Feelings of inadequacy: the relationships between overthinking and anxiety

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Abstract

Impostor syndrome is a pervasive psychological pattern which involves feelings of fraudulence and fear of being exposed. The study at hand aims to study the relationship between impostor syndrome and each of self-efficacy and rumination. It also aims to study the role of trait anxiety in the relationship between self-efficacy and impostor syndrome. And aims to study the mediating role of rumination in the relationship between trait anxiety and self-efficacy. along with demographic factors, impostor syndrome was assessed using the Clance Impostor Phenomenon Scale (CIPS). Self-efficacy was measured using the short version 10-item General Self-efficacy Scale (GSE). Rumination was assessed using the 8-item Ruminative Response Scale (RRS). And trait anxiety was measured using the specific 5 items from the The State-Trait Anxiety Inventory (STAI). A total of 130 individuals voluntarily participated in this study. The survey was distributed through a Google Forms link, in which participants were asked to provide their informed consent before accessing the survey. The results revealed that there is a relationship between impostor syndrome and self-efficacy, and between impostor syndrome and rumination. Also, rumination was found to be related to trait-anxiety. However, the results showed that trait anixtey is not a mediating variable in the relationship between self-efficay and impsotor syndrome, as is the case with rumination in the relationship between trait anxiety and self-efficacy.

Keywords: *impostor syndrome, self-efficacy, rumination, trait anxiety*

Over the past years, impostor syndrome has been increasingly receiving attention in the literature and on social media (Bravata, Watts, Keefer, et al., 2019). Impostor syndrome, also known as fraud syndrome, impostor phenomenon, or perceived fraudulence, refers to individuals who have difficulty internalizing their successes and accomplishments and have a persistent fear of being exposed as being a fraud or impostor (Kolligian & Sternberg, 1991; Bravata et al., 2019). Individuals with impostor syndrome believe that others have exaggerated perceptions of their capabilities and they fear being evaluated negatively (Mak, Kleitman, & Abbott, 2019). As a result, they fear being exposed as frauds. Clance and Imes (1978) coined the term Impostor Syndrome to describe a person's subjective feelings of personal, educational, or professional incompetency, disregarding the objective standards to evaluate such performances and accomplishments (as cited in Yaffe, 2020). According to Clance (1985), impostor syndrome construct has been divided into three dimensions: self-doubts about own abilities and intelligence (Fake), tendency to attribute one's success to luck or chance (Luck), and inability to admit a good performance (Discount). Impostor syndrome is highly prevalent in trainees, individuals with leadership roles, and academic faculty and it does not appear to subside with experience, time, or success (Chandra, Huebert, Crowley, et al., 2019). It is estimated that 70% of the population will experience impostor syndrome at least once in their lifetime (Chandra et al., 2019). Individuals with impostor syndrome tend to struggle or fail to attribute their performance and accomplishments to their competence; they attribute such success to luck, chance, and help from others (Clance & Imes, 1978), rather than their intellectual ability (French, Ulrich-French, & Follman, 2008). People that score high levels on impostor syndrome appear to invalidate cues and evidence that disprove their beliefs about being unintelligent, such as scoring high on tests, praise, earning advanced degrees, and recognition (French, Ulrich-French, & Follman, 2008).

Impostor syndrome can also negatively affect students (King & Cooley, 1995). It has been shown by Felder (1988) that students with impostor syndrome tend to panic more and have an increased tendency to change majors and drop out despite their interest and ability. Impostor syndrome occurs independently of professions, gender, and cultures whereby it is not limited to Western cultures (Sakulku & Alexander, 2011). Impostor syndrome is not recognized as a psychiatric disorder. It is not listed in either the Diagnostic and Statistical Manual (DSM) (American Psychiatric Association, 2013) or in the International Classification of Diseases (ICD-10) (World Health Organization, 2015). It has been shown that people with impostor syndrome are high achievers, which may cause them to feel heightened levels of burnout, stress, and decreased job satisfaction and performance over time (Vergauwe, Wille, Feys, et al., 2015; Crawford, Shanine, Whitman et al., 2016; Huthcins & Rainbolt, 2017). Neureiter and Traut Mattausch (2016) reported that feeling like an impostor or a fraud is associated with fear of success, fear of failure, and low self-esteem. Bravata et al. (2019) found that depression and anxiety are often reported along with impostor feelings. Furthermore, Hutchison, Follman, and Antoine (2006) reported that impostor syndrome is related to self-efficacy, whereby people with impostor syndrome rated the degree to which they were succeeding in a summer program as lower than those who do not suffer from impostor syndrome.

Explaining impostor syndrome has been a focus of previous research. One concept that has been investigated is that of self-efficacy. Albert Bandura (1977) defined self-efficacy as “the belief in one’s capabilities to organize and execute the courses of action required to manage prospective situations” (as cited in De las Cuevas & Peñate, 2015). Bandura believes that beliefs of self-efficacy determine how people think, feel, and behave (Bandura, 1986; 1994). It includes elements such as organization and awareness of the required skills, planning action, and level of inspiration

and motivation after assessing the potential gains and costs of a situation (Yildirim & Ilhan, 2010). It is stated that self-efficacy does not resemble the level skill, rather it depends on one's perceived ability to use the available resources in stressful situations. (Yildirim & Ilhan, 2010). An individual with insufficient coping skills and low self-efficacy will not be able to activate their relevant and suitable skills. Having a high level of self-efficacy accelerates experiencing success and developing personally (Yildirim & Ilhan, 2010). Also, a person with high self-efficacy does not tend to blame him/herself for a failure, but for the process, strategies, and methods they used. Bandura (1997) stated that the main distinguishing factor between people with lower levels of self-efficacy from those with higher levels is that those of higher levels tend to recover faster after experiencing a failure and they do not give up easily and insist on performing the desired action. Self-efficacy has also been shown to be associated with the motivation of performing a certain action (Chen, Gully, & Eden, 2001; 2004). Since researchers became more interested in the general aspect of self-efficacy, they coined the term "general self-efficacy" (GSE; Eden, 1988). GSE is described as the "individual's perception of their ability to perform across a variety of different situations" (Judge, Erez, & Bono, 1998). Having several successful and persistent positive experiences, psychological states, and skills in verbal persuasion have been shown to increase GSE (Chen et al., 2001). Bandura (1997) stated that efficacy beliefs are developed as a result of how the individual perceives and interprets information from four sources: social and verbal persuasions, mastery experiences, emotional and physiological states, and vicarious experiences. Stanley, Novy, Hopko et al. (2002) found that self-efficacy is related to general anxiety disorder. Also, low self-efficacy was associated with anxiety and helplessness (Onyeizugbo, 2010).

Speilberger, Gorsuch, Lushene et al. (1983) stated that anxiety is an emotional state entailing apprehension, tension, and nervousness. Anxiety is one of the most persistent and

prevalent human emotions. It affects cognitive functions (Kalisch, Wiech, Critchley, et al., 2005). It is characterized by hypervigilance, excessive worrying (Wittchen & Hoyer, 2001), and physiological arousal caused by amplified activation of the sympathetic nervous system. Anxiety is differentiated into trait anxiety and state anxiety. State anxiety refers to anxiety based on the individual's interpretation of a particular situation at a particular period of time (Vitasari, Abdul Wahab, Herawan, et al., 2011). Trait anxiety, which is the focus of this study, is an "enduring personality characteristic" (Spielberger et al., 1983). Trait anxiety has been regarded as a risk factor for the development of anxiety disorders (Jorm, Christensen, Henderson et al., 2000; Chambers, Power, & Durham, 2004). Li, Wang, Wang, and Tan (2021) state that trait anxiety is a stable characteristic and an important constituent of neuroticism and refers to the individual's tendency to respond to perceived stressors with anxiety. Pacheco-Unguetti, Acosta, Callejas et al. (2010) suggested that trait anxiety tends to impair a person's inhibitory control processes. Trait anxiety appears to be associated with negative cognitive biases (Hallion & Ruscio, 2011; Yiend et al., 2015); in which it appears to be a vulnerability aspect for the development of anxiety disorder (Chambers, Power, & Durham, 2004; Gershuny & Sher, 1998; Jorm et al., 2000). Furthermore, it has been stated that people that have high trait anxiety tend to perceive their attitudes about their environment and about future consequences as imprecise (Kraus, Niedeggen, & Hesselmann, 2021).

Rumination, according to the Response Styles Theory (Nolen-Hoesksema, 2000), is defined as the repetitive negative thinking about the causes, outcomes, and symptoms of negative affect (Nolen-Hoesksema & Morrow, 1991). Smith and Alloy (2009) stated that rumination is underpinned by the perceptions of loss, threat, or injustice. According to Morrow and Nolen-Hoeksema (1990), the main facet of rumination is negative self-reflection. It is also characterized

by a repetitive, persistent pattern of focusing on negative emotions (Nolen-Hoeksema, 2000). Individuals who engage in rumination often tend to believe that they are solving their problem, however, rumination is associated with amplified levels of distress, sadness, and anxiety (Brose, De Raedt, & Vanderhasselt, 2020). Nolen-Hoeksema, Wisco, and Lyubomirsky (2008) found that there is a strong relationship between rumination and anxiety symptoms and anxiety disorders. It has also been suggested that rumination aggravates and maintains distress (Nolen-Hoesksema & Morrow, 1991; Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008). Researchers have identified two diverse styles of rumination, each having distinct consequences and properties; brooding and reflection. Brooding refers to self-criticism and negatively evaluating one's status compared to a high standard. Reflection refers to active problem-solving thoughts (Brose et al., 2020). Another theory, 'goal conflict theory' developed by Emmons and King (1988), proposes that a rumination is a form of cognitive response to a behavioral failure, whereby it is an effort to make sense of and understand the frustration (as cited in Silveira, Passos, Scott, et al., 2020). Nonetheless, Dugas, Schwarts, and Francis (2004) stated that according to the 'intolerance of uncertainty theory', rumination is a cerebral response to a lack of knowledge and control of uncertain states and situations in life (as cited in Silveira et al., 2020).

Lately, impostor syndrome has been receiving increasing attention in the literature. However, a minimal amount of research investigated its relationship to different constructs and how they affect impostor syndrome. Since rumination appears to be strongly related to anxiety and anxiety disorders (Nolen-Hoeksema et al., 2008), since anxiety was associated with feelings of impostorism (Thompson, Davis, & Davidson, 1998; Hutchins, Penney, & Sublett, 2018; Leach, Nygaard, Chipman et al., 2019), and trait anxiety in specific was reported by Oriel, Plane, and Mundt (2004) to be highly correlated to impostor syndrome, it is assumed that rumination is related

to impostor syndrome. Minimal number of literature studied how rumination is associated to impostor syndrome. The study at hand will further elaborate on this topic in which it aims at attaining a better understanding of the relationship between self-efficacy and impostor syndrome and the role of trait anxiety in this relationship. It will also look into the relationship between rumination and trait anxiety and at the relationship between rumination and impostor syndrome.

Hypotheses:

The current study intends to investigate the following hypotheses:

H1: Low levels of self-efficacy predict higher scores on measures of impostor syndrome.

H2: Trait anxiety mediates the relationship between impostor syndrome and self-efficacy.

H3: Rumination mediates the relationship between trait anxiety and self-efficacy.

H4: Rumination is positively associated with trait-anxiety.

H5: Rumination is positively correlated to impostor syndrome.

1. Method

1.1. Participants:

A total of 130 individuals participated in the study. It is important to note that the sample was one of convenience. A total 33.8% (N=44) of the sample were males and 66.2% (N=88) were females. The age range of the sample was between 18 and 30 years old, with 93.1 % (N=121) were between the ages of 18 and 24 and 6.9% (N=9) were between 25 and 30 years old. Participants were asked to state their academic status. 60% (N=78) pursued a bachelor's degree, 3.1% (N=4)

had a doctorate degree, 0.8% (N=1) had an M.D. degree, 15.4% (N=20) pursued a master's degree, and 20.8% (N=27) finished secondary/high school. Regarding the employment status, 20.8% (N=27) were employed, 2.3% (N=3) were interns, 1.5% (N=2) were self-employed, 55.4% (N=72) were students, 0.8% (N=1) was a student and volunteer, 17.7.% (N=23) were unemployed, and 1.5% (N=2) were volunteers.

A Google forms link was sent to recruit participants via online platforms as WhatsApp, LinkedIn, and Instagram. Before filling the survey, participants were asked to read an informed consent and choose to either accept or decline participating in the study (Appendix A). The questions were not required, which granted participants the choice to withdraw from the study at any time. Also, there were no questions aiming to identify the participants to ensure confidentiality as no data was provided that may identify the participants.

1.2. Procedure

The aim of this study is to better understand the relationship between impostor syndrome and self-efficacy. It also aims to look at the role of trait anxiety and rumination in this relationship. As such, this study adopted a cross-sectional design. It was reviewed and approved by the Institutional Review Board (IRB) at the Lebanese American University (LAU.SAS.IG1.17/Mar/2021). A sample of 130 individuals participated, using an online Google Forms link. This is used to ensure that participants have equal chances of being part of the study. Before filling the survey, participants were asked to sign an informed consent (Appendix A).

Demographic information, including gender, age, academic status, etc., were collected at the beginning of the questionnaire (Appendix B). The Clance Impostor Phenomenon Scale (CIPS)

was used to measure the levels of experiencing impostor syndrome (Appendix C). To measure the levels of self-efficacy, the General Self-efficacy Scale (GSE) was used (Appendix D). Additionally, the State-Trait Anxiety Inventory (STAI) was used to assess trait anxiety, whereby the items measuring trait anxiety were only used, disregarding the items concerning state anxiety (Appendix E). Also, the Ruminative Response Scale (RRS) was used to assess the degree to which a person engages in rumination (Appendix F).

The data collected was analyzed using the Statistical Package for Social Sciences (SPSS), specifically using Pearson's correlational analysis.

1.3. Assessment and Measures:

1.3.1. Clance Impostor Phenomenon Scale (CIPS; Clance, 1985)

The Clance Impostor Phenomenon Scale (CIPS) was developed in 1985 to measure the levels of self-doubts of intelligence, abilities, and skills, the tendency to attribute luck (chance) to success, and personal feelings of fraudulence. The CIPS has 20 items scored using 5-point scale where response options range from 1(strongly disagree) to 5(strongly agree). It assesses 3 facets of impostor syndrome: Fake, Discount, and Luck. Fake items measure concerns and doubt about one's intelligence and ability. Items relating to Discount measure the thoughts about inability to recognize one's good performance. Luck items measure thoughts regarding succeeding in a task due to luck, error, or chance compared to one's ability. After filling the questions, the numbers of the response to each statement are added to get a final score. A score of 40 or less indicates mild or no impostorism, between 41 and 60 indicates moderate impostorism, between 61 and 80

indicates significant impostorism, and more than 80 indicates intense impostorism. This scale yielded high internal consistency (α = 0.92), nomological validity (Chrisman, Pieper, Clance, et al., 1995), and construct validity (r = 0.47, 0.51, p<0.01) (French et al., 2008; Brauer & Wolf, 2016).

1.3.2. General Self-Efficacy Scale (GSE; Sherer et al., 1982)

The original General Self-Efficacy Scale was developed in 1982, which consists of 23 items. It is the most common used tool to assess self-efficacy. In this study, for the purpose of easier accessibility, the 10-item GSE will be used (1995). Response options are (1) not at all true, (2) hardly true, (3) moderately true, and (4) exactly true. Responses of each question are added to get a final score between 10 and 40. It yielded high internal consistency reliability (α = 0.95), test-retest reliability (IR = 0.96), cross-sectional validity (r=0.67, p<0.0001) (Grammatopoulou, Nikolovgenis, Skordilis, et al., 2014), and criterion validity (Yildirim & Ilhan, 2*010).*

1.3.3. Ruminative Response Scale (RRS; Nolen-Hoeksema & Morrow, 1991)

The Ruminative Response Scale was developed in 1991 as a subscale of the Response Styles Questionnaire. This scale measures the individual's tendency to ruminate when being in a negative mood. There is two different styles of rumination measured: Brooding and Reflection. Brooding refers to self-criticisizing and negatively evaluating one's self. Reflection is the theoughts used to overcome difficulty and problem-solving. For the purpose of easier accessibility, the 8-item RRS will be used. Response options range on a 5-point Likert scale, from 1(Almost never) to 5(Almost always). The numbers of each response are added to obtain a final score. The shorter version has been shown to have high correlation between the reflection subscale and the standard subscale (r

= 0.6), convergent validity (Erdur-Baker & Bugay, 2010; Brose et al., 2020), and high reliability (α = 0.72), and cross-cultural validity (Erdur-Baker & Bugay, 2010).

1.3.4. State-Trait Anxiety Inventory (STAI; Speilberger et al., 1983)

The State-Trait Anxiety Inventory was developed in 1966, and has been translated into 60 languages. It is a widely used scale to measure anxiety in clinical and rseearch settings. It consists of 40 questions which have separate items for each of trait and state anxiety (20 each). Responses are made on 4-point scale, where they range from 1(Not at all) to 4(Very much so). Socring includes adding the number of each response to get a final score. It has yileded high construct validity in which the correlation between the items (KMO) was 0.824 (>0.3, p=0.000) (Vitasari et al., 2011). It also yields high concurrent validity (Spielberger, 1989). The trait items showed KMO of 0.783, p=0.000 and Cronbach's alpha of 0.781, which shows high validity and reliability of the scale. For easier and faster use, a short version has been developed, 5 items for each of state and trait anxiety. For the purpose of this study, the shprter version of the trait items will be used. The short version was shown to be highly correlated with the original version and good item-total correlations. Cronbach's alpha of the trait items was 0.82, which shows high reliability (Zsido, Teleki, Csokasi, et al., 2020).

2. Results

A total of 130 individuals participated in the study, in which 33.8% (N=44) were males and 66.2% (N=86) were females. The ages of the participants ranged between 18 and 30 years old, in which 93.1% (N=121) were between 18 and 24 years and 6.9% (N=9) were between 25 and 30 years. Participants academic status was reported, in which 60% (N=78) pursued a bachelor's degree, 3.1% (N=4) had a doctorate degree, 0.8% (N=1) had an M.D. degree, 15.4% (N=20) pursued a master's degree, and 20.8% (N=27) finished secondary/high school. Regarding the employment status, 20.8% (N=27) were employed, 2.3% (N=3) were interns, 1.5% (N=2) were self-employed, 55.4% (N=72) were students, 0.8% (N=1) was a student and volunteer, 17.7.% (N=23) were unemployed, and 1.5% (N=2) were volunteers.

Figure 1

Descriptive Statics of Each of the Questionnaires

	Minimum	Maximum	Mean	Std. Deviation
CIPSALL	35.00	97.00	64.7000	13.11112
GSEALL	19.00	40.00	30.6615	4.95179
RRSALL	9.00	40.00	25.3385	5.60115
STAIALL	7.00	20.00	14.3462	3.41159

Note. N=130 for all analyses.

Figure 2

Pearson Correlation of the Relationship between each of Impostor Syndrome, Self-efficacy, Trait Anixety, and Rumination

	Impostor Syndrome (CIPSALL)	Self-efficacy (GSEALL)	Trait Anxiety (STAIALL)	Rumination (RRSALL)
Impostor Syndrome (CIPSALL)	1	-.235*	.664*	.456*
Self-efficacy (GSEALL)	-.235*	1	-.065	.048
Trait Anxiety (STAIALL)	.664*	-.065	1	.468*
Rumination (RRSALL)	.456*	.048	.468*	1

Note. * = p<0.01. N=130 for all analyses.

The participants' CIPS scores were calculated by adding the response number on each item. Scores should range between 20 and 100. The results yielded a mean (μ) of 64.7 and standard deviation (Std) of 13.1112 (Figure 1).

Similarly, the GSE scores were calculated by adding the number chosen on each item. The scores should range between 10 and 40. The results generated a mean of 30.66 and Std of 4.95 (Figure 1).

In addition, participants' RRS scores were calculated by adding the response number on each item. The final scores should range between 8 and 13. The results yielded a mean of 25.33 and a standard deviation of 5.6 (Figure 1).

Likewise, the participants' scores on the STAI were measured by adding the number of their response on each item. Final scores should range between 5 and 20. The results showed a mean of 14.34 and a standard deviation of 3.41 (Figure 1).

Starting off, the relationship between impostor syndrome and self-efficacy was assessed. A Pearson correlation test revealed that these two variables are significantly negatively correlated, $r= -.235$, $p=.007<0.01$, $N=130$ (Figure 2).

On the other hand, while assessing the mediating role of trait anxiety in the relationship between impostor syndrome and self-efficacy, and the mediating role of rumination in the relationship between trait anxiety and self-efficacy, sit was revealed that there is no significant relationship between trait anxiety and self-efficacy in the first place, $r=-.065$, $p=0.462>0.01$, $N=130$ (Figure 2). And therefore, neither trait anxiety nor rumination are mediators in the corresponding predicted relationships.

Additionally, the relationship between trait anxiety and rumination was assessed. The results yielded a positive significant Pearson correlation, $r=.468$, $p=.000<0.01$, $N=130$ (Figure 2).

Finally, the relationship between rumination and impostor syndrome was assessed. A Pearson correlation test revealed that the two variables are significantly positively correlated, $r=.456$, $p=.000<0.01$, $N=130$ (Figure 2).

3. Discussion

The study at hand examines the relationships between each of impostor syndrome, self-efficacy, trait anxiety. It substantially focused on the relationship between impostor syndrome and self-efficacy, the role of trait anxiety in this relationship, the role of rumination in the relationship between trait anxiety and self-efficacy, the association between rumination and trait anxiety, and finally the relationship between rumination and impostor syndrome.

This study revealed that impostor syndrome is negatively associated with self-efficacy. as levels of self-efficacy decrease, the scores on measures of impostor syndrome increase. So, hypothesis 1 is validated. Since people with low self-efficacy believe that they are incompetent and won't be able to succeed in a specific task (Bandura, 1997), they tend to feel as impostors in which they believe that they won't be able to succeed in specific task unless they are lucky. This finding is in accordance with other studies that reported that impostor syndrome is negatively related to self-efficacy beliefs (Hutchison et al., 2006; Jöstl, Bergsmann, Lüftenegger et al., 2012; McDowell, Grubb, & Geho, 2015).

As for the mediating role of trait anxiety in the relationship between impostor syndrome and self-efficacy, and the role of rumination in the relationship between trait anxiety and self-efficacy, this study revealed that there exists no such relationships since trait-anxiety is not related to self-efficacy in the first place This said, hypothesis 2 is rejected and therefore hypothesis 3 is not applicable.

As predicted by hypothesis 4, the findings proposed that rumination is positively associated with trait anxiety. This finding is partially in accordance with previous research which did not look at the direct relationship between rumination and trait-anxiety. Nolen-Hoeksema et al. (2008) and Brose et al. (2020) reported that rumination is associated with higher levels of anxiety and is

reported in anxiety disorders. Also, trait anxiety is the basis for several anxiety disorders (Jorm et al., 2000; Chambers et al., 2004).

The findings as well suggest that the more people engage in rumination, the higher they score on measures of impostor syndrome, which validates hypothesis 5. Individuals with impostor syndrome engage in rumination by constantly dwelling on their past experiences of failure. The main concepts of each of rumination includes brooding and negatively evaluating oneself (Brose et al., 2020), and impostor syndrome is feeling a failure and a fraud compared to others (Clance, 1985). However, the relationship between both variables has not been directly established by previous literature.

Even though the study at hand contribute to the literature, several limitations should be acknowledged. The survey distributed was self-report which increases the chances of bias. People might falsify their answers to portray a socially acceptable image, free of any negative feelings and thoughts. In addition, the sample size was relatively small. Another limitation is the fact that the participants were approached through social media platforms which prevented the sample to be representative of different classes and availability.

Future research should look into the mechanism through which self-efficacy and rumination affect the development of impostor syndrome. In addition, future research should delve more into understanding why self-efficacy is not related to trait anxiety because as mentioned earlier trait anxiety is the basis for anxiety disorders and low self-efficacy was reported to cause anxiety.

In conclusion, the findings of this study revealed that there exists a positive correlation between impostor syndrome and each of rumination and self-efficacy, where rumination was also positively correlated with trait anxiety. However, no relationship was found between trait anxiety

and self-efficacy. The topic of impostor syndrome should be further studied to truly understand the nature of this syndrome and the factors playing in its development.

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Appendix A:

Consent to participate in a Survey/Questionnaire

Feelings of inadequacy: the relationships between overthinking and anxiety

I would like to invite you to participate in a research project by completing the following survey. I am a senior psychology student at the Lebanese American University, and I am completing this research project as part of my bachelor's degree requirement. The purpose of this survey aims to feelings of inadequacy and its relation to each of self-efficacy, anxiety, and overthinking.

There are no known risks, harms or discomforts associated with this study beyond those encountered in normal daily life. The information you provide will be used to enhance and improve the literature and understanding of the Impostor Syndrome. You will not directly benefit from participation in this study. The study will involve around 150 participants. Completing the survey will take 15-20 minutes of your time.

By continuing with the survey, you agree with the following statements:

1. *I have been given sufficient information about this research project.*
2. *I understand that my answers will not be released to anyone and my identity will remain anonymous. My name will not be written on the questionnaire nor be kept in any other records.*
3. *When the results of the study are reported, I will not be identified by name or any other information that could be used to infer my identity. Only researchers will have access to view any data collected during this research however data cannot be linked to me.*
4. *I understand that I may withdraw from this research any time I wish and that I have the right to skip any question I don't want to answer.*
5. *I understand that my refusal to participate will not result in any penalty or loss of benefits to which I otherwise am entitled to.*
6. *I have been informed that the research abides by all commonly acknowledged ethical codes and that the research project has been reviewed and approved by the Institutional Review Board at the Lebanese American University*
7. *I understand that if I have any additional questions, I can ask the research team listed below.*
8. *I have read and understood all statements on this form.*
9. *I voluntarily agree to take part in this research project by completing the following survey.*

If you have any questions, you may contact:

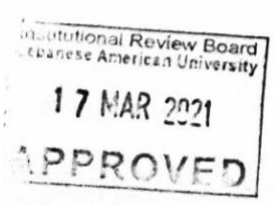
Name (PI)	*Phone number*	*Email address*
Jana Abou Tarieh	*71-481715*	*jana.aboutarieh@lau.edu*
Dr. Ian Grey	*3953*	*ian.grey@lau.edu.lb*

If you have any questions about your rights as a participant in this study, or you want to talk to someone outside the research, please contact the:

Institutional Review Board Office,
Lebanese American University
3rd Floor, Dorm A, Byblos Campus
Tel: 00 961 1 786456 ext. (2546)
irb@lau.edu.lb

This study has been reviewed and approved by the LAU IRB:

LAU.SAS.IG1.17/Mar/2021



Appendix B:

Demographic Information

What is your gender?
Female
Male
Prefer not to say

How old are you? _____

What is your academic status?
No formal schooling
Less than primary school
Primary school completed
Secondary/high school completed
Bachelor's degree
Master's degree
Doctorate degree
Other _____

What is your employment status?
Employed
Unemployed
Self-employed
Volunteer
Intern
Student
Other _____

Appendix C:

Clance Impostor Phenomenon Scale (CIPS)

For each question, please select the answer that best indicates how true the statement is of you. It's best to give the first response that enters your mind rather than dwelling on each statement and thinking about it over and over.

1. I have often succeeded on a test or task even though I was afraid that I would not do well before I undertook the task.

   Not at all true Rarely Sometimes Often Very true

2. I can give the impression that I'm more competent than I really am.

   Not at all true Rarely Sometimes Often Very true

3. I avoid evaluations if possible and have a dread of others evaluating me.

   Not at all true Rarely Sometimes Often Very true

4. When people praise me for something I've accomplished, I'm afraid I won't be able to live up to their expectations of me in the future.

   Not at all true Rarely Sometimes Often Very true

5. I sometimes think I obtained my present position or gained my present success because I happened to be in the right place at the right time or knew the right people.

   Not at all true Rarely Sometimes Often Very true

6. I'm afraid people important to me may find out that I'm not as capable as they think I am.

   Not at all true Rarely Sometimes Often Very true

7. I tend to remember the incidents in which I have not done my best more than those times I have done my best.

   Not at all true Rarely Sometimes Often Very true

8. I rarely do a project or task as well as I'd like to do it.

   Not at all true Rarely Sometimes Often Very true

9. Sometimes I feel or believe that my success in my life or in my job has been the result of some kind of error.

   Not at all true Rarely Sometimes Often Very true

10. It's hard for me to accept compliments or praise about my intelligence or accomplishments.

    Not at all true Rarely Sometimes Often Very true

11. At times, I feel my success has been due to some kind of luck.

    Not at all true Rarely Sometimes Often Very true

12. I'm disappointed at times in my present accomplishments and think I should have accomplished much more.

    Not at all true Rarely Sometimes Often Very true

13. Sometimes I'm afraid others will discover how much knowledge or ability I really lack.

    Not at all true Rarely Sometimes Often Very true

14. I'm often afraid that I may fail at a new assignment or undertaking even though I generally do well at what I attempt.

    Not at all true Rarely Sometimes Often Very true

15. When I've succeeded at something and received recognition for my accomplishments, I have doubts that I can keep repeating that success.

    Not at all true Rarely Sometimes Often Very true

16. If I receive a great deal of praise and recognition for something I've accomplished, I tend to discount the importance of what I've done.

Not at all true Rarely Sometimes Often Very true

17. I often compare my ability to those around me and think they may be more intelligent than I am.

    Not at all true Rarely Sometimes Often Very true

18. I often worry about not succeeding with a project or examination, even though others around me have considerable confidence that I will do well.

    Not at all true Rarely Sometimes Often Very true

19. If I'm going to receive a promotion or gain recognition of some kind, I hesitate to tell others until it is an accomplished fact.

    Not at all true Rarely Sometimes Often Very true

20. I feel bad and discouraged if I'm not "the best" or at least "very special" in situations that involve achievement.

    Not at all true Rarely Sometimes Often Very true

Appendix D:

The General Self-Efficacy Scale (GSE)

For each question, please select the answer that best indicates how true the statement is of you. It's best to give the first response that enters your mind rather than dwelling on each statement and thinking about it over and over.

1. I can always manage to solve difficult problems if I try hard enough.

   Not at all true Hardly true Moderately true Exactly true

2. If someone opposes me, I can find the means and ways to get what I want.

   Not at all true Hardly true Moderately true Exactly true

3. It is easy for me to stick to my aims and accomplish my goals

   Not at all true Hardly true Moderately true Exactly true

4. I am confident that I could deal efficiently with unexpected events

   Not at all true Hardly true Moderately true Exactly true

5. Thanks to my resourcefulness, I know how to handle unforeseen situations.

   Not at all true Hardly true Moderately true Exactly true

6. I can solve most problems if I invest the necessary effort

   Not at all true Hardly true Moderately true Exactly true

7. I can remain calm when facing difficulties because I can rely on my coping abilities.

   Not at all true Hardly true Moderately true Exactly true

8. When I am confronted with a problem, I can usually find several solutions.

   Not at all true Hardly true Moderately true Exactly true

9. If I am in trouble, I can usually think of a solution.

   Not at all true Hardly true Moderately true Exactly true

10. I can usually handle whatever comes my way.

    Not at all true Hardly true Moderately true Exactly true

Appendix E:

State-Trait Anxiety Inventory (STAI)

A number of statements which people have used to describe themselves are given below. Read each statement and then choose according to HOW YOU GENERALLY FEEL. There are no right to wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel.

1. I feel that difficulties are piling up so that I cannot overcome them.
   Not at all Very much so
   1 2 3 4

2. I worry too much over something that really doesn't matter.
   Not at all Very much so
   1 2 3 4

3. Some unimportant thoughts run through my mind and bothers me.
   Not at all Very much so
   1 2 3 4

4. I take disappointments so keenly that I can't put them out of my mind.
   Not at all Very much so
   1 2 3 4

5. I get in a state of tension or turmoil as I think over my recent concerns and interests.
   Not at all Very much so
   1 2 3 4

Appendix F:

Ruminative Response Scale (RRS)

For each question, please select the answer that best indicates how true the statement is of you. It's best to give the first response that enters your mind rather than dwelling on each statement and thinking about it over and over

1. I think about how only I feel this way
   Almost never Almost always
   1 2 3 4 5

2. I wonder why I have these problems and others do not.
   Almost never Almost always
   1 2 3 4 5

3. I think about how sad I feel.
   Almost never Almost always
   1 2 3 4 5

4. I think about my failures.
   Almost never Almost always
   1 2 3 4 5

5. I try to understand my depressed feelings.
   Almost never Almost always
   1 2 3 4 5

6. I write down what I am thinking and analyze it.
   Almost never Almost always
   1 2 3 4 5

7. I go out alone and think about why I am feeling this way.
   Almost never Almost always
   1 2 3 4 5

8. I go somewhere on my own to think about my feelings.
   Almost never Almost always

1 2 3 4 5