locus of Control – Past versus Present**

Results showed that, when compared to previous data, locus of control scores were significantly higher than those collected before the Covid-19 pandemic. In other words, current locus of control scores were more external than those collected before Covid-19, indicating support for our hypothesis. Previous research regarding locus of control change has indicated

that through highly stressful or traumatic events, locus of control can become more external (Thurber, 1977). Uncontrollable aspects of the Covid-19 pandemic, such as strict guidelines, quarantine periods, as well as the reduction of freedom associated with closing schools, workplaces, and shops, coupled with the additional stress and worry surrounding health and well-being, likely caused a shift in perceived control within one's life, causing locus of control scores to become significantly more external (Misamer et al., 2021). While research regarding this topic is limited, the current study provides evidence, not only that stressful and difficult times can cause an increase in locus of control scores, but also that the Covid-19 pandemic may have contributed to an increase in locus of control scores, with the overall mean becoming more external.

Additionally, the mean locus of control score was taken from a study analyzing locus of control scores in a sample of mostly males, while the current study consisted of almost all females (Shumlich et al., 2018). While both the current and previous study report no significant correlations related to gender, it is important to note that previous research suggests that females tend to be slightly more external than males, which may have impacted these results (Sherman et al., 1995, Shumlich et al., 2018).

### **Self-Efficacy – Past versus Present**

For self-efficacy, results showed that current academic self-efficacy scores were significantly lower than those collected before the Covid-19 pandemic. This indicates that, over the pandemic, students have decreased their academic self-efficacy, reporting lower confidence in their abilities to perform academic tasks. Although our hypothesis was not supported, high levels of stress and worry from the pandemic, along with the majority of participants indicating their well-being had decreased over the past two years, likely worked together to create a

lowered sense of self-competency and confidence over the Covid-19 pandemic. While research on self-efficacy change during the pandemic, and stressful situations in general, is extremely limited, the results from the current study have not been previously replicated. One study conducted early in the pandemic found an increase in self-efficacy, but the study did not specifically look at the student population (Marotta et al., 2020). Within the student population, studies have revealed that overall mental health has declined, while feelings of intense stress or worry have increased (Hamza et al., 2020, YoungMinds, 2020). The high levels of baseline stress experienced by those enrolled in university programs, coupled with unexpected shifts to online learning, may have contributed to the student population demonstrating lower levels of self-efficacy and overall well-being.

Additionally, the mean score of academic self-efficacy was taken from a study solely analyzing academic self-efficacy at an all-female university (Toplack, 2012). Thus, in the current study, academic self-efficacy was the only dimension analyzed. This may have impacted significance of the relationship, as well as generalizability of the results.

### **Locus of Control and Self-Efficacy**

Results revealed a significant but weak, negative correlation between current self-efficacy data and current locus of control data, indicating the two concepts share a weak, inverse relationship; as participants' self-efficacy increases, their locus of control decreases, becoming more internal. Although we could not directly compare a previous correlation between self-efficacy and locus of control to our current data, results point toward a weak inverse relationship between the two variables, a relationship that mimics previous trends surrounding the personality concepts, likely indicating no significant change in their relation over the Covid-19 pandemic. These findings are not novel, as previous research has indicated that the concepts are inversely

related, and that higher levels of self-efficacy typically pair with a more internal locus of control (Ashagi & Beheshtifar, 2015). More specifically, previous studies have discussed how high levels of both general academic stress, particularly in the student population, can contribute to lower self-efficacy and higher, more external, locus of control scores (Roddenberry & Renk, 2010). Stress, specifically academic stress, appears to be a large mediator within the relationship of self-efficacy and locus of control. It is likely that coping behaviours impact well-being and overall self-efficacy, which then impact locus of control internality, but more research is needed in this area to fully understand the complex correlation between these variables.

### **Self-Efficacy and Well-Being**

Interestingly, perceived change in self-efficacy demonstrated a significant, moderate correlation with perceived change in well-being. Additionally, current self-efficacy scores showed a significant, weak correlation with well-being scores. Further analysis of the relationship between self-efficacy and well-being revealed that perceived change in well-being significantly predicted participants' perceived change in self-efficacy. Likewise, current well-being scores were found to significantly predict current self-efficacy scores. Previous studies have found similar results, with self-efficacy having been found to moderate the relationship between well-being and general student attitude (Salami, 2010). These results likely indicate the two concepts, well-being and self-efficacy, have a close relationship, with changes in one possibly being reflected in the other. Bandura, the first to conceptualize self-efficacy, has discussed how factors influencing aspects of self-efficacy can arise from emotive sources, defining a relationship between self-efficacy, emotion, and feelings (Bandura, 1977). Additionally, Bandura suggests that self-efficacy also determines how much coping behaviour, or coping resources, can be mobilized in order to deal with a stressor (Bandura, 1977). Coping

behaviour directly affects well-being, as coping has been associated with fewer depressive symptoms in students, indicating that the two concepts may be closely related (Mosley et al., 1994). While self-efficacy has also been tied to coping and sustaining coping behaviours during stress, it is no surprise that drastic, negative changes in overall well-being lead to a lower level of self-confidence, self-competence, and self-compassion (Bandura, 1977, St. Charles, 2010).

### **Limitations and Future Research**

As mentioned previously, the current study sample consisted of almost all females. Because of gender differences in personality aspects, especially locus of control, this may have limited results. Future research should focus on balancing males and females within the study. When analyzing self-efficacy, only the academic dimension of the MSPSE was compared to previous data. Future research should aim to compare multiple dimensions. Additionally, the current study was solely correlational, impacting the ability to define causation from these results.

Future research should focus on analyzing what aspects of stressful experiences act upon our locus of control, and what mediates this relationship. Furthermore, future research should analyze the relationship between self-efficacy and locus of control more closely, including what mediates their relationship within the personality. A better understanding of student personality, especially self-efficacy, is needed to understand the changes occurring.

### **Conclusion**

While locus of control was found to have increased, becoming significantly more external, self-efficacy levels were found to have significantly decreased over the Covid-19 pandemic, indicating these concepts have an enduring, negative relationship with one another.

Additional research regarding their relationship, as well as their relationship with well-being and stress, is required to further understand how these concepts interact with each other, as well as how they impact other characteristics related to emotion and personality.



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## **Appendix A**

### Recruitment Description

This research project investigates how the Covid-19 pandemic has influenced social attitudes, beliefs, and well-being of undergraduate students. The study involves completing three questionnaires regarding social beliefs, internal beliefs, and well-being. This study will take you approximately 40 minutes to complete. You will earn 2 credits for participating.

## Appendix B

### Questions Regarding Locus of Control, Self-Efficacy, and Well-Being Change over the Pandemic

1. Locus of control is defined as the degree to which individuals believe they have control over their own life, and the outcomes of events that occur in their lives. Individuals with an internal locus of control tend to see themselves as having full control over the outcomes of events in their lives. Individuals with an external locus of control tend to believe their life is controlled by outside factors such as luck, fate, religious figures or other people (Rotter, 1966).

How has your locus of control changed over the past two years? Think back to before Covid-19.

1	2	3	4	5	6	7
Significantly More External	More External	Slightly More External	No Change	Slightly More Internal	More Internal	Significantly More Internal

2. Self-efficacy is defined as an individual's perception of their ability to achieve their goals and perform well in a variety of situations (Bandura, 1977). Self-efficacy reflects an individual's confidence in their abilities. Individuals with high self-efficacy have a high confidence in their ability to complete tasks or achieve goals. Individuals with low self-efficacy have low confidence in their ability to complete tasks or achieve goals.

How has your self-efficacy changed over the past two years? Think back to before Covid-19.

1	2	3	4	5	6	7
Significantly Lower Self- Efficacy	Moderately Lower Self- Efficacy	Slightly Lower Self- Efficacy	No Change	<b>Slightly Higher Self- Efficacy</b>	Moderately Higher Self- Efficacy	Significantly Higher Self- Efficacy

3. How has your overall well-being changed over the past two years? Think back to before Covid-19.

1	2	3	4	5	6	7
Significantly Worse Well-Being	Moderately Worse Well-Being	Slightly Worse Well-Being	No Change	Slightly Better Well-Being	Moderately Better Well-Being	Significantly Better Well-Being