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Effects of the Imposter Phenomenon, Stress, and Belonging on Perfectionism in Freshmen

Undergraduate Students

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Honours Psychology Thesis
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Abstract

This study investigated whether students who scored high in Perfectionistic Concerns (i.e., unhealthy perfectionists) would have higher Imposter Phenomenon and stress scores, as well as lower self-efficacy, belonging, and social acceptance scores. Additionally, the study sought to clarify how the two dimensions of perfectionism, Concerns and Strivings, are associated with the Imposter Phenomenon. The sample consisted of 48 female undergraduate students at a university in London, Ontario. A Pearson correlation analysis revealed a significant positive correlation between Perfectionistic Concerns and the Imposter Phenomenon. A significant positive correlation was also found between stress and the Imposter Phenomenon. Additionally, a significant negative correlation was found between university belonging and the Imposter Phenomenon. Furthermore, a significant positive correlation was found between Perfectionistic Concerns and Perfectionistic Strivings. Together, these findings suggest that stress, Perfectionistic Concerns, and a sense of university belonging may affect the extent to which students experience imposter-related characteristics.

Keywords: imposter tendencies, academic context, student population, undergraduate, healthy/adaptive perfectionism, unhealthy/maladaptive perfectionism

Effects of the Imposter Phenomenon, Stress, and Belonging on Perfectionism

Imposter Phenomenon refers to a pervasive psychological experience of self-perceived intellectual fraud in areas of success and achievement (Hoang, 2013; Sakulku & Alexander, 2011; Clance & Imes, 1978; Cromwell, Brown, Sanchez-Huceles, & Adair, 1990; Harvey & Katz, 1985). The theory of the Imposter Phenomenon was first conceptualized by Clance and Imes (1978) from their clinical observations of high-achieving female clients during therapy sessions (Cromwell et al., 1990; Sakulku & Alexander, 2011; Hoang, 2013). Clance and Imes (1978) noticed that despite the clients' professional status, advanced degrees, academic honours, and repeated successes, these women still perceived themselves as unintelligent. The women believed they had deceived others into concluding that they were brilliant, plus they feared and experienced guilt relative to success (Cromwell et al., 1990; Hoang, 2013). Furthermore, Clance and Imes noted that victims of the Imposter Phenomenon intensely felt that their achievements were not deserved, worried that they would be exposed as frauds, and were unable to internalize their success (Hoang, 2013; Sakulku & Alexander, 2011; Clance & Imes, 1978; Cromwell et al., 1990).

Since the development of the Imposter Phenomenon by Clance and Imes (1978), other researchers have attempted to characterize the concept. However, researchers have varied in their conceptualization of the phenomenon. For instance, Harvey and Katz (1985) employed a definition more specific than Clance and Imes' conceptualization. Specifically, Harvey and Katz (1985) proposed that to consider an individual as possessing imposter tendencies the following three factors must be met: (1) the belief that they have fooled others, (2) a fear of being exposed as a fraud, and (3) an inability to internalize their achievements (Sakulku & Alexander, 2011). Furthermore, to prevent confusion between clinical and subclinical distinctions of the Imposter

Phenomenon Kolligian and Sternberg (1991) proposed using the term *Perceived Fraudulence* to characterize imposter tendencies. Kolligian and Sternberg suggested that the term Imposter Phenomenon could be misinterpreted as a mental disorder, rather than a combination of cognitive and affective components of self-perceived fraudulence (Sakulku & Alexander, 2011).

Despite some distinctions in the theory's definition, scholars tend to agree that individuals who experience the Imposter Phenomenon have fixed beliefs that they are unqualified, incompetent and intellectually inadequate (Hoang, 2013; Sakulku & Alexander, 2011; Clance & Imes, 1978). Numerous empirical studies suggest that these subjective experiences provoke distress and maladaptive actions in Imposter Phenomenon victims, contributing to the maintenance of imposter-related tendencies and characteristics over time. Specifically, Imposter Phenomenon victims (a) work hard and diligently, (b) behave in an "intellectually inauthentic" manner, that is, choosing to conceal their real opinions, (c) accredit their advancements to external factors rather than their own ability, e.g., "charm," "luck," "perceptiveness," and (d) avoid taking risks (Clance & Imes, 1978; Cromwell et al., 1990; Hoang, 2013; Sakulku & Alexander, 2011).

The Imposter Phenomenon in the Classroom

As previously stated, the Imposter Phenomenon was initially thought to be the most prevalent amongst high-achieving professional females in clinical populations. However, subsequent research in non-clinical populations has demonstrated that the Imposter Phenomenon is not limited to highly successful individuals. Empirical research has shown that the Imposter Phenomenon is extensively experienced by a wide range of persons, with 70% of the population predicted to suffer from the Imposter Phenomenon at least once during their lives (Hoang, 2013; Sakulku & Alexander, 2011).

Most Imposter Phenomenon victims can fulfill their academic and work requirements, but not without considerable suffering. Graduate and doctoral students who suffer from the Imposter Phenomenon question their admission to academic programs, fear they cannot keep repeating their achievements, and feel academically unprepared. They often compare themselves to classmates and attribute high examination scores to luck, miss-grading, or educators' faulty judgment (Hoang, 2013; Clance & Imes, 1978; Cromwell et al., 1990). These internalized feelings can cause students to experience self-doubt, and therefore directly hurt their academic performance. When confronted with a demand to perform, students experiencing the Imposter Phenomenon are afflicted by worry and self-doubt, resulting in either procrastination or extreme over-preparation of the achievement-related task. Ultimately, success prevails and the individual experiences relief and accomplishment. However, over time the student develops a false belief that they must undergo torment to ensure success and any attempt to abolish the cycle will result in failure (Cromwell et al., 1990; Sakulku & Alexander, 2011; Clance, 1985).

Despite the imposter-related characteristics, research indicates that students with Imposter Phenomenon tendencies are often the most intelligent and hardworking amongst their peers, having been top of the class throughout their education (Hoang, 2013; Sakulku & Alexander, 2011; Clance, 1985). However, dismissal of their abilities can occur in a large university setting when they realize their abilities are not atypical (Sakulku & Alexander, 2011). In fact, Hoang (2013) suggests that imposter-related feelings "occur when students are exposed to new environments or stressful and unfamiliar situations in which they feel less secure about their ability to succeed" (p. 46).

The transition to university, a new learning environment that brings challenges and unexplored experiences, can be a change that can either benefit or harm the well-being of the student (Newcomb-Anjo, Barker, & Howard, 2017). Researchers suggest that the age group in which mental health issues are the most prevalent is that of the typical undergraduate student: between 18 and 24 years of age. Youth in this age group tend to be at a higher risk for compromised mental health due to the often-difficult transition into adulthood (Brescia, 2014; Goodman, 2017; McBeath, Drysdale, & Bohn, 2017).

Although research indicates that a vast majority of individuals can experience the Imposter Phenomenon, most research has focused on high-achieving professionals such as mature graduate and doctoral students, university personnel, and senior-level administrators (Hoang, 2013; Sakulku & Alexander, 2011; Clance & Imes, 1978). Little is known about the imposter tendencies of a broader range of individuals in professional and academic contexts. All things considered, it is surprising that Imposter Phenomenon researchers have not extensively studied a first-year undergraduate student population, whose mental health problems peak during their transition to adulthood. As such, further research is needed to determine the extent to which undergraduate students demonstrate imposter-related tendencies and characteristics.

Potential Factors Contributing to the Imposter Phenomenon

Scholars have identified several factors contributing to the development, emergence, and maintenance of the Imposter Phenomenon, including belonging, self-efficacy, distress, and perfectionism (Cromwell et al., 1990; Sakulku & Alexander, 2011; Chapman, 2017; Roskowski & Gerstein, 2010; Parkman, 2016; Thompson, Davis, & Davidson, 1998; Thompson, Foreman, & Martin, 2000; Leary, Patton, Orlando, & Funk, 2000; Ferrari & Thompson, 2006; Cromwell et al., 1990). Specifically, these factors can affect a person's ability to view their successes and

achievements accurately, which in turn can influence imposter-related tendencies and characteristics.

Chapman (2017) asserts that an individual's sense of belonging may contribute to the development, emergence, and maintenance of the Imposter Phenomenon. Specifically, Chapman (2017) suggests that a sense of belonging and acceptance from others can minimize Imposter Phenomenon feelings that mature post-undergraduate students may experience.

Self-efficacy refers to an individual's belief in their capacity to perform a behaviour successfully or to achieve a goal; that is, an individual's belief in their own competence (Bandura, 1977). According to the literature, individuals who suffer from the Imposter Phenomenon do not accurately view their performance, such that they deny the idea that success is related to their own abilities. Sakulku and Alexander (2011) suggest that severe levels of imposter-related tendencies limit the acceptance of success as an outcome of one's own ability.

Additionally, research suggests that self-efficacy plays a vital role in stress management (Roskowski & Gerstein, 2010), and stress has been found to influence imposter-related tendencies. Specifically, research has shown that persistent self-doubt, a characteristic of the Imposter Phenomenon, can cause heightened levels of stress (Roskowski & Gerstein, 2010; Parkman, 2016). Furthermore, individuals who suffer from the Imposter Phenomenon attempt to diminish stress by working longer, working harder and seeking perfection (Sakulku & Alexander, 2011; Parkman, 2016).

An individual's Imposter Phenomenon tendencies to discount positive feedback, set impossible self-standards, outperform their peers, maintain flawless performances, and conceal mistakes to appear perfect are consistent with perfectionism (Sakulku & Alexander, 2011; Cromwell et al., 1990). Perfectionism is often understood as striving towards flawlessness

accompanied by excessively ambitious standards for performance and critical self-evaluation (Hewitt & Flett, 1991; Stoeber & Otto, 2006; Gaudreau & Thompson, 2010). The personality trait of perfectionism has been an essential theme in the Imposter Phenomenon clinical literature (Sakulku & Alexander, 2011). Several subclinical empirical studies have examined the relationship between imposter-related tendencies and perfectionism, finding a moderate positive association between the two factors. Studying the affective and cognitive reactions of participants, Thompson et al. (1998), as well as Thompson et al. (2000), found moderately high perfectionistic cognitions and feelings in participants reporting high levels of imposter-related characteristics.

On the other hand, researchers have reported mixed results of the relationship between perfectionistic self-presentation and imposter-related characteristics. Leary et al. (2000) found that imposters' performance expectations were lower solely in circumstances in which their actions were visible to others. However, Ferrari and Thompson (2006) found the Imposter Phenomenon was positively correlated with favourable impression management. Furthermore, Cromwell et al. (1990) found that Imposter Phenomenon victims feel obligated to reach the highest possible level of success in order to be accepted and praised by those around them. Also, Thompson et al. (2000) found that Imposter Phenomenon victims desire to reach goals and achieve perfection as a means of meeting what they perceive as others' standards. They also tend to fear criticism and negative feedback more than their non-Imposter peers.

Sakulku and Alexander (2011) asserts that the empirical findings showing a positive association between perfectionistic self-presentation and imposter-related characteristics may "suggest that there [are] social components contributing to perfectionism in the Imposter Phenomenon" (p. 89). Specifically, the relationship between the Imposter Phenomenon and

perfectionism may be mediated by perfectionistic standards derived from the social environment. This form of perfectionism is known in the empirical literature as *Unhealthy Evaluative Concerns Perfectionism*.

An extensive body of empirical evidence suggests there are two independent dimensions of perfectionism – namely *Perfectionistic Strivings* and *Perfectionistic Concerns*. The former is associated with high personal standards derived from the self, while the latter is related to concerns regarding mistakes and doubts about actions derived from the external environment (Stoeber & Otto, 2006; Gaudreau & Thompson, 2010). These two independent dimensions of perfectionism have been used in the empirical literature to differentiate groups of perfectionists. Although researchers have used different combinations of the two dimensions to conceptualize groups of perfectionists, there is considerable agreement that Perfectionistic Strivings and Perfectionistic Concerns are the core facets of perfectionism.

The most recent conceptualization of perfectionism groups is a *2 x 2 model of perfectionism* proposed by Gaudreau and Thompson (2010). The *2 x 2 model* suggests that Perfectionistic Strivings and Perfectionistic Concerns differentiate four subtypes of perfectionism such that, (1) *Healthy Perfectionists* are circumscribed to “individuals with coexisting high levels of Strivings and low levels of Concerns,” (2) *Unhealthy Perfectionists* to individuals with coexisting low levels of Strivings and high levels of Concerns, (3) *Non-Perfectionists* to individuals with coexisting low levels of both Strivings and Concerns, and (4) *Mixed Perfectionists* to individuals with coexisting high levels of both Strivings and Concerns. Stated in another way, Healthy Perfectionism is internally regulated, in that, individuals’ perfectionistic standards are derived uniquely from themselves. On the other hand, Unhealthy Perfectionism is externally regulated, in that, individuals’ perfectionistic standards are exerted by

perceived social pressure.

The most frequently reported symptom of the Imposter Phenomenon is an inability to reach the high levels of achievement set out by the individual (Clance & Imes, 1978; Cromwell et al., 1990). As such, perfectionism has been considered an essential characteristic of the Imposter Phenomenon. However, the relationship between the Imposter Phenomenon and the specific form of perfectionism is unclear. To clarify the association, Sakulku and Alexander (2011) suggest that future research distinguishes the role of Perfectionistic Strivings and Perfectionistic Concerns in individuals experiencing the Imposter Phenomenon.

The Present Study

In the current study, students' standards, and self-motivation for perfection (i.e., adaptive/healthy perfectionism) was measured using the Perfectionistic Strivings subscale. Furthermore, students' doubt regarding the quality of their work, state of uncertainty about making mistakes, and thoughts about being negatively judged (i.e., maladaptive/unhealthy perfectionism) was measured using the Perfectionistic Concerns subscale. These two perfectionism subscales are composed of items from the Frost Multidimensional Perfectionism Scale (FMPS; Frost, Marten, Lahart, & Rosenblate, 1990) and the Hewitt-Flett Multidimensional Perfectionism Scale (HF-MPS; Hewitt & Flett, 1991). Additionally, nonspecific stress was measured using the Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983). The PSS is a widely used psychological instrument for measuring the extent to which circumstances in one's life are recognized as stressful by assessing the presence of stress-related thoughts and behaviours. Academic self-efficacy was examined using the Self-Efficacy for Learning and Performance subscale from the Motivated Strategies for Learning Questionnaire (MSLQ;

Pintrich, Garcia, McKeachie, & Smith, 1991). The MSLQ assesses the learning strategies and academic motivation of post-secondary students.

Furthermore, students' sense of social acceptance and belonging to their university was evaluated using a modified version of the Psychological Sense of School Membership Scale (PSSM; Goodenow, 1993; Pittman & Richmond, 2008; Freeman, Anderman, & Jensen, 2007). The PSSM has been used to demonstrate middle school students' subjective sense of school membership, and therefore, the scale was adapted for use by students in a post-secondary setting. The PSSM assesses the extent to which students feel accepted, respected, and valued within their academic context. Lastly, Imposter Phenomenon characteristics were measured using the Clance Imposter Phenomenon Scale (CIP; Clance, 1985). Specifically, the CIP Scale measured a subclinical population of undergraduate students' fears of evaluation, inability to repeat success, and perceived capability compared to others (Hoang, 2013). Per the three conceptualizations of the theory, a total of three scales are available to measure Imposter Phenomenon characteristics. However, the CIP Scale was used in the current study because empirical research has indicated that the CIP Scale has a higher validity and reliability than the other two scales.

The current study adds to the existing literature in two ways, (1) by investigating the imposter-related tendencies in an undergraduate population, and (2) by clarifying how the two forms of perfectionism are associated with the Imposter Phenomenon. As such, the present study sought to examine whether individual differences in perfectionism affected Imposter Phenomenon characteristics, perceived stress, belonging, social acceptance, and academic self-efficacy in an undergraduate student population. The intention was to assign participants to four groups based on Perfectionistic Strivings and Perfectionistic Concerns scores, to allow for group comparisons between healthy perfectionists, unhealthy perfectionists, mixed-perfectionists, and

non-perfectionists. It was predicted that students classified as mixed or unhealthy perfectionists would have higher CIP and stress scores, as well as lower academic self-efficacy, belonging, and social acceptance scores than students classified as healthy and non-perfectionists.

Methods

Participants

The sample for the current study consisted of 48 female undergraduate students (M age = 18.5, age range: 18-22 years), recruited from two Introduction to Psychology courses during the 2019/2020 academic term at a university in London, Ontario. Prior to the participants' current undergraduate studies, six students indicated enrollment in previous post-secondary education, such as preliminary year programs ($n = 3$), certificate programs ($n = 2$), and undergraduate degree programs ($n = 1$). All participants (regardless of whether their data was sequestered) received one participation credit toward a course requirement. An online system, SONA, was used to manage the subject pool.

Materials

Demographics questionnaire. A seven-item demographic questionnaire gathered information on participants' age, gender, previous hometowns, current living arrangements, and status of enrollment in the Introduction to Psychology courses (see Appendix A).

Measures of perfection. Perfectionism was assessed using the Perfectionistic Strivings and Perfectionistic Concerns subscales from the Dispositional Perfectionism Questionnaire (DPQ; Gaudreau & Thompson, 2010). The DPQ is composed of items from the FMPS (Frost et al., 1990) and the HF-MPS (Hewitt & Flett, 1991).

Perfectionistic strivings. Healthy perfection was assessed using the Perfectionistic Strivings subscale, consisting of 22-items designed to determine an individual's standards, self-

motivation, and the internal desire for perfection. The Perfectionistic Strivings subscale was constructed by combining the Personal Standards subscale (7 items) from the FMPS and the Self-Oriented subscale (15 items) from the HF-MPS. All items were scored on a seven-point Likert scale ranging from one (*strongly disagree*) to seven (*strongly agree*). Negatively worded items were reverse-scored during the analysis.

Perfectionistic concerns. Unhealthy perfection was assessed using the Perfectionistic Concerns subscale. The scale consists of 28-items designed to measure an individual's state of uncertainty about making mistakes, doubt regarding the quality of their work, and concerns about being judged negatively. The Perfectionistic Concerns subscale was constructed by combining the Concern over Mistakes subscale (9 items) and the Doubts about Actions subscale (4 items) from the FMPS, and the Socially Prescribed subscale (15 items) from the HF-MPS. As stated above, all items were scored on a seven-point Likert scale ranging from one (*strongly disagree*) to seven (*strongly agree*). Negatively worded items were reverse-scored during the analysis.

Clance imposter phenomenon scale. Imposter tendencies were assessed using the CIP developed by Clance (1985). The CIP is a self-report assessment consisting of 20-items designed to determine whether individuals possess *Impostor Phenomenon* characteristics and, if so, to what extent they are suffering. The 20-items in the CIP were rated on a five-point Likert scale ranging from 1 (*not at all true*) to 5 (*very true*). The higher the score, the more frequently and severely the *Impostor Phenomenon* interferes with the individual's life. The respondent has intense *Impostor Phenomenon* characteristics if the score is higher than 80, frequent if the score is between 61 and 80, moderate if the score is between 41 and 60 and few *Impostor Phenomenon* characteristics if the total score is 40 or less.

Perceived stress scale. Students' nonspecific stress was assessed using the PSS, a widely used psychological instrument developed by Cohen et al. (1983). The PSS is a self-report assessment consisting of 14-items designed to measure the extent to which circumstances in one's life are recognized as stressful by assessing individuals' feelings and thoughts during the past month. The items are rated on a five-point Likert scale, ranging from one (*never*) to five (*always*). The higher the score, the higher the level of perceived stress. The PSS includes negatively worded items that were reverse-scored during the analysis.

Measures of belonging. To assess belonging, the researcher designed an original survey based on the PSSM Scale developed by Goodenow (1993). The PSSM is a self-report assessment intended to measure the extent to which middle school students feel accepted, respected, and valued within their academic context. The PSSM has been used to evaluate students' sense of belonging at both the classroom level and whole school level.

For the current study, the PSSM was adapted to measure university students' sense of social acceptance and belonging at the university level and in a specific class. The adapted versions were conceived by referring to the original PSSM measure (Goodenow, 1993), as well as the modified versions by the University of North Carolina Greensboro (Pittman & Richmond, 2008), and by Freeman et al. (2007). Based on those studies, the three following scales were used for the current research:

The class belonging scale. University students' subjective sense of belonging in a specific class was assessed using nine modified PSSM items. For the current study, the scale was adapted from the original three-point Likert scale to a five-point Likert scale, ranging from one (*never*) to five (*almost always*). The change in response options was made to increase sensitivity

and to make the measure consistent with other scales. Negatively worded items were reverse-scored during the analysis.

University belonging scale. Students' global sense of belonging to the institution was assessed using 13 modified PSSM items. As stated above, the scale was adapted to a five-point Likert scale to increase sensitivity and measure consistency. Negatively worded items were reverse-scored during the analysis.

Social acceptance scale. Social acceptance was assessed using six modified PSSM items. The scale was constructed to assess students' perceptions that peers and other university personnel accept them as they are. As stated above, the scale was adapted to a five-point Likert scale to increase sensitivity and measure consistency. Negatively worded items were reverse-scored during the analysis.

Motivated Strategies for Learning Questionnaire. Students' academic self-efficacy was assessed using the Self-Efficacy for Learning and Performance subscale from the MSLQ (Pintrich et al., 1991), which measures the learning strategies and academic motivation of post-secondary students. The subscale contains eight items rated on a seven-point Likert scale, ranging from one (*not at all true of me*) to seven (*very true of me*).

Procedure

Students enrolled in an Introduction to Psychology course at Brescia University College were invited to access the Brescia SONA research recruitment website. The SONA system allowed students to gain more information, read the Call for Participants, and sign up to participate in the posted studies. Students interested in taking part accessed the online Qualtrics survey through the link provided in SONA. Once the students had gained access to the study, they were presented with the Letter of Information, which included the consent to participate.

Participants had an ample amount of time to complete the questionnaire, having the ability to save their answers and return to the survey later. Participants were presented with nine questionnaires, in the following order: the demographic questionnaire, CIP Scale, the FMPS Scale, the HF-MPS Scale, the PSS, the Class Belonging subscale, the University Belonging subscale, the Social Acceptance subscale, and the Self-Efficacy for Learning and Performance subscale from the MSLQ. Upon completion, participants were presented with a debriefing form, explaining the purpose and hypothesis of the study. Contact information of the primary researcher and thesis advisor was given in the case participants had additional questions. Students were then thanked for participating and given one participation credit through SONA.

Results

Three participants were omitted from the analyses because of too many blank answers ($n = 2$) and participant sex ($n = 1$; the study intended to have an all-female sample). In those cases where participants did not answer one or two questions, the mean response score for that scale was used to compensate for the missing value. The expectation was to compare groups based on participants' perfectionism scores defined by a median split on the Perfectionistic Strivings (*high, low*) and Perfectionistic Concerns (*high, low*) subscales, using a 2 x 2 Analysis of Variance (ANOVA). However, this analysis was not possible because of significant heterogeneity of variance and large differences in cell sizes, with some cells having two and a half as many participants as other cells. Therefore, the data were analyzed using a Pearson product-moment correlation coefficient to assess the relationship between Perfectionistic Concerns, Perfectionistic Strivings, Imposter Phenomenon tendencies, stress, academic self-efficacy, belonging, and social acceptance (see Table 1).

Table 1

Summary of Correlations for scores on the CIP, PSS, MSLQ, CBS, UBS, SAS, Perfectionistic Concerns and Perfectionistic Strivings Scales

Measure	1	2	3	4	5	6	7	8
1. CIP	--							
2. Perfectionistic Concerns	.532**	--						
3. Perfectionistic Strivings	.180	.596**	--					
4. PSS	.274*	.156	.159	--				
5. MSLQ	-.179	-.046	.068	.213	--			
6. CBS	-.014	-.064	.216	.014	.205	--		
7. UBS	-.246*	-.202	.119	-.110	.308*	.711**	--	
8. SAS	-.142	-.205	.102	-.063	.015	.663**	.695**	--

Note. $N = 48$. CIP = Clance Imposter Phenomenon Scale; PSS = the Perceived Stress Scale; MSLQ = the Motivated Strategies for Learning Questionnaire: Self-Efficacy for Learning and Performance subscale; CBS = class belonging subscale; UBS = university belonging subscale; SAS = social acceptance subscale.

* $p < .05$, one-tailed. ** $p < .01$, one-tailed.

A total of three variables showed a statistically significant correlation with CIP scores; they were Perfectionistic Concerns, PSS, and UBS. A moderate, positive, significant correlation was found between Perfectionistic Concerns and CIP scores, $r(48) = .53, p < .001, r^2 = 0.3$, indicating that as unhealthy perfectionism increased, imposter tendencies also increased. A scatterplot summarizes the results (see Figure 1). Additionally, a weak, positive, significant correlation was found between PSS and CIP scores, $r(46) = .27, p = .030, r^2 = 0.07$, indicating that as students' perceived stress levels increased, imposter tendencies also increased. Furthermore, a weak, negative, significant correlation was found between UBS and CIP scores, $r(46) = -.25, p = .046, r^2 = 0.06$, indicating that as students' global sense of belonging to their university increased, imposter tendencies decreased.

Interestingly, the two measures of perfectionism also significantly correlated with one another. Specifically, a moderate, positive, significant correlation was found between Perfectionistic Concerns and Perfectionistic Strivings, $r(48) = .60, p < .001, r^2 = 0.4$, indicating that as unhealthy perfection increased, healthy perfection also increased. A scatterplot summarizes the finding (see Figure 2).

To address the other statistically significant findings found in Table 1: a weak, positive, significant correlation was found between scores on the UBS and the MSLQ subscale, $r(48) = .31, p = .017, r^2 = .09$, indicating that as students' global sense of belonging to their university increased, academic self-efficacy also increased. As expected, the three subscales of the PSSM Scale significantly correlated with one another. None of the other correlations were significant.

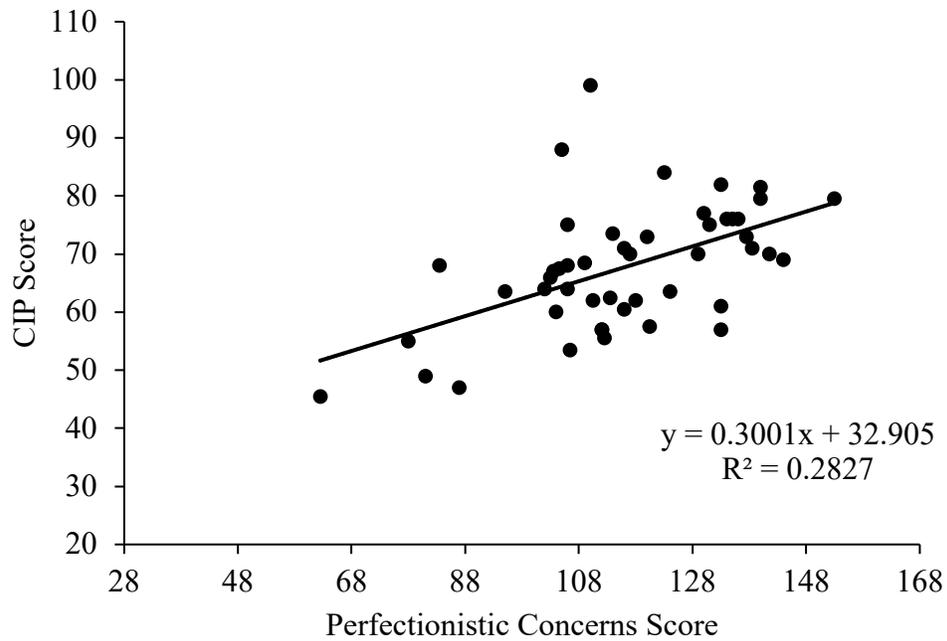


Figure 1. Scatterplot and line of best fit for the relationship between scores on the CIP Scale (y-axis) and Perfectionistic Concerns subscale (x-axis), $r(48) = .53$, $p < .001$, $r^2 = 0.3$.

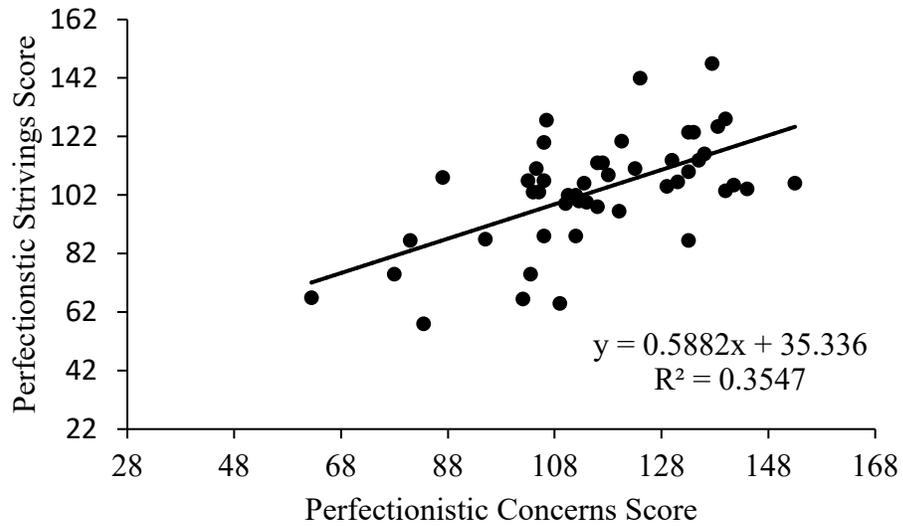


Figure 2. Scatterplot and line of best fit for the relationship between scores on the Perfectionistic Strivings subscale (y-axis) and Perfectionistic Concerns subscale (x-axis), $r(48) = .60$, $p < .001$, $r^2 = 0.4$.

Discussion

The study supported and extended the empirical literature of the relationship between the Imposter Phenomenon and potentially contributing variables in several ways. First, the study aimed to determine whether individual differences in perfectionism affected Imposter Phenomenon characteristics, perceived stress, belonging, social acceptance, and academic self-efficacy. Second, the study identified Imposter Phenomenon characteristics in an undergraduate student population. Finally, the study aimed to distinguish the relationship between the Imposter Phenomenon and the two forms of perfectionism.

It is important to note that the intended analysis could not be performed on the data. Therefore, participants were not divided into groups based on their perfectionism scores for a comparison between healthy, unhealthy, mixed, and non-perfectionists. As such, the findings will not be discussed using a 2 x 2 model of perfectionism outlined in the original hypothesis.

It was predicted that students who scored high in Perfectionistic Concerns (i.e., unhealthy perfectionists) would have higher Imposter Phenomenon and stress scores, as well as lower self-efficacy, belonging, and social acceptance scores. As hypothesized, the study found that students who scored high in Perfectionistic Concerns had high CIP scores. However, the study found no support for the prediction that students who scored high in Perfectionistic Concerns would have higher stress scores, as well as lower self-efficacy, belonging, and social acceptance scores. As such, the results of the study support the most important aspect of the original hypothesis, but do not support the association with stress, self-efficacy and belonging.

Additionally, the results of the present study also support the research aim in identifying Imposter Phenomenon characteristics in an undergraduate student population. Several variables were found to be related to the Imposter Phenomenon in this undergraduate student population.

The study found that students who had high Imposter Phenomenon scores had a higher level of perceived stress and a lower sense of belonging to their university. Notably, the Impostor Phenomenon was present to some extent in all students, as not a single participant reported few or absent levels of the phenomenon. Specifically, students reported experiencing intense (10.4%), frequent (64.6%), and moderate (25%) Impostor Phenomenon characteristics.

In addition, an unanticipated key finding appeared when looking at the bivariate correlations between Perfectionistic Concerns and Perfectionistic Strivings. Interestingly, the two independent dimensions of perfectionism significantly correlated with one another. In that, as the students' unhealthy form of perfection increased, the healthy form of perfection also increased. The model of perfectionism used in this study argues that the two forms of perfectionism, that is, Strivings and Concerns, are separate dimensions. Specifically, the two forms vary independently, in that, an individual can show high concerns and not necessarily high strivings and vice versa (Stoeber & Otto, 2006). Given that the squared correlation coefficient shows that 40% of the variation in unhealthy perfectionism is accounted for by the variation in healthy perfectionism, this finding goes beyond previous reports, which indicate Strivings and Concerns are independent dimensions of perfectionism. As such, this finding raises questions about the conceptual definition of perfectionism.

Previous empirical studies have shown that perfectionism and the Imposter Phenomenon have a moderate positive association (Thompson et al., 1998; Thompson et al., 2000; Sakulku & Alexander, 2011). However, few studies have examined the relationship between the Imposter Phenomenon and the specific forms of perfectionism. As such, the current study was able to further contribute to research on perfectionism and the Imposter Phenomenon by observing the relationship between the two perfectionism dimensions and the Imposter Phenomenon.

With limited research in this area, it is difficult to compare the present findings to prior research directly. As such, the present study will be discussed by comparing the results of research that has investigated perfectionistic self-presentation. Researchers in the field have reported mixed results of the relationship between perfectionistic self-presentation and imposter-related characteristics. Some researchers have found negative associations between the two variables (Leary et al., 2000) and other researchers have found positive associations.

Ferrari and Thompson (2006) found that the Imposter Phenomenon was positively correlated with favourable impression management. Cromwell et al. (1990) found that Imposter Phenomenon victims feel that, in order to gain the approval of others, they must achieve perfection. Additionally, Thompson et al. (2000) found that those with the Imposter Phenomenon tend to fear negative evaluation more than those who do not suffer from the phenomenon. It was also found that victims are highly influenced and motivated to achieve based on their perceived idea of the standards set out for them by others. These moderate positive associations between perfectionistic self-presentation and imposter-related characteristics suggests that “social components [could be] contributing to perfectionism in the Imposter Phenomenon” (p. 89). The results in the present study are consistent with research showing a positive association between perfectionistic self-presentation and imposter-related characteristics. The present study found that Perfectionistic Concerns and the Imposter Phenomenon have a moderate positive association. The justification for the consistency between previous research on perfectionistic self-presentation and the current research on Perfectionistic Concerns is that the Concerns dimension of perfectionism is derived from the external environment, in that individuals high in this dimension believe that others expect perfection from them.

Additionally, a relationship between the Imposter Phenomenon and stress was detected in

the present study. Past research suggests that stress influences imposter-related tendencies. Specifically, research has shown that certain Imposter Phenomenon characteristics can cause heightened levels of stress (Roskowski & Gerstein, 2010; Parkman, 2016). Likewise, the present study found that individuals with high imposter characteristics had higher levels of perceived stress.

Furthermore, a relationship between the Imposter Phenomenon and belonging was also detected in the present study. Chapman (2017) proposed that a sense of belonging and acceptance from others can minimize Imposter Phenomenon feelings that mature post-undergraduate students may experience. Thus, this study suggests a negative relationship between belonging and the Imposter Phenomenon in graduate university students. Similarly, the current research found a negative association between belonging and the Imposter Phenomenon in undergraduate students. Specifically, the present study found that students with high Imposter Phenomenon scores had a low sense of belonging to their university. However, the current research did not find a significant relationship between the Imposter Phenomenon and class belonging or social acceptance. As such, these results are only partially consistent with this previous finding.

The empirical findings reported herein should be considered in light of some methodological limitations. First, the findings in the present study are limited because they were collected across a limited timeframe. Participants were given about three months to complete the questionnaire (the exact timeframe depended on when the participant signed up and began the study), having the ability to save their answers and return to the survey at a later time. With this form of data collection, participants could have been tested at contrasting times during a day or over multiple days. Furthermore, participants could have answered the questionnaire in a socially

desirable way. However, the possibility of some response bias on the part of all participants is questionable, as some participants left questions blank or selected more than one answer per question. Moreover, participants could have been apprehensive in their responding out of fear of judgement if they reported substandard social acceptance, belonging, and self-efficacy. Participants also could have chosen to keep their actual propensity towards perfectionism, imposter-related tendencies, and feelings of stress to themselves.

Future research should explore the precise role of belonging in relation to the Imposter Phenomenon, as the results from the current research are inconsistent with previous findings. Specifically, the role of class belonging, and social acceptance may need further investigation. Future research is also needed to distinguish the role of Perfectionistic Strivings and Perfectionistic Concerns in individuals experiencing the *Imposter Phenomenon*. The current study contributed to the extension of research in this area, however, there seems to be a limited amount of exploration on the topic. It may also be worthwhile to further study the Imposter Phenomenon in an undergraduate student population, as the majority of research has focused on high-achieving professionals such as mature graduate and doctoral students, university personnel, and senior-level administrators (Hoang, 2013; Sakulku & Alexander, 2011; Clance & Imes, 1978). Lastly, future studies should be conducted to develop a more robust understanding of the relationship between Perfectionistic Strivings and Perfectionistic Concerns. It is striking that the two independent dimensions of perfectionism seem to depend on each other when previous reports argue they are separate dimensions of perfectionism. Therefore, it is suggested that future studies be conducted to understand these relationships.

Despite the study's limitations, the current findings exemplify the value of further investigation into the relationship between the Imposter Phenomenon and the two forms of

perfectionism in an undergraduate student population. The results of this research have identified that all students in the study are currently experiencing the Imposter Phenomenon to some degree, and that as students' Imposter Phenomenon levels increase levels of unhealthy perfectionism follow suit. The emotions, cognitions, and behaviours of the Imposter Phenomenon can severely impact students' academic work, leadership roles, and personal lives (Hoang, 2013). Thus, empirically understanding the Imposter Phenomenon and its associated factors, in an undergraduate student population, has the potential to address the likely widespread impact of the Imposter Phenomenon.

In summary, the results of the current study suggest that the extent to which the Impostor Phenomenon interferes with an individual's life is significantly related to a students' level of unhealthy perfectionism, stress, and sense of belonging to their university. Three quarters of the students in the present study reported frequent or intense Imposter Phenom characteristics. In addition, the study also identified that the two independent forms of perfectionism may significantly depend on each other, and therefore may not be separate dimensions. Altogether, the findings in the present study suggest that stress, unhealthy perfectionism, and a sense of university belonging in undergraduate students may affect the extent to which students experience imposter-related characteristics.

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Appendix A

Demographic Questionnaire

Please answer the following questions, leaving blank any which you would prefer not to answer.

1. Age: _____
2. Gender:
 - (a) Male
 - (b) Female
 - (c) Prefer not to say
 - (d) Other
3. Please indicate the class in which you are enrolled while participating in this study.
 - (a) Psychology 1010A
 - (b) Psychology 1015A
 - (c) Psychology 1010B
 - (d) Psychology 1015B
4. Before studying at Brescia where was your place of residence?
 - (a) In London
 - (b) In Ontario (excluding London)
 - (c) Out of Province
 - (d) Out of Country
5. What are your current living arrangements while studying at Western?
 - (a) Living on campus in residence
 - (b) Living off campus in a student building
 - (c) Living off campus in your family home
 - (d) Other (please state) _____
6. Before your current undergraduate studies at Western, were you enrolled in any previous post-secondary education?
 - (a) Yes
 - (b) No
7. If you answered 'Yes' to the previous question, what kind of post-secondary education where you enrolled in?
 - (a) Preliminary education program at Western
 - (b) Preliminary education program at another College/University
 - (c) Undergraduate degree program at another College/University
 - (d) Certificate program at another College/University
 - (e) Other (please specify) _____